200 Years of Syntax
A critical survey

Giorgio Graffi
200 YEARS OF SYNTAX
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Volume 98

Giorgio Graffi

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PREFACE

Among the different branches of linguistics, syntax has possibly been the one that experienced the strangest fate. Its study and its name date back to Classical Antiquity: think of Apollonius Dyscolus’ treatise entitled simply Peri syntáxeos. Nevertheless, when “scientific” (or, it might be better to say, “professional”) linguistics had its start, at the beginning of the 19th century, and for about 150 years afterwards, it was relegated to a rather marginal position in comparison to the mainstream of research. The monumental building of historical-comparative linguistics elaborated during the 19th century was mainly based on the phonological and morphological comparison of Indo-European languages; and the major issues of structural linguistics, in the first half of the 20th century, concerned phonological and morphological matters. Things changed radically in the second half of this same century, when syntax, in whatever theoretical framework, became the really “fashionable” field. My personal feeling is that most of today linguistic research deals (or attempts to deal) with syntactic topics. Such a feeling is not supported by any indisputable statistical data; however, a glance at the programs of the GLOW (‘Generative Linguistics in the Old World’) colloquia may show that it is not entirely unjustified. GLOW is surely not representative of many theoretical frameworks, since almost all of its members profess a “Chomskian orthodoxy”; but one has to keep in mind that research in generative grammar, and by Chomsky himself, was not limited to syntax: generative phonology and generative morphology have been thoroughly developed from the sixties until the present day. Nevertheless, the program of the last GLOW colloquium (Vitoria & Bilbao, April 2000) lists twenty talks, only three of which deal with phonological and one with morphological matters. The proportion has been more or less the same in all other GLOW colloquia held annually since 1977.

It would be interesting to ask for the reasons for this current predominance of syntax over other branches of linguistics; this is not, however, the goal of the present volume. It aims rather to correct a false image of the history of syntactic studies which derives from the situation outlined above: namely, that very few or no syntactic studies were elaborated before the 1950s. Actually, as will be seen throughout the entire book, syntactic matters were carefully investigated both during the 19th century and in the first half of the 20th
century. Moreover, the enormous development of syntactic research in the last fifty years or so has led to an analogous effect: even several ideas and analyses of the most recent decades have already been condemned to oblivion. I thought, therefore, that it was useful to present this considerable amount of research over the last two centuries in a systematic way and to put it at the disposal of the interested reader, whether her/his interest lies in the history of linguistics or in theoretical and descriptive syntax. As a guideline of this whole survey, I have chosen that of the relationship of syntax with psychology and of the vicissitudes of such a relation: while 19th century syntax was mainly psychology-based (or ‘psychologistic’, which is the term I shall use throughout the book), the syntax of the structuralist epoch essentially rejected a connection between syntax and psychology, although this has once again been assumed (although in very different forms) by the majority of the syntactic theories of the second half of the 20th century. In general, I have preferred to give more space to the presentation of the different syntactic approaches and analyses than to the polemics between the different schools. Similarly, I have also avoided almost any criticism of the ideas and the works presented: first, since I think that it is not always justified to criticize ideas from the past on the basis of today’s knowledge; secondly, since I think that for the time being the most important task for the historiography of linguistics is to present ideas and materials of the (more or less recent) past, rather than to attempt to sketch great syntheses of the assumed development of the discipline. Here and throughout the book, I will avoid any discussion of the significance and the usefulness, not to say the necessity, of the historiography of linguistics for the theoretical and/or descriptive linguist. All I can say is that I do not assume that it is necessary for a linguist (or for any other scholar) to know the history of his research field, but I am also certain that to do so is by no means useless.

It is almost mandatory, among linguists, to close any preface such as the present one with a list of names of “teachers, friends and colleagues” to whom “thanks are due for helpful advice”, with the added statement that “errors are my own”. My list would be very long, since the research presented here is the result of a lengthy period of work, which in some cases dates back to my college years. I will therefore limit myself to list two kinds of people: my teachers and my friends and colleagues who read parts of the manuscript. Among the former, I would like to mention Aldo Giorgio Gargani, my teacher at the University of Pisa, in the Department of Philosophy, who initiated me to the study of the history of scientific ideas; Tullio De Mauro, whose acquaintance transformed me from a philosopher into a linguist; Alfredo Stussi, who generously followed my works in my early years as a graduate student; Giulio Lepschy, whose work in the history of linguistics has always
been a constant reference for me and who also read several chapters of the present volume, offering me a lot of insightful comments, as is customary for him; and, last but not least, the precious memory of Luigi Rosiello, another master of the historiography of linguistics, whose advice always was and still remains invaluable. The friends who took pains to read parts of this work were Paolo Casalegno, Annibale Elia, Nunzio La Fauci, Lunella Mereu, Andrea Moro, and Alessandra Tomaselli; Konrad Koerner was in continuous contact with me during the long gestation of the present work, giving me important editorial suggestions: thanks to all of them, as well as to the anonymous referee of the book. Thanks are also due to the University of Verona for having financially supported the English version of the text.

Now, some words on the editorial criteria I have followed.
1. All quotations are taken from the last edition of the work cited; the year of the first edition is added within square brackets. If a given paper has been reprinted in a collective volume or in a volume of collected essays by the same author, the original source is entered as an independent item in the reference list, but page references are made to the volume edition.
2. All quotations from texts originally written in other languages have been translated into English. When a published English translation was available to me, I resorted to it; in the remaining cases, translations are mine.
3. English examples are given within single quotation marks. Examples from other languages are in italics: in such cases, I provided a translation of them within single quotation marks. Where necessary, the translation has been preceded by a literal gloss, introduced by the abbreviation ‘lit.’. Sometimes, only the gloss is given.
4. The same syntactic phenomena often receive different labels in different syntactic approaches. For a standard terminology for referring to such facts in a ‘neutral’ way, I have chosen (whenever possible) that of Quirk, Greenbaum, Leech and Svartvik (1972; 1985).
5. All emphasized passages within quotations are original except where indicated. I have reproduced emphasis in italics, regardless of its original form.
6. The dates for the birth and death of the various scholars quoted throughout this volume can be found in the index of names, whenever I have been able to find them. However I did not always succeed in doing so: Desint vires, tamen est laudanda voluntas, as the Latin poet Ovid said. Such a quotation might stand as the epigraph of my whole book.
CHAPTER 1

INTRODUCTION

1. 'History of linguistic science' and 'history of linguistic thought'

The enormous development of the history of linguistics during the last few decades has not only enlarged our knowledge of linguistic studies in the past to a previously unimaginable extent, but has also raised a variety of methodological problems that any historiographer of linguistics has to face: such problems have been discussed in depth in several works, among which those of Koerner (1989; 1995) deserve special mention. However, I will not engage myself here in a systematic discussion of the problems and principles of linguistic historiography, but will limit myself to a few questions that are most directly connected with the main topic and the organization of the present volume.

The first of such questions refers to a distinction drawn by Giulio C. Lepschy in the opening pages of the *History of Linguistics* (Lepschy 1994:vii), namely that between the history of linguistic ‘science’ and the history of linguistic ‘thought’. Lepschy says that the work he is introducing is a history of the latter, rather than of the former kind. This means, he goes on, that it aims more at investigating the attitudes towards language which prevailed in the different chronological periods and cultural settings, independently from their more or less ‘scientific’ status according to the standards of today’s linguistics. Such a distinction, of course, has not to be interpreted as an absolute one; nevertheless, one would be inclined to say that works such as Leroy (1963), Moulin (1967), and Robins (1997[1967]) are mainly histories of linguistic thought, while Pedersen (1962) is rather an instance of the history of linguistic science. However, the picture of linguistic science offered by the last-mentioned work is surely too restricted, since it almost wholly identifies linguistic science with historical-comparative linguistics.

To write a history of linguistic science as a whole therefore appears to be a difficult enterprise: the reason is that scholars have not yet reached any agreement about what is really scientific in linguistics. In other words, a dominating paradigm (to resort to a term which has been somewhat abused of late) is still missing in linguistics. As far as syntax is concerned, generative theory (espe-
cially in its ‘Chomskian’ version) is possibly the best known theoretical model, or, it would be better to say, the one most quoted also by the “layman”, but it is certainly far from having found general acceptance among professional linguists. It is therefore not accidental that Pedersen (1962), which is certainly partial, since it deals with the evolution of a single branch of linguistics, i.e. historical-comparative linguistics, is generally recognized as a history of (at least a part of) linguistic science: for the principles and techniques of historical-comparative linguistics are by now essentially agreed on by almost all linguists, their disagreement simply concerning the fact of whether historical linguistics is truly the only really ‘scientific’ linguistics or not (even if the supporters of the former, extreme, position, which was Pedersen’s, are today very few). By contrast, no work comparable to Pedersen’s has yet appeared concerning the history of syntax: Drăganu’s (1945) posthumous work is still possibly the only one attempting to give a ‘general’ view of it (and, it may be added, it is still useful as a bibliographical source, especially for the period covering the end of the 19th and the beginning of the 20th century).

Some essays in the history of linguistics (and, in particular, of syntax) of the last decades have mainly aimed at bringing into light those doctrines of past ages which appeared consistent with a particular conception of linguistic science. This has been, for example, Chomsky’s attitude; but a similar attitude is also shown by Kneale & Kneale (1962) in their famous book devoted to the “development of logic”: their avowed aim is not “to chronicle all that past scholars (...) have said about the science”, but “to record the first appearances of those ideas which appear to us most important in the logic of our own day” (p.v). In an analogous way, many mathematicians or physicists seek, within the works of their predecessors, sketches of current theories, and overlook what appears to be wrong or superseded from the point of view of today’s knowledge. In this respect, they differ greatly from professional historians of science, who instead aim at globally reconstructing the ‘scientific thought’ of a given age.

One might therefore think that a work such as the present one, which deals with the history of syntactic theories during the last two centuries, is faced with two alternatives: it could try, on the one hand, to globally reconstruct the ‘cultural climate’ in which the different theories originated and developed; or, on the other hand, to single out the results which still today appear important from a given theoretical point of view. In other words, it should choose between being an history of a given period of linguistic thought or of a certain kind of linguistic science (obviously, within the given chronological limits). The research line adopted here has instead been slightly different from both of these options, for reasons which I shall now discuss.
The present work does not aim at being a history of syntax in the \textit{scientific} meaning of the term, where the standards of ‘science’ are established by a given syntactic theory: this is not because the present author is skeptical about the possibility of having really scientific syntactic theories, nor because he thinks that such an approach to the history of linguistics is inevitably wrong. Rather, he is convinced that there exist some ‘ingenuous’ (in the etymological sense of ‘native’, ‘inborn’) categories of syntax concerning which a history can be written, independently from the adoption of specific theoretical assumptions. Full objectivity is no doubt unattainable: each of us is unavoidably conditioned by her/his own beliefs. Nevertheless, nobody holds that such notions as ‘subject’, ‘sentence’, or ‘word group’ exclusively belong to a specific theory: they rather belong to a set of ‘ingenuous’ syntactic concepts, each of which can be redefined within a given theoretical framework. Such ingenuous concepts therefore represent the starting point for any syntactic theory, which can obviously modify both their scope and their value, or even dispose of them, but it cannot avoid facing them (I argued for such a thesis in Graffi 1991). Hence the coexistence of both ingenuous and theoretical concepts within linguistics (and, especially, within syntax) allows one to write a history of linguistic science while at the same time adopting a perspective of history of linguistic thought: investigating how given ingenuous concepts have been dealt with in some past theories can also offer some interesting suggestions to contemporary linguists. Such an interest lies, however, more on a level of theoretical affinity than of historical heritage. In the present volume, instances of theoretical affinities are the analogies between some analyses of Jespersen’s and of generative grammar: e.g., Jespersen’s notion of ‘nexus-substantive’ (see 4.1.7) closely reminds one of Chomsky’s analysis of ‘derived nominals’ (see 8.4.5), or the notion of ‘split nexus’ (see again 4.1.7), of the generative concept of ‘Raising’ (see 8.4.4). A historical link may be hypothesized, for example, between Gabelentz’s distinction between ‘psychological subject’ and ‘psychological predicate’ (see 3.2.2), on the one hand, and the Prague school pair ‘theme’ vs. ‘rheme’, on the other (see 5.2.2). In my view, one of the tasks of the history of linguistic thought is to ascertain if such kinds of influence did really take place, whether in a direct or indirect way. Indeed, the task of the history of linguistic science is that of determining, among other things, to what extent affinities such as those just quoted, express real identities between theories worked out in different periods.

As will have been observed, all instances of the history of linguistic thought as well of linguistic science quoted above are typical of an ‘internal’ history of the discipline, and such a kind of history is that which mainly characterizes the present survey. This does not wish to imply, however, that problems of ‘external’ history, namely of the relationships of linguistics with other
research fields or with the social and institutional environment at a given age, etc., do not have any importance: quite the contrary, their study is often useful, not to say necessary, to fully understand the content of the investigated theories within the history of linguistics as in that of any other scientific field. However, because of the limits that any work must impose on itself, the present volume does not take into considerations all such possible external factors, but concentrates on the relationships between syntax and a single non-linguistic discipline, namely psychology, or, rather, on the attitude that syntacticians have shown towards psychology in the period under investigation.

2. Syntax and psychology: vicissitudes of a relationship

The leading thread of my investigation has therefore been the idea that syntactic research over the last two centuries is characterized by an oscillating attitude towards its relationship with psychology: an initial ‘psychologistic’ epoch was followed by an epoch wholly rejecting psychologism, and finally a new period arose during which most scholars again stressed the necessity of connecting syntactic investigations to psychological considerations. I said ‘most’ scholars rather than ‘all’ scholars. In fact, some linguists of the third period did not assume that syntax has psychological concerns: this was, for example, the case of Montague (see below:9.2). But the fact that even scholars such as Montague or his followers felt obliged to express their attitude towards the relationship between syntax and psychology shows that the existence of such a relationship was recognized as an absolutely central problem.

The three periods alluded to above will each be the subject of a part of the present volume: the birth of 19th-century psychologistic syntax, its rise and its fall are treated in the first part (chapters 2, 3 and 4); the second part (chapters 5, 6 and 7) deals with syntax of the structuralist period, which is characterized by a rejection of psychologism and by a striving for an ‘autonomous’ linguistics; finally, the third and last part (chapters 8, 9 and 10) has as its topic the exceptional proliferation of syntactic theories which characterized the second half of the twentieth century, whether ‘psychologically oriented’ or not.

Where can the chronological boundaries of such periods be put? Any answer to such a question cannot avoid being arbitrary, to some extent. I think that the beginning of the first psychologistic period may be assumed to coincide with the crisis of the general grammar model: such a crisis originated as an

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1 I employ this term rather than ‘psychological’ mainly for historical reasons: the term ‘psychologism’ is resorted to by Husserl (1928[1900]) in his polemics against the 19th century view of logic, which was strictly connected to that of syntax I am going to survey (cf. below:2.4.3). The term ‘psychologism’ and the adjective ‘psychologistic’ which derives from it have, therefore, the advantage of immediately recalling a given epoch of the relationships between linguistics (and logic) on the hand and psychology on the other.
effect of the increasing development and success of historical-comparative grammar, one consequence of which was stress on the essential *diversity* among languages. Several features of general grammar still persisted within historical-comparative grammar during its early decades but the fate of general grammar was accomplished around the middle of 19th century, as an effect of attacks coming from two opposite sides namely by Schleicher and by Steinthal (see 2.1). The former scholar denied the possibility of a general syntax; the latter one stated that syntax has to be based on psychology and no longer on logic as had been assumed by general grammar (see 2.2). Hence, the birth of psychologistic syntax was, although indirectly, connected with the success of historical-comparative grammar, which imposed itself as a real paradigm in the Kuhnian sense during the first decades of 19th century. One could therefore maintain that psychologistic syntax is the first syntactic approach exclusively belonging to 19th century linguistics. Other forms of syntax practiced during the first half of the same century are more or less linked with ideas developed during the preceding ones. This is the reason why little or no space has been devoted in the present volume to works that chronologically belong to the 19th century but whose roots certainly lie in 18th century such as, for example, Bernhardi (1801; 1803; 1805). Reference to some linguists preceding the psychologistic period will however be made whenever this is deemed necessary to a better understanding of the immediate background of psychologistic syntax. Thus some ideas of K.W.L. Heyse and K.F. Becker will be investigated in some detail (see 2.1.1; 2.2.1).

Once the birth of psychologistic syntax is established as around the middle of 19th century, its end point has to be determined, and, more substantially, the choice of putting some linguists within such a period or in the immediately subsequent, ‘anti-psychologistic’ one has to be motivated. Why, in other words, are linguists such as Jespersen or Ries mainly dealt with in the first part of the present volume, rather than in the second one, unlike their near contemporaries Saussure or Bloomfield? After all, Jespersen’s and Ries’ criticisms contributed to the fall of psychologism within syntax: they explicitly tried to work out ‘purely linguistic’ syntactic categories (see e.g. 2.5.3; 3.1). There is, however, a difference between Jespersen or Ries and the founders of structuralism: it cannot be denied that the latter aimed at a whole break with their predecessors, while the former did not. This is shown by the fact that psychologistic linguists are seldom, if ever, quoted by the early structuralists, who, however, were well acquainted with their works. This attitude is macroscopic in Hjelmslev: his first book (Hjelmslev 1928) is full of quotations of linguists belonging to the epoch of psychologism but such references almost completely disappear from his works written after his turning to structuralism in the thirties. By contrast, reference to psychologistic syntax is constant in Jespersen’s
or Ries’ works: as a matter of fact, the grammatical systems worked out by the
two scholars are not understandable, from a historical point of view, other than
as a result of psychologistic syntax. Therefore it seems historiographically cor-
rect to put scholars almost contemporary with each other inside two different
periods of the history of linguistic thought.

The reasons for the crisis of psychologism will be investigated in some de-
tail in 2.5. The mistrust towards psychology which had begun to develop in the
first decades of the twentieth century is expressed in the most explicit way in
the opening pages of a classical work of the structuralist period:

We have learned, at any rate, what one of our masters suspected thirty years
ago, namely, that we can pursue the study of language without reference to any
one psychological doctrine, and that to do so safeguards our results and makes
them more significant to workers in related fields. (Bloomfield 1933: xv)

The ‘master’ referred to by Bloomfield was Delbrück, in his polemics
against Wundt (see 2.3.4). Therefore, the frequently cited ‘behaviorism’ of
Bloomfield was largely ‘anti-psychologism’, and such anti-psychologism was a
general feature of structuralism shared by the different structuralist trends.

That structuralism almost exclusively focused on phonology and morphol-
ogy is a commonplace that must be abandoned. Indeed, both European and
American structuralist schools developed explicit and detailed techniques of
syntactic analysis, several of which were taken up, more or less explicitly, by
syntactic theories of the third period investigated within the present survey.
The “intellectual climate”, however, of the two periods is very different: the
anti-psychologism of the structuralism age is replaced by a new, deep interest
for the relationships between linguistics and psychology. Another feature
which sharply distinguishes the new period from both the preceding ones is the
relationship of linguistics to logic. In the psychologistic age, grammar explic-
itly “divorced” itself from logic; in the structuralist age, both disciplines
marched on parallel paths, with little interest for each other (although there
were some exceptions, such as Brøndal’s work). By contrast, since around the
middle of twentieth century an increasing number of logicians showed an in-
terest in natural language and an increasing number of linguists became aware
of the necessity of mastering the tools of symbolic logic (see 8.2). It was more
or less in the same years that linguists rediscovered an interest in psychology:
what was later called “the cognitive revolution” had begun. Such a revolution
is normally linked to the name of Noam Chomsky, as is surely right; but the
renewed interest for psychology characterized other linguists too even before
him. The term ‘psycholinguistics’ was coined on the occasion of a conference
held in 1953 at Indiana University (see 8.3.1).

In this same period, the term ‘theory’ begins to systematically occur
throughout linguistic (hence also syntactic) works. Furthermore, an increasing
number of different theories is proposed: all of them, as said above, refer to the problem of the relationship between linguistics and psychology, and almost all of them resort, although to a different extent, to the devices of symbolic logic. The question may therefore be asked whether such different syntactic theories can really be compared and assessed against each other. For example, may a set of descriptions exist which are in some sense “neutral” with respect to any theory, or, to put it another way, may some unprejudiced linguistic facts exist which any theory has to account for? One position would be that such facts do not exist, since facts gain their significance only in the light of a given theory. My opinion has been stated in the preceding section: there exist some ‘ingenious’ facts which are independent of any theory. However, the several approaches to syntax generically labeled ‘theories’ contrast with each other because of their different conception of what a theory is, and of what goals it has to pursue. According to some scholars, a theory defines the significance of facts; according to some others, it is more a set of devices whose goal is to analyze some independently given facts. Things are further complicated by the fact that theories radically diverging in their goals and in their interpretation of phenomena often resort to similar formal devices.

3. Overall design of the volume

On the basis of the above considerations, I have not adopted, for the third part of the present volume (“The age of syntactic theories”), the same format as for the preceding two (“The age of ‘psychologism’ in linguistics” and “The age of structural linguistics”): namely, to provide a chapter introducing the different scholars (more or less in chronological order) which precedes two other chapters which examine some debated issues and some empirical topics of research. According to this format, the initial chapters of part I (chapter 2) and of part II (chapter 5) introduce (more or less in chronological order) the general views on syntax held by different scholars during the ages of psychologism and of structuralism, respectively. Then two further chapters follow (3 and 4 in part I, 6 and 7 in part II) which present the discussions of some specific issues and empirical questions. Among these discussions, I mainly focus on the problem of the definition of syntax and of its relationships with logic and psychology, on the one hand, and with other fields of linguistic analysis, i.e. morphology and semantics, on the other. Among the empirical topics, I concentrate on the questions of the structure of the sentence and of the word groups. In particular, I investigate the problems of sentence definition, of the status of the notions ‘subject’ and ‘predicate’, of the mutual relationships between the members of the word groups (e.g., the definition of ‘head’ vs. ‘modifier’) and of word order.
All three chapters of part III (8, 9 and 10), on the other hand, present trends within the syntactic research of the second half of the 20th century, discussing both their historical roots and their conception of what the aims and the means of a syntactic theory should be. No chapter systematically deals with a specific empirical topic, be it the sentence, or the word groups, or whatever. The reason for this choice has been that the techniques of empirical analysis developed by the various theories are often so different that it would have been necessary to introduce the relevant notions each time; and the set of investigated phenomena, which largely overlapped during both the periods of psychologism and structuralism, differs considerably among the theories of recent decades, depending on their different goals and concerns. In general, I have given little space to the polemics between the several schools except when a hint has been useful to better understand the different positions. I have rather preferred to concentrate on the theoretical principles assumed by each theory and on some of the empirical analyses worked out within this framework. When such analyses deal with the same subject (e.g., the structure of the clause, or the treatment of discontinuous constituents, etc.), a comparison of the several points of view on the basis of their treatment of ‘ingenuous’ concepts should also be possible. Of course, no such trends developed as Leibnizian monads, i.e. in total isolation from each other: quite the contrary, their mutual contacts and confrontations have been numerous, either as borrowings of concepts, or as has just been said, as the result of acute polemics.

Let us now come to the specific content of the different chapters. The rise and fall of psychologistic syntax which was sketched in 1.2. is discussed in chapter 2. After investigating the remnants of the general grammar tradition in the first decades of 19th century (2.1.), ‘Steinthal’s program’ is investigated in some detail (2.2.), since it marks the explicit beginning of psychologistic syntax. Then the development of this same program by other linguists, such as Gabelentz and the Neogrammarians, is presented (2.3.1-2.3.2). Wundt’s psychologistic approach, explicitly alternative to Steinthal’s, is discussed in 2.3.3-2.3.4. 2.4. and 2.5. deal with the crisis of linguistic psychologism, be it Steinthalian or Wundtian.

Some topics which were especially debated by psychologistic syntax and its subsequent critics are discussed in chapters 3 and 4. The general problems of the proper definition of syntax, of its relationships with other fields (mainly logic and psychology) and with other domains of linguistic analysis (mainly morphology) are presented in 3.1. Section 3.2. deals with the issue of the relationships between grammatical, logical and psychological categories, illustrated by means of the debates on the notions of subject and predicate and on impersonal constructions. The final outcome of such debates again shows the abandonment of psychologistic approaches to the definition of linguistic cate-
categories. An analogous line of development can be seen in the discussions about the notions of sentence (4.1.) and in the analyses of word groups (4.2.). Psychologistic syntax aimed at working out a conception of sentence which would replace the old logic-based one (based on the equation sentence = judgement). However, no agreement was found on the proper definition of sentence or as to which linguistic structures are to be classified as sentences and which not. Therefore, in this case too the outcome was a conception of the sentence which abstracted away from psychological considerations. The development of the analysis of word groups is strictly connected to the evolution of the concept of sentence. In the general grammar tradition, attributive word groups were considered as derived from predicational, i.e. sentential, structures. Such a conception of word groups was still held by the majority of syntacticians of the psychologistic age and it radically changed only when psychologism had virtually been abandoned, namely with Jespersen and Sechehaye.

Chapter 5 presents the views on syntax held by the different structuralist schools. The starting point is Saussure’s position about syntax (5.1.1). The two main sections of the chapter roughly correspond to the period between the two world wars (5.2.) and to that since the second world war until about the sixties (5.3.). Two approaches which have not been forgotten by later generations of linguists are the Prague ‘Functional Sentence Perspective’ (see 5.2.2; 5.3.2) and so-called ‘Immediate Constituent’ analysis (cf. 5.2.3). If Immediate Constituent analysis was a kind of trademark of American structuralism, other interesting frameworks were developed by European scholars. By a curious “trick of fate”, the syntactic approach of the structuralist period which is today the most quoted and utilized one was very little known at the time of its invention. I am referring to Tesnière’s ‘valency syntax’ (cf. 5.2.6). Saussure’s notion of ‘syntagm’ and its elaboration by Bally were the source of Frei’s and Mikus’ ‘syntagmatics’, which investigated a variety of constructions in detail (see 5.2.1; 5.3.1). Neither should the insights of the Copenhagen school be overlooked (see 5.2.4-5.2.5), nor De Groot’s, Martinet’s and Benveniste’s (see 5.3.3-5.3.4). The final sections of the chapter deal with the frameworks which are most closely connected with the third period surveyed, namely the development of the distributional approach by the post-Bloomfieldian scholars (5.3.5) and Harris’ ‘transformational theory’ (5.3.6).

In the two subsequent chapters (6 and 7), I mainly concentrate on topics some of which have already been discussed while dealing with syntax in the psychologistic age, in order to bring to light the differences as well as the similarities between that age and the structuralistic one. Hence the whole of chapter 6 is devoted to “structuralistic approaches to sentence analysis”. In particular, the impact of the Saussurean opposition langue/parole on the conception of the sentence will be examined, together with the problems connected
with the classification of sentence types, the opposition ‘sentence’ vs. ‘utterance’ and that ‘sentence’ vs. ‘clause’ (6.1.). Section 6.2. presents some structuralist analyses of sentence structure which discuss, from a different point of view, some issues already dealt with during the psychologistic age, such as the opposition between the ‘grammatical’ vs. the ‘psychological’ or ‘actual’ analysis of the sentence or the subject/predicate relation. Chapter 7 is devoted to the techniques of analysis developed within the different structuralist frameworks, which especially concern the structure of word groups. 7.1. sketches a comparison between the typology of constructions in American and in European structuralism. This is followed by two sections which illustrate the different analytical techniques, grouped according their ‘non-procedural’ (7.2.) vs. ‘procedural’ character (7.3.). Special attention is devoted to the treatment of the topic of ‘discontinuous constituents’ (7.3.5), since it will become central for several theories dealt with in the third part of the volume.

The first chapter of Part Three (chapter 8) opens with an attempt at classifying the different syntactic theories according to their roots and to their subsequent ramifications (8.1.). Generative grammar, especially in its ‘Chomskian’ version, has been the theory most often referred to by linguists of recent decades, either in a positive or in a negative way; therefore, ample space is given in chapter 8 to its birth and how it reached its ‘standard’ form (8.4.). This presentation of generative grammar is preceded by a sketch of the impact that some trends of 20th century symbolic logic had on the analysis of natural language syntax (8.2.), as well as of other syntactic approaches which were worked out more or less in the same years as generative grammar but independently from it, such as tagmemics and Greenberg’s typological syntax (8.3.).

Chapter 9 starts with an assessment of the impact brought about by ‘standard’ generative grammar (9.1.) and goes on to investigate some alternative trends of research: Montague Grammar (9.2.), some typological and functionalist syntactic theories (9.3.), and, finally, some theories which, while originating from it, worked out an often very different perspective of language analysis from ‘standard’ generative grammar (9.4.). The development of ‘standard’ generative grammar, here labeled the ‘Chomskian program’, from the beginnings of the seventies until recently is investigated in Chapter 10.

In many cases, the reason for the differentiation of theoretical frameworks can be found in the diverging views of the relationship between syntax and psychology: for example, while Chomsky saw this in the investigation of what he called ‘Universal Grammar’ (cf. 10.1.), namely the putatively innate system which would make language acquisition possible, other linguists maintained that it should be implemented by the construction of a ‘psychologically real’ syntactic theory, namely one whose rules would match the processes of sentence production and comprehension. The survey of the ways in which the re-
The relationship between syntax and psychology has been conceived, therefore, appears as a possible interpretive key which runs through the different syntactic frameworks of the last two centuries.
PART I

THE AGE OF PSYCHOLOGISM IN LINGUISTICS
CHAPTER 2
THE RISE AND FALL OF ‘PSYCHOLOGISTIC’ SYNTAX

0. Introduction
19th century linguistics is commonly identified with historical-comparative linguistics: for example, Robins’ (1997[1967]) chapter devoted to that age bears the title “Comparative and historical linguistics in the nineteenth century”. However, topics that one might consider as belonging to “general” linguistics were investigated in that century; the great achievements of historical-comparative grammar had rather the effect of inducing a drastic change both in their conception and in their treatment. In the domain of syntax, such an effect mainly consisted in the abandonment of the tradition of linguistic thought known as grammaire générale, which may be said, with an unavoidable amount of arbitrariness, to have its starting point in the year 1660, when the Port-Royal work of the same title was published for the first time (Arnauld & Lancelot 1676[1660]). Historical-comparative linguistics induced a relativistic perspective to linguistics: it showed that change and diversity were essential, not accidental, features of language. This result sharply contrasted with the general grammar tradition, according to which language was primarily a “mirror of the mind”, the image of a human reason which was essentially invariable across times and places.

The abandonment of general grammar by historical-comparative linguists of the 19th century was, however, neither immediate nor complete. Many of the categories of the old model were difficult to replace adequately. The present chapter therefore opens with a section (2.1.) which illustrates the work of the last representatives of the general grammar tradition in the first decades of the 19th century (such as Becker), as well as some ideas about syntax held by the early historical-comparative linguists (Bopp, Rask, Grimm, Pott) and by Humboldt. It will be seen that these latter scholars too, in spite of some programmatic statements, were themselves not totally free from the general grammar tradition. Such a tradition essentially based linguistics, and especially syntax, on logic: this was conceived as the doctrine of correct reasoning, based on the assumption of a universal human reason. It was therefore possible to com-
pletely abandon general grammar if a new discipline, other than logic, could be found on which to base linguistics. A very eclectic scholar, who was at one and the same time a philosopher, a linguist and a psychologist, namely Heymann Steinthal, found this new discipline: psychology, the foundations of which he essentially derived from Herbart’s work. Steinthal’s program will be presented in 2.2. One can assume that Steinthal initiates a new era of syntax, which I call that of ‘psychologistic’ syntax. Another creation of Steinthal’s, together with Moritz Lazarus, was ‘ethnopsychology’. It had the task of accounting for the cross-cultural differences, language being the most significant one, by ascribing different ‘collective minds’ to the different peoples. One of the consequences of the birth of ethnopsychology was a significant development of linguistic typology, by Steinthal himself and by other scholars after him, such as Gabelentz (see 2.2.3; 2.3.1).

In the last decades of the 19th century, a psychologistic approach was also adopted by the leading historical-comparative linguists of that period, the Neogrammarians, some of whom had been Steinthal’s students (see 2.3.2). At about the same time, a new kind of psychologism appeared, connected with Wilhelm Wundt’s work (see 2.3.3). Wundt had elaborated a system of psychology which aimed at replacing Herbart’s (which Steinthal had adopted) but which nonetheless went on basing linguistics (and syntax in particular) on psychological considerations. Wundt also developed ethnopsychology in his own way. The Neogrammarians (especially Hermann Paul) did not accept Wundt’s views and continued to adopt Steinthal’s psychological model; furthermore, they also rejected ethnopsychology, both in Steinthal’s and in Wundt’s version. The main lines of the debate between Wundt and the Neogrammarians are surveyed in 2.3.4.

The debates, however, were not only internal to several psychologistic approaches, but, at the end of the century, psychologism itself (be it Steinthalian or Wundtian) began to be put into question. Among the sharpest critics of psychology, one may quote the philosophers Franz Brentano, Anton Marty and Edmund Husserl. They also significantly contributed to the analysis of syntactic problems (especially Marty), often proposing solutions which contrasted with the commonly assumed ones within psychologistic circles (see 2.4.).

Psychologism in general entered its crisis at the beginning of the 20th century (see 2.5.). As far as syntax was concerned, the effect of such a crisis was the abandonment of the attempt to base syntax on psychology. In some cases, as with the French school, a new discipline, namely sociology, was referred to as a new possible basic science for linguistics (see 2.5.2). Other scholars inclined to adopt a “purely linguistic” attitude: this was the case of Jespersen and Bühler (see 2.5.3-2.5.4). Such a new attitude was characteristic of structural linguistics; it will be returned to in chapter 5.
1. The legacy of the grammaire générale and its abandonment
1.1 ‘Philosophical’ grammar

As has been stressed by several scholars (e.g., Rosiello 1967), the tradition of grammaire générale was not monolithic: the grammarians of the second half of the 17th century and of the 18th century, while often also explicitly declaring their respect for the Port-Royal framework and their closeness to it, developed many new approaches to syntactic matters which often differed from one grammarian to another. Furthermore, two topics of inquiry developed in the 18th century which were scarcely treated in Port-Royal grammar: the nature of word groups and the comparison of the different word orders in the different languages. The question of the ordre naturel was connected to this last topic. The work which initiated the research about word-groups was undoubtedly Girard (1747), whose theory of membres de phrase, together with its developments in later scholars, we will discuss below in 4.2.1. Girard’s ideas did not meet with much success in France, but they exerted a considerable influence on German grammarians (cf. Jellinek 1913-14 I:468; Forsgren 1973:132-133; 1985:43; 1992:112). The first treatise about word order(s) is probably a work published in 1669 by the Frenchman Louis Le Laboureur but the discussion continued in the 18th century, when two positions emerged: the first one, which we can call the position of the ‘grammarians’, held e.g. by Girard, Du Marsais and Beaucée, maintained that the ordre naturel was SVO, and therefore that French was an example of it; the second position, held by grammarians such as Batteux but also by philosophers such as Condillac and Diderot, refused the idea that the word order exemplified by a particular language could be deemed as the ‘natural’ one, and in some cases also expressly denied the ‘naturalness’ of the SVO order (on the whole matter, see Jellinek 1913-14 II:425-464). Despite all these differences, however, some common features, shared by many grammarians of the period between the middle of 17th century and the first decades of the 19th century, allow us to consider them as a unitary group, the followers of a single tradition, i.e. the tradition of General Grammar. Most significant among the features which they share in common are in our view the following assumptions, which are overtly stated by Port-Royal grammar: 1) there is a strict connection between categories of thought (often also called ‘logical’ categories) and categories of language; 2) despite many superficial differences, all languages of the world express the same categories of thought. The various ‘general’ grammarians always remained faithful to these ground assumptions, while their technical approach to several syntactic problems changed, often considerably, during the two centuries or so in which their framework flourished. Perhaps the best example of these changes is given by the so-called ‘copula-theory’, i.e. the analysis of every sentence into Subject, Copula and Predicate. As will be seen in more detail in 3.1 and 4.1.1, the cop-
ula-theory, which was a cornerstone in Port-Royal system of syntax, was gradually abandoned by some of the last scholars belonging to the tradition of General Grammar. These scholars were members of the Frankfurter Gelehrterverein für deutsche Sprache; among them, we will deal in particular with Karl Ferdinand Becker. Actually, these grammarians, whose work dates from the first half of 19th century, were in closest contact (both geographical and chronological) with the linguists who mark the beginning of a new era: Humboldt on the one side and the first historical-comparative linguists on the other (Bopp, Grimm, Rask, and, in the following generation, Pott and Schleicher). It may be interesting, then, to inquire whether there are some common features, if any, between the last heirs of the tradition of ‘grammaire générale’ and the alleged beginners of a new era in linguistics.

Becker’s philosophical views show similarities to Schelling’s philosophy of nature, as has already been observed, among others, by Forsgren (1973:18; 100). He was, furthermore, in close contact with the philosopher and logician Adolph Trendelenburg, who dedicated his Logische Untersuchungen (Trendelenburg 1870[1840]) to him. Trendelenburg praised Becker as “a man who tried to work out an organic conception in the domain of language and revived grammar with a philosophical mind”. On the other hand, the influence of historical linguistics on Becker is certainly rather small. However, he quotes Grimm at length and discusses Bopp’s proposals as well. In short, Becker, even though he is not heavily influenced by the fast development of historical-comparative grammar, is certainly well aware of its existence and of its results. Moreover, we have to note that he refers, with great respect, to Humboldt.

Becker (1841[1827]) is divided into four sections dealing respectively with the “Organism of language in general”, with phonetics (Organische Lautbildung), with morphology and the classification of parts of speech (Organische Wortbildung), and with the syntax of the simple and the complex sentence (Organische Satzbildung). Becker’s view is based on his notion of language as an ‘organic whole’: language is organic not only in its origin, but also in its internal organization, as with any other manifestation of the living organism (cf. Becker 1841[1827]:9-10). In such an overall organism, the different elements lie in a relationship of ‘polar opposition’, and this is the only way to understand them correctly. The first and most general opposition is the one between ‘activity’ and ‘being’ (cf. Becker 1841[1827]:63). The starting point for the development of all concepts is ‘movement’ (this notion also has a central role in Trendelenburg); cf. Becker (1841[1827]:65). 2 All root words in lan-

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1 Forsgren (1973; 1985; 1992) are especially useful for the knowledge of this last period of General Grammar in Germany.
2 Indeed, the twelve ‘root concepts’ of Becker are all concepts of movement: ‘go’ (gehen), ‘shine’ (leuchten), ‘sound’ (lauten), ‘blow’ (wehen), ‘flow’ (fließen), ‘grow’ (wachsen), ‘give’
language are verbs, since all root concepts are concepts of activity (p.83). Hence all substantives are derived from verbs (p.89).

It is probably on the basis of this naturalistic and organicistic view that Becker maintains that child language develops autonomously, free from parental and environmental conditioning: the child’s early progresses in language are “astonishingly rapid”, and s/he does not speak “to satisfy an external need”, but because “s/he finds pleasure in speaking, as in any exercise of organic forces” (Becker 1841[1827]:5). Imitation is of very little import: the child does not imitate the word s/he has heard as s/he “imitates the call of the cuckoo”, but, by producing the word, s/he produces the concept and the thought as well (p.7). Becker’s view on the origin of language does not therefore seem too different from Humboldt’s or Steinthal’s. One difference lies in the fact that, whereas Becker says that “thought immediately becomes speech”, in Humboldt’s and Steinthal’s view thought is rather formed by language (cf. below: 37). Therefore Becker is still tied, undoubtedly, to the tradition of General Grammar, which can ultimately be traced back to Port-Royal. However, his view of the relationship between ‘logic’ and ‘grammar’ also shows some interesting elements of novelty. Language is no longer strictly conceived, as in the Aristotelian tradition, as a simple phonetic expression of thought, but thought and sound are defined as being the two sides of language (the ‘logical’ and ‘phonetic’ side, respectively), inseparable from each other (cf. p.12).

Following this path, Becker also distinguishes a ‘logical form’ in language which is not to be directly identified with ‘thought’, even if is strictly determined by it. Becker assumes that each of the three kinds of syntactic connections he recognizes (the ‘predicative’, the ‘attributive’ and the ‘objective’ relationships; for more on them see below:4.2.1) forms an ‘organic unity’, which is realized only by virtue of the different ranking of its constituent words. This ranking, in its turn, is due to the fact that all these relationships mean either the subsumption of a particular into a universal, or the reduction of a universal to a particular. As a consequence, one of the members of each relationship is the ‘superordinate factor’: the general into which the particular is subsumed, or the particular to which the general is reduced. The other member of the relationship is the ‘subordinate factor’. For example, consider the three relationships (predicative, attributive and objective, respectively) Gold is dehnbar (‘Gold is ductile’), ein toller Hund (‘a rabid dog’), frißt Gras (‘devours grass’): the words dehnbar, toller and Gras are, each one in its relationship, the ‘superordinate’ factor; Gold, Hund and frißt the ‘subordinate factor’. The ‘logical form’ lies in the ‘organic unity’ realized by the different logical values (superordinate

\[\text{geben}, \text{‘take’ (nehmen), ‘bind’ (binden), ‘divide’ (scheiden), ‘wound’ (verletzen) and ‘cover’ (decken); cf. Becker (1841[1827]:77). All other concepts derive from those mentioned through later processes of derivation and composition.\]
vs. subordinate) of the constituent elements. The three different syntactic relationships which realize this unity instantiate its ‘grammatical forms’ (Becker 1841[1827]:162-167). Logical form and grammatical form are intimately connected, “fused”, and “can be separated only from the point of view of investigation” (p.579). Logical form and grammatical form in Becker’s sense are not to be equated with ‘content side’ and ‘expression side’, respectively. Indeed, it would seem that both lie on the content side and have their own means of expression: ‘logical form’ has intonation and word order, ‘grammatical form’ has inflection. In languages like Chinese, which lack inflection, grammatical relationships directly express logical form, since they are indicated just by intonation and word order (ibid.).

Summarizing this discussion, we could say that this complicated hierarchy of entities and planes is a good example of Becker’s attitude towards General Grammar. Linguistic, and especially syntactic, structures (the ‘grammatical forms’) are no longer viewed as a simple mirroring of independently given logical categories even if they are still based on some of them, like the asymmetric relation of the particular to the general and vice versa, which brings about ‘logical form’.⁵ Later critics of Becker (first of all Steinthal) did not see novelties in his view of language. At any rate, we would not do him justice if we considered him as no more than a belated follower of the General Grammar tradition, because of the importance of many linguistic analyses worked out by him (see below:3.1; 4.1.1; 4.2.1; 4.2.3).

Indeed, on many occasions we will see that the whole of 19th century syntax is marked by a kind of ‘Oedipus complex’ towards the tradition of General Grammar: the majority of linguists treat it as the whipping boy but at the same time they make frequent recourse to its techniques and to its notions (see, for example, below:3.1).

1.2 Humboldt’s views on syntax

Given the depth and width of Humboldt’s work, I do not make any claims to exhaustiveness in presenting his positions here; nor I will discuss the copious literature about him in any detail. Instead I will limit myself essentially to stress his points of contact with the General Grammar tradition as well as his innovative proposals in the domain of syntax.

Humboldt is generally renowned for having insisted on the differences between languages. Also the title of his last and most famous work (Humboldt 1836) explicitly refers to this fact. However, on many occasions he also refers

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⁵ According to Forsgren (1992:36), Becker, speaking of ‘logical form’, does not aim to put grammar under the rule of logic: ‘logical form’ would rather mean ‘semantic interpretation of grammatical phenomena’. I think that this interpretation somewhat exceeds Becker’s intentions, but it is on the right track.
to ‘General Grammar’ as the ‘standard’ to which every particular language has
to be related and without which grammatical comparison would be impossible.
“For it encompasses and develops what is common to all idioms, by virtue of
the identity of the thought laws and of the essential nature of language” (Hum­
boldt 1903-1936 VI[1827-29]:342). According to him, therefore, the univer­
sality of human thought accounts for some features which are present in every
human language. These are the ‘grammatical relationships’, which must be
“visible in all languages in some way” (Humboldt 1903-1936 VI[1827-
29]:340). The grammatical relationships are based on the “identity of the laws
of thought” (Humboldt 1903-36 V[1824-26]:451).4

Evidence shows, however, that the grammatical relationships of General
Grammar are differently shaped in different languages. Cf. Humboldt (1903-
1936 VI[1827-29]:342) and the following passage as well:

*Grammatical formation* arises from the *laws of thinking* in language, and rests
on the *congruence of sound-forms* with the latter. Such a congruence must in
some way be present in every language; the difference lies only in *degree*, and
the blame for defective development may attach to an insufficiently plain emer­
gence of these laws in the soul, or to an inadequate malleability of the sound-
system. But deficiency on the one point always reacts back at once upon the
other. (Humboldt 1988[1836]:140)

The way in which languages express thought and the grammatical relationships
belonging to General Grammar is therefore assumed to be the standard on the
basis of which the classification and evaluation of languages can be performed.
See e.g. Humboldt (1903-1936 IV[1822]:294):

The exactness of thought gains ground if grammatical relationships are exactly
matched by logical ones; and the mind is all the more attracted to formal, hence
pure, thought if the language makes this familiar with a sharp differentiation of
grammatical forms.

Humboldt maintains that inflectional languages are those best suited to express
these grammatical forms and their relationship to logical ones. This statement
is directly connected to his ‘syntactically based’ view of typology, to which we
will return. The ‘explicit’, i.e. morpho-phonetical, realization of grammatical
relationships varies from language to language (cf. Humboldt 1827a:42). Isol­
ating languages are the least explicit, inflectional languages the most explicit
ones.

These statements by Humboldt do not sound too different from some of
Becker’s. The opposition of ‘logical’ and ‘grammatical’ relationships, for ex­

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4 As Seuren (1998:113) remarks, “Humboldt stresses the unity of language in general as much
as he does the diversity of individual languages, and the influence of the mind upon language
as much as the other way around”.
ample, closely resembles Becker’s distinction between ‘logical’ and ‘grammatical’ form (cf. above:2.1.1). Furthermore, the conception of language as an ‘organ’ that develops (Humboldt 1836:§9) reminds us of Becker’s view.\(^5\) In his letter to Becker (Humboldt 1827b), however, Humboldt, while expressing agreement with him on many topics, nevertheless wants to stress his different position as far as the notion of ‘organism’ and the relationship of language to the individual and to society are concerned: the concept of ‘organism’, Humboldt writes, must be understood “in a much wider sense” than the purely physiological one.

Surely, a more “pragmatically-oriented” view of language, as well as many of Humboldt’s other statements, like the one that language is not érgon, but enérgēia (however difficult the interpretation of this last statement may be) demonstrate novelty in respect of the tradition of general, or ‘philosophical’, grammar. Furthermore, the analysis of more specifically syntactic questions also shows some of Humboldt’s innovations with respect to such a tradition, together with some remnants of it.

It has to be stressed that the role of syntax in Humboldt’s general theory of language is much more central than for other linguists of his generation, especially those oriented in the direction of historical-comparative grammar. As a consequence, typology is conceived by Humboldt from an essentially syntactic point of view (see Ramat 1985): inflectional languages are superior to languages of other types because 1) they exactly trace the borders of the unit ‘word’, while at the same time 2) they express in the clearest way the relationships which tie the different words together and make them form a sentence. Isolating languages do not express these relationships; incorporating languages do not clearly distinguish between the word and the sentence. Agglutinating languages are an intermediate, imperfect stage between isolating languages and inflectional languages (cf., e.g., Humboldt 1836, §14).

In Humboldt’s system of syntactic typology, an outstanding position is assigned to three of the traditional ‘parts of speech’: the verb, the conjunction and the relative pronoun. They exemplify the three different ways in which ‘the act of spontaneous positing by bringing together (synthesis)’ (‘Act des selbstthätigen Setzens durch Zusammenfassung (Synthesis)’) is accomplished (Humboldt 1836, §21:cclxvi-cclxvii; 1988:184-185). The first synthesis is accomplished by the verb. It is the center of the simple sentence, inside which it is sharply distinguished from the other parts of speech, since it is the only one having the capacity of “synthetic positing as a grammatical function”:

\(^5\) It cannot be forgotten, however, that the metaphor of language as an organism was quite widespread in that age. On the meaning and the consequences of this metaphor, see Morpurgo Davies (1997:4.3).
The verb (to speak first of this by itself) differs in a sharply determined way from the noun, and from the other parts of speech that might possibly occur in a simple sentence, in that to it alone is assigned the act of *synthetic positing* as a grammatical function. [...] Between it and the other words of the simple sentence there is therefore a difference which forbids us to count it along with them in the same category. All the other words of the sentence are like dead matter lying there for combination; the verb alone is the center, containing and disseminating life. Through one and the same synthetic act, it conjoins, by being, the *predicate* with the *subject*, yet in such a way that the being which passes, with an energetic predicate, into an action, becomes attributed to the subject itself, so that what is *thought* as merely capable of conjunction becomes, in *reality*, a state or process. (Humboldt 1988[1836]:185)

Languages are differentiated and evaluated according to the ways in which they realize this ‘synthetic strength’ of the verb (Humboldt 1836, §21:cclxviii). In many languages, the borders between noun and verb are difficult to trace, and these languages are to be judged the least developed ones; however, the verb cannot be omitted in any language ("das Verbum keiner Sprache fehlen kann"; Humboldt 1836, §21:cclxviii; 1988:191).

An even stronger synthesis, in Humboldt’s meaning of the term, is brought about by the conjunction. Indeed, it “shows the relation of two clauses to each other”, and therefore it accomplishes a “double synthesis” (Humboldt 1836, §21:ccxcii; 1988:200-201). As the presence vs. absence of real verbs is a measure of the greater or lesser development of a language, so too is the presence vs. absence of ‘real’ conjunctions (by ‘real’ conjunctions, most probably, Humboldt means clausal conjunctions as opposed to phrasal conjunctions). Hence less developed languages often lack conjunctions, or they use as conjunctions words properly belonging to other classes, and very frequently they simply juxtapose sentences (Humboldt 1836, §21:ccxcii; 1988:201).

According to Humboldt, the particularity of the relative pronoun lies in its dual nature: pronoun and conjunction at once. Its essence is therefore lost in languages which do not have the possibility of clearly expressing this dual nature. This means that a real relative pronoun can be found only in languages which show noun inflection. The majority of less developed languages therefore need to replace it with a particular construction. As an example of such languages Humboldt quotes preposed relative clauses in Quechua (cf. Humboldt 1836, §21:ccxciii-ccxciv; 1988:201-202).

Let us now compare Humboldt’s observations about such topics with their treatment inside the tradition of the *grammaire générale*. First of all we have to remark that the opposition between simple and complex sentence is really crucial for Humboldt. It has been seen above that the verb is distinguished, by virtue of its ‘synthetic strength’, from any other part of speech inside the *simple* sentence. This strength is still greater for the conjunction and for the relative
pronoun, since they connect clauses. As will be seen in more detail below (4.1.2), the notion of the dependent clause is a relatively late achievement of grammatical theory: it possibly originated in the Port-Royal distinction between *propositions composées* and *propositions complexes* and its importance gained general recognition only by the end of the 18th century. Also the syntactic peculiarity of the relative pronoun (i.e., its conjoining two sentences) seems to be a discovery of Port-Royal grammar, of which its authors are proud (cf. Arnauld & Lancelot 1676[1660]:67). This peculiarity does not seem to have attracted the attention of many later grammarians: the detailed surveys by Jellinek (1913-14) and by Sahlin (1928) attest only to morphological descriptions of the relative pronoun in 18th century grammars. Humboldt seems therefore to have gained the highest profit from the Port-Royal grammar analysis of this subject and he keenly connected it with his typologically-oriented view of syntax.

As for the verb, we have already seen that it is considered by Humboldt essentially in its syntactic function, i.e. in its capacity to connect the subject and the predicate, while grammatical tradition mainly focused on its morphological properties. Yet, the syntactic function of the verb had already been stressed with the same energy as Humboldt by Port-Royal grammarians. They insisted on the characteristic of the verb as *vox significans affirmationem*, and they explicitly argued against some earlier definitions which were of a more morphologically-oriented or more semantically-oriented nature: the verb as *vox significans cum tempore* (Aristotle), the verb as *vox flexilis cum tempore et persona* (Buxtorf), the verb as ‘signifying actions or passions’, the verb as ‘signifying elapsing things’ (Scaliger); cf. Arnauld & Lancelot (1676[1660]:94-104). Port-Royal grammarians, however, took two further steps. The first one was to maintain that ‘to be’, viz. the ‘substantive’ verb, is the only ‘real’ verb. The other verbs (the ‘adjective’ ones) derive from the coalescence of other meanings with the proper verbal meaning of ‘to be’; such coalescence is due to the ‘natural tendency of men to abridge their expressions’. The other step taken by Port-Royal grammar was to identify sentence with judgement (see below:1.1). Humboldt, on the contrary, always speaks of the ‘finite verb’, without suggesting at all that it has to be identified with the copula (see also below:3.1), and maintains that the *logical* notion of judgement must be distinguished from the *linguistic* one of sentence (for more on this topic see below:4.1.1). With such observations, Humboldt paves the way to the divorce of grammar from logic that will be the cornerstone of Steinhart’s theory of lan-

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6 I do not mean that Humboldt was the first linguist to abandon the Port-Royal conception of the verb: actually, such a position can be found, e.g., in Du Marsais (cf. Sahlin 1928:116;306), as well as perhaps in other scholars. I am only stressing the differences between his position and the Port-Royal one.
guage. We have to bear in mind that Humboldt does not maintain that grammar and logic are totally unrelated, but only that they do not coincide. The exact borders between them must be defined (Humboldt 1903-36 VI[1827-29]:345-346), but their relationship remains close.

Humboldt still appears linked to the General Grammar tradition also in the treatment of another topic: the notion of ‘natural order’. Examining Burmese, a verb-final language, Humboldt (1836, §24:ccclxxii; 1988:250-251) notes that this position of the verb is not the natural one, which would be the position between subject and object, ‘in the natural sequence of ideas’:

The sequence of the parts of the sentence is such that the subject comes first, then the object, and lastly the verb [...]. The place of the verb in this construction is obviously not the natural one, since in the sequence of ideas this part of speech is interposed between subject and object.

A few pages later (1836:ccclxxviii; 1988:254), however, some interesting observations on word order can be found, which seem to anticipate Weil’s (1879[1844]) work. We will come back to them in 4.2.4, below. This approach to word order problems is a further example of the wavering between the old and the new which characterizes Humboldt’s treatment of syntax.

1.3 Syntax and the development of historical-comparative grammar

It is a rather widespread view that contributions to syntax offered by 19th century historical-comparative grammarians were scarce and generally poor. This opinion is not wholly unfounded even though it is not to be fully accepted. As will be seen in what follows immediately, and in the subsequent chapters as well, the first generations of historical grammarians actually did not pay much attention to syntax, while this field was investigated in depth by many linguists belonging to the neo-grammarian group and by their contemporaries. In the present section I will give an overview of the attitude towards syntax held by the so called ‘founders’ of historical comparative grammar (Bopp, Rask, Grimm) and by two scholars of the generation immediately following them (Pott and Schleicher). The positions of the Neogrammarians will be analyzed

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7 Humboldt opposes logical categories to linguistic ones in other places as well. E.g., in Humboldt (1827a:68-69), subject and predicate are defined as ‘purely logical’ categories. According to Di Cesare (1991:lxxvi), Humboldt made ‘a fundamental contribution’ in making grammar free from logic and in giving prominence to the latter discipline over the first one.

8 See Morpurgo Davies (1997:14-15) on the well-established custom of classifying the leaders of historical-comparative grammar in subsequent generations, with each assigned into a particular role in the development of the field. Thus we would have the ‘forerunners’, the ‘founders’, the ‘perfectioners’ and the ‘settlers’. The weakness of such a classification, which originates from the hagiographic history of 19th century linguistics, is shown by the difficulty of assigning certain scholars to the right generation. E.g., was Rask a ‘founder’ or a ‘forerunner’,
later, since they necessarily presuppose Steinthal’s work, to be dealt with in 2.2.

Bopp’s relationship to the tradition of General Grammar was stressed by Meillet (1937[1903]:457-458) and by other scholars (cf., e.g., Verburg 1949-50). In 3.1. we will read through some of Bopp’s passages which give ample evidence of the influence that Port-Royal grammar was still exerting on his work. Note, however, that all these passages are drawn from the English version, *Analytical Comparison* (Bopp 1820), of Bopp’s first book (Bopp 1816). Very little space is given to the role of the ‘substantive verb’ in the analysis of the sentence and of the forms (like Latin *potest*) that he derived from a sentential structure in his later *Vergleichende Grammatik* (Bopp 1857-1861). In fact, syntax has very little room in *Vergleichende Grammatik*: no specific part of the treatise is devoted to it and the items *Satz*, *Subjekt*, *Prädikat* as well as the others referring to the basic concepts of syntax do not even appear in the index of the work (compiled by Carl Arendt, 1863).

Syntactic problems are seldom dealt with also by Rask, even in his descriptive, i.e. non-historical, works. In general, his grammatical sketches of languages (like, for example, the ones contained in Rask 1838, which are devoted to Swedish (pp.1-54), German (pp.162-190) and French (pp.305-382)) are confined to phonetics/phonology and morphology (derivational as well as inflectional). Discussions about the notion of the sentence and its essential constituents (subject and predicate) seem to be lacking in his work.

Rask’s attitude towards the tradition of general/philosophical grammar is difficult to evaluate: in a short and sketchy paper entitled *Guidelines for a short review of the whole domain of linguistics* (Rask 1838:283-294; newly edited in Rask 1932-33:361-372), he writes that “so-called *General Grammar* [...] seems [...] to belong to language research (*Sprogforskningen*) rather than to grammars (*Sprogløren*)” (Rask 1838:291; Rask 1932-33:369). “The proper aim” of *General Grammar* (or ‘philosophical grammar’, or ‘philosophy of language’: Rask (1838:293; 1932-33:371) equates these different expressions) is “the description of the relationship of *language* with thought in general” (Rask 1838: 293-4; 1932-33: 372). In general, it would seem that Rask opposes *General Grammar* to particular grammars, as made explicit in another paper, *About the philosophy of language* (Rask 1932-33: 373-378). Here Rask says that one of the tasks of the philosophy of language is “to understand the occurring phenomena all the way to their innermost motivation” (Rask 1932-33:376). It is interesting to note that this ‘philosophical’ approach is framed in a naturalistic-organicistic

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and Pott a ‘founder’ or a ‘perfectioner’? I therefore adopt such labels only for practical convenience.

9 I quote this paper only from the Rask’s edition by Hjelmslev, since the original edition is not available to me.
view of language: “language is a natural object and its science is similar to natural history” (Rask 1932-33: 377).

It must be stressed that the relationship between language and thought is not described by Rask in as simple and direct a way as the Aristotelian tradition represented by Port-Royal grammar would assume:

Thought is an endlessly subtle, unembodied, impalpable object, which is not easy to understand, to catch and to glance at so that one can discover its absolutely exact form, and in any case it is not thought and its forms, but words, sounds and their relationships and combinations that one has to deal with in grammars. (Rask 1932-33: 378)

Regarding many technical aspects, however, Rask seems to be still linked to the tradition of General Grammar. For example, in a paper devoted to Danish grammatical terminology (Rask 1838:244-283), he introduces a list of ‘forms’ which sounds rather similar to Girard’s inventory of membres de phrase (cf. Girard 1747 and below:4.2.1). Rask lists the following units: subject; vocative, direct object, indirect object, genitive, circumstantial. Girard lists seven membres de phrase (or parties constructives): subjectif (subject); attributif (verb and its nearest concomitants, like negation); objectif (direct object); terminatif (indirect object); circonstanciel; conjonctif (conjunction); adjonctif (vocative and the interjection). As can be easily seen, five units are essentially the same both in Rask and in Girard. The verb and conjunction are missing in Rask since he explicitly deals only with nominal word groups (cf. Rask 1838: 273). Rask seems to hint at a universal value for his six ‘forms’ (cf. Rask 1838: 282).

What perhaps marks Rask’s closeness to the General Grammar tradition most is his explicit assumption of a ‘natural order’, which is of course Subject-Verb-Object: “therefore it is natural that the subject precedes and the object follows the verb, which ends up by standing in the middle when the thought presents itself in a quiet way” (Rask 1838:278). Rask adds that this order differentiates modern languages, more “quiet”, from ancient ones “where sensibility was more vivid” (Rask 1838:279). Rask assigns a certain importance to this contrast between the two different kinds of mentality and their relationship to language. For example, mainly contemplative and quiet peoples (like the modern ones) do not formally distinguish between the nominative and the vocative, but more wild and passionate peoples (like Greeks and Romans) make the distinction. In general, the two different cases (nominative and voca-

\[\text{\footnotesize\textsuperscript{10}}\] The knowledge of Girard’s doctrine was not limited to French grammarians; some German scholars were influenced by it as well. See Jellinek (1913-14 II:374;468;476), Forsgren (1973:132-133) and Forsgren (1992:112). Cf. also below:4.2.1.

\[\text{\footnotesize\textsuperscript{11}}\] I have somewhat adapted Rask’s original Danish terminology, except for the last item, Omstændighedsform, literally ‘circumstantial form’.
tive) seem to stem from language development, which goes from raw and isolated expressions to more sophisticated and connected ones (for this subject in general, see Rask 1838:275-276). One could assume that this last kind of remark has more to do with a view of language typical of the Romantic age than with General Grammar. As a provisional conclusion, I would agree with the evaluation of Rask given by Morpurgo Davies (1997:127), according to which Rask is not a pure representative of the ‘new age’ in linguistics (as maintained by the standard historiography of 19th century linguistics), nor the last hero of General Grammar, as Hjelmslev (1951) depicted him. The “old” views of General Grammar and the “new” perspectives of historical-comparative grammar coexist in him as in many other scholars of his time.

A Romantic view of language is, as one would expect, clearly expressed by Grimm in the introduction to his Deutsche Grammatik:12 “I was interested in stressing those particular structures, which, in my view, have to be explained by the warlike life and customs of our ancestors, and which exude all the sensuality of bygone ages” (Grimm 1898[1837]:vi). However, one may find some traces of a more or less close connection with General Grammar in Grimm’s work too. For example, he considers, more or less traditionally, language as ‘the expression of thought’. Also, his view of the sentence as necessarily formed by a subject and a predicate seems to fit rather well into the tradition of General Grammar: “To speak means to utter what has been thought [the thought]. Every thought connects an object with a representation, hence every sentence of speech requires a subject and a predicate” (Grimm 1898[1837]:2).

On the other hand, his treatment of specific syntactic problems appears more innovative than Bopp’s or Rask’s: e.g., the phrase ‘substantive verb’ to designate the verb ‘to be’ is quite common through the Deutsche Grammatik, but Grimm does not suggest the analysis of every clause in the form Subject-Copula-Predicate (for more details see below:3.1). At any rate, Grimm’s descriptions of syntactic phenomena, even if unsystematic, are surely much more numerous and detailed than the ones offered by the other historical-comparative grammarians of his generation and the successive one. For instance, Grimm deals with the following problems: the definition of subject, including the subject of infinitival constructions (Grimm 1898:23;129-130); the

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12 The Deutsche Grammatik appeared in four volumes between 1822 and 1837; the first volume (1822), dealing with phonology and morphology, had already appeared as first edition in 1819. The volume on syntax, the fourth one, appeared in 1837. Deutsche Grammatik was re-edited by Wilhelm Scherer, Gustav Roethe and Edward Schroeder between 1870 and 1898. This new edition contains, among other things, the handwritten notes that Grimm had been putting on his own copy of Deutsche Grammatik, in the course of his entire life. These notes, whose aim was mainly to clarify and partly correct the printed text, were inserted by the editors in square brackets.
distinctive properties of the verbs and their classification (pp.2-4); the problem of impersonal verbs (pp.262-267); the theory of case (passim). In the next chapter, I will return to some of these topics in more detail.\textsuperscript{13} For the time being, one can note that Grimm seems to share Humboldt’s position with respect to the verb: he stresses that the verb is always independent in the simple clause, while the noun is often dependent (Grimm 1898[1837]:294).

Pott’s evaluation of General Grammar is not totally negative, either. With respect to the relationship between grammar and logic, Pott holds a position less critical than Steinthal (see below:2.2.2). One has to remember that Pott’s polemics against Steinthal is connected to the struggle between the two scholars to achieve the position of the ‘rightful heir’ of Humboldt. Pott strongly criticizes many points of Steinthal’s interpretation of Humboldt: e.g., he charges Steinthal with having abandoned ‘Humboldt’s sun’ to enter ‘Herbart’s labyrinth’ (see Pott 1880a:xxxiii). Directly polemizing against Steinthal, Pott gives a (partial) defense of logic and General Grammar: “in our view, neither logic, nor, with the necessary qualifications, the so-called General Grammar are such that, as Steinthal prescribes, they could or should simply and under any circumstances be dispensed with. (p.xliii)”. Logical categories, albeit in a particular way, play a role in language: “Logical categories are, so to speak, mixed, or, e.g. in conjugation, even interwoven; they are not equally distributed or applied throughout all idioms and they are not equally contained in language and in its parts” (p.lxxix). Pott, anyway, seems to distinguish between what one could call “pure logic” (and he calls “teacher of thought laws”) and the “logic of languages”. Pott’s view of the relationship between them could be summarized with the following passage, which immediately reminds us of Humboldt’s positions (see above:21):\textsuperscript{14}

Certainly, the world of sensations and thoughts in general remains identical, or analogous, to itself: hence logic must surely constrain any language to give a linguistic expression, in whatever way, to the notions of space and time for example and to the resulting relationships, as well as to most general concepts or categories (in Kant’s sense) and to many others of a more subordinate kind. But that logic has no direction to give to languages about the ways of expressing how, and concerning the possible forms in which it should do so. (Pott 1880:dxxxi).

\textsuperscript{13} Lühr (1989) develops an interesting comparison between Grimm’s and Becker’s approaches to syntax. Her conclusion is that Grimm was influenced by Becker in his theoretical conception of syntax as he developed a new and independent methodology of research: inductive vs. deductive. This sounds a bit too mechanical especially insofar as it concerns Becker, but Lühr’s paper contains many correct remarks. For example, it notes that Grimm’s interest in impersonal constructions has no equivalent in Becker’s work.

\textsuperscript{14} Pott himself (1880a:ccxviii) says that Humboldt did not totally give up General Grammar.
General Grammar cannot be fully abandoned: it is still very useful for the clarification of grammatical concepts (Pott 1880a:cci). Pott maintains that the way of doing General Grammar must be different from that adopted in the 17th and 18th centuries. This conception of General Grammar, which assigned the same structure to all languages was surpassed, by Humboldt (p.ccccx). The ‘new’ General Grammar has to be based upon ‘reality’ although it cannot avoid having recourse to philosophical insights (p.dxxix).

Pott’s definition of syntax is explicitly borrowed from the philosophical tradition: quoting a passage from Herder, he equates what the latter calls ‘connection of concepts’ (Verbindung der Begriffe) with ‘syntax’ (Pott 1880a:clvi). Actually, Pott still seems grounded within the tradition of philosophical grammar regarding many points of his syntactic analysis. Although in some cases he is polemical towards Becker’s view of language (Pott 1880b:461, where he sharply criticizes Becker’s theory of “twelve cardinal concepts”), the kind of sentence analysis he seems to adopt is rather similar to Becker’s. In particular, Pott seems quite close to the theory of the three Satzverhältnisse (‘predicative’, ‘attributive’, ‘objective’; see below:4.2.1), with the addition of a further relationship, the one between subject and verb (Pott 1880a:xciii).

Summarizing so far, one could say that syntax was not totally neglected by the first historical-comparative grammarians, although they were engaged with it to different extents: Grimm and Pott seem more interested in syntactic problems than Bopp and Rask, who, however, do not totally overlook them either. The approach to these problems is in most cases not particularly different from the one held by the last representatives of the General Grammar tradition. The situation radically changes with Schleicher. As is well known, he makes a fundamental distinction between linguistics (Linguistik, Glottik) on the one hand and philology on the other. Linguistics, unlike philology, is not a historical science but it is rather similar to natural sciences. One of the main points of difference between linguistics and philology lies in the fact that the notion of “free human will” plays a fundamental role in the latter but not in the former (Schleicher 1850:2-3). Syntax does not (completely) belong to linguistics whose central role is assigned to morphology: morphology “totally falls to linguistics; syntax, which depends more on the individual’s thought and will, tends rather towards the side of philology” (p.4).

A further proof of the almost exclusively morphological point of view adopted by Schleicher is offered by his treatment of the distinction between noun and verb and of the possibility vs. impossibility of assigning it a universal value (cf. Schleicher 1865). According to Schleicher, the opposition noun/verb belongs exclusively to Indo-European languages. This is due to the fact that it is illegitimate “to presume functions where no phonetic form signals their presence” (Schleicher 1865:502). And since not every language distinguishes
nouns from verbs morphophonologically, this distinction cannot be assumed to be a universal one. In fact, Schleicher argues, if the functions formally expressed only in some languages were actually universal, one could expect to find traces of these categories in every language: but this does not happen, as can be easily seen, for example, from the fact that a language like German does not show all the same tense distinctions as Ancient Greek (aorist, imperfect and perfect), or the gender distinctions of Slavic languages (like the one between animate and inanimate within the masculine gender); cf. Schleicher (1865:504-505). The end result is, therefore, that “languages which do not phonetically distinguish nouns and verbs do not even differentiate between noun and verb” (p.506). Languages which have not developed a distinction between verbs and nouns are similar to those animals which are so primitive that they use the same organ both for breathing and for digestion (ibid.).

Schleicher’s work, therefore, marks the point of least interest in syntax in 19th century linguistics. This lack of interest was plainly connected to his conception of language as a “natural organism”, “external to man”. This view of language was harshly contested by Heymann Steinthal, who strongly maintained a psychologistic view: this had as one of its consequences a renewal of attention in syntax. We now turn to Steinthal’s linguistic conceptions.

2. Steinthal’s program and the birth of psychologism in linguistics
2.1 Hegel, Herbart and Humboldt’s influence on Steinthal

Speaking of an ‘original synthesis’ may sound a bit strange. However, I think that this is the right way to designate Steinthal’s theory of language. Indeed, it exhibits an entirely particular and innovative look in comparison to the theories which preceded it precisely because of the massive heterogeneity of its sources. This innovative capacity was accorded to Steinthal by many scholars, especially between the end of 19th century and the beginning of the 20th. For instance, Ziemen (1883:5) ascribed to Steinthal the virtue of having started the psychology-based conception of linguistics whose end product was to be the neogrammarian movement. And Delbrück, in the historical introduction to his monumental treatise on the syntax of Indo-European languages (Delbrück 1893-1900 I:58), stated that he felt himself ‘thankfully obliged’ to Steinthal and that a book like Prinzipien der Sprachgeschichte (Paul 1920) could not have been written if his work had not already existed. A few decades later, Steinthal’s fame undoubtedly lessened: Delacroix (1930[1924]:35) was somewhat committed to restate his importance, which lay in having recognized that language has to be understood and explained through psychology. Delacroix, like Delbrück, maintained that the germs of Paul’s Prinzipien were already present in Steinthal’s work.
One can still agree with Delacroix’s evaluation. Steinthal’s historical importance surely lies in having seen the strict linkage between linguistics and psychology, even though he was not necessarily the first to do so. Furthermore, Steinthal considers the origin and the development of language not as a product of social convention but as a moment in the intellectual development of the individual. Finally, since he aimed to account not only for language as an individual cognitive capacity but also for language diversity, Steinthal worked out the notion of ‘ethnopsycho-logy’ (Völkerpsychologie). Not one of these research lines (psychologism in linguistics, development of language seen as intellectual capacity, ethnopsychology) is likely to have originated with Steinthal. A psychologistic view of language was already held by Humboldt, as we have seen, and by the Hegelian linguist K.W.L. Heyse (see below). The view of language as a developing intellectual capacity is again an achievement of Humboldt’s, and ethnopsychological prospects come partly from Hegel. Steinthal, however, succeeded in merging these various research lines into a unique system. He also defined a set of problems which lay at the heart of linguistic research between the middle of the 19th century and the first decades of the 20th century. Most linguists of that time, in fact, dealt with such problems, even if their solutions were often different from Steinthal’s, or even opposed to them. Linguistic facts were indeed being constantly treated, in that age, as psychological facts. A psychologistic way of speaking (especially characterized by the use and the abuse of the word ‘representation’) marked every piece of linguistic research. The problem of language origin viewed as the development of intellectual capacities was the center of interest for many scholars: some of them, like, for instance, Paul, essentially agreed with Steinthal’s conclusions, while some others, like Marty, opposed them (cf. below:2.4.2). Finally, ethnopsychology underwent considerable development due above all to Wundt’s work; but it also had to face sharp criticisms, especially by Paul (cf. below:2.3.2). Ethnopsychology, furthermore, gave rise to the discipline named ‘typology’ by Georg von der Gabelentz (see 2.3.1). The fast decline of Steinthal’s fame beginning in the first decades of the 20th century is most probably due to the fact that the kind of psychology adopted by him (which one could name ‘associationistic’ or ‘representational’ psychology) was coming to a crisis just in that period. As will be seen in what follows, such a crisis involved all psychological systems of that kind, Wundt’s system included. An analogous attitude could be found in Humboldt before him (cf. Seidel 1935:42). Steinthal was nonetheless the first to build a psycholinguistic system based on Herbart’s theories, as Seidel himself acknowledges. Funke (1927:part II) groups together Humboldt, Steinthal and Wundt as representatives of the same approach to psychology. Funke’s position is certainly biased since he was strictly linked to Marty (see below:2.4.2). It attests an attitude that, being adverse to any representa-
I now turn to the scholars who, directly or indirectly, provided Steinthal with the elements for accomplishing his ‘original synthesis’. The most important of them undoubtedly are Hegel, Herbart and Humboldt. It is appropriate to remember that Steinthal was not a direct student of any of these scholars, nor could he have been: he was born in 1821, and enrolled in Berlin University in 1842, while Hegel died in 1831, Herbart in 1841 and Humboldt in 1835. Instead, he attended Bopp’s lectures in linguistics as well as Trendelenburg’s in logics and metaphysics. Both were supervisors of his Habilitationsthesis (Bumann 1965:4-5; 8). Steinthal’s relationship with his mentors, therefore, was only indirect. In respect of Herbart and Humboldt, the relationship took place only through their writings. With regard to Hegel, it was mainly due to the work of a grammarian who was influenced by Hegelian philosophy: Karl Wilhelm Ludwig Heyse. Steinthal got into contact with him in 1848.

Heyse’s main theoretical work is his System der Sprachwissenschaft (1856), which remained unfinished and was published after his death by Steinthal himself. That Heyse largely follows Hegel’s system of triads is clear from its very beginning. Heyse (1856:6-7) opposes an ‘empirical’ grammar to a ‘scientific’ one. Three points of view, or levels (Stufen) can be distinguished within the latter: 1) the ‘subjective’ one, 2) the ‘purely objective’ one and 3) the ‘concrete’ one. The tradition of General Grammar belongs to the first level: its basic error is trying to find the essence of language outside language itself, i.e. in the domain of pure thought (p.12). Historical-comparative linguistics belongs to the second level: it is preparatory work necessary for philosophical linguistics, but in itself it offers no knowledge of language essence and development (pp.14-15). The third level is that of ‘philosophy of language’, or ‘linguistic philosophy’. It must start from “the idea of language in itself” (von der Idee der Sprache an sich), investigate its realization in all languages of the world and understand them as a “realization system” of that general idea (p.19). Philosophy of language has therefore to investigate the development of the “idea of language” in its essential moments. These are: 1) “the domain of generality”: language as an organ of the human spirit. 2) “The domain of particular-
ity”: language as an organ of the spirit of a people. 3) “The domain of uniqueness”: language as an organ of the individual.

The question of language origin and language development has a very important place in Heyse’s view. Heyse (1856:47) concedes that such a problem, viewed from the angle of historical linguistics (i.e., seen a chronological problem), is a pseudoproblem. He maintains, however, that it is absolutely fundamental from a philosophical point of view. Language is not an ‘organism’ autonomous and external to men, as Becker holds, but an organ of the human spirit (p.59). The statement that language is a necessary development of human organic life is a sign of “crass materialism” (p.61). On the contrary, language is the production of a natural development of the spirit, where two apparently contradictory elements agree with each other: “general and objective spirit” on the one side and “subjective spirit as free activity of the individual” on the other (p. 62). Language is an inseparable duality of concept and sound: they interpenetrate and define each other. Hence it is inappropriate to consider language as the expression of a system of concepts given in advance, or as the instantiation of the opposition between ‘activity’ and ‘being’ (see above:18). Becker starts building language from concepts, while he should end with them (Heyse 1856:68).

Heyse also faces the problem of the contradiction between language as a natural product of the human mind on the one hand, and the diversity of languages on the other. All humans are brothers by virtue of human reason (Heyse 1856:49-50). This common nature, however, has different degrees of accomplishment which are determined by the different cultural levels of the different nations, as well as by the different natural and environmental conditions (p.51).

Many of Heyse’s ideas can be found in Steinthal’s work. As Bumann (1965:21) has observed, it is even difficult to indicate which ideas are really Heyse’s and which Steinthal’s. Some questions, like the opposition between ‘language’ as a general capacity of the human mind and different ‘languages’ are at the heart of Steinthal’s research program (which is, in this aspect, also influenced by Humboldt). Another problem that Steinthal went on investigating is language origin, which he considered, like Heyse, a philosophical, not a historical, problem. Surely, the most marked Hegelian features disappear in Steinthal. His arguments do not proceed through triads anymore, and, what is more important, ‘phenomenology of the spirit’ is replaced by Herbartian psychology.

According to Bumann (1965:6), Steinthal’s interest in Herbart’s psychology dates from 1847, hence it is more or less contemporary to his becoming acquainted with Heyse. This interest was probably caused by the anti-idealistic and especially anti-Hegelian atmosphere widespread by that time in Berlin, partly because of Trendelenburg’s work (of whom Steinthal himself was a stu-
dent). I do not hereby mean that there exist major analogies between Herbart and Trendelenburg’s philosophical systems: the anti-Hegelian attitude, however, was a common feature of the two scholars. Steinthal, by virtue of what I have called his “original eclecticism”, draws some fundamental ideas from Hegel, directly or through Heyse. He wants, however, to replace ‘spirit’ (Geist) with Herbart’s ‘mind’ (Seele) and with the ‘representations’ which originate within it. On the other hand, just as he does not accept Hegel’s idealistic metaphysics, he does not agree with Herbart’s realistic one either.

Among Herbart’s psychological hypotheses, the so-called ‘psychic mechanics’ was the one that most influenced Steinthal. This mechanics is formed by the representations which combine with each other in different ways according to their nature and their respective similarity or dissimilarity. A student of Herbart’s, M.W. Drobisch,\(^{19}\) gave the following description of this combinatory interplay:

Representations which reach the highest degree of clearness within consciousness either at the same instant or immediately after each other bring about connections which are permanent and which cannot be lost not even if both representations are forgotten for whatever length of time. The reawakening of only one of the two representations is enough to recall the other to consciousness as well, to a certain degree of clearness at least. […] Such connections are called, in general, the *associations* of representations. If one wants to distinguish the connection of homogeneous representations from that of disparate representations, one could label, like Herbart, the former ones ‘fusions’, and the latter ‘entanglements’.

These considerations coming from the Herbartian school clearly illustrate the main features of that ‘associationistic’ and ‘representational’ psychology which we referred to at the beginning of this section and which characterized many of the scholars we are to speak of (even if there are considerable differences and in some cases even oppositions between them). Drobisch’s quotation also refers to the fact that representations can disappear from consciousness, without being lost: they can reappear later. These processes are caused by what Herbart calls the “boundedness of our consciousness”, inside of which there is room only for a limited number of representations. When new representations are added, the old ones are ‘displaced’ and fall under the ‘threshold of consciousness’. They can, however, be recalled into consciousness if favorable conditions hold.

‘Unconscious representations’ and their mechanism have a great role in Steinthal’s linguistic theory, and they also gave psychologistic support to the neogrammarian resumption of the concept of analogy. In the interplay of repre-

sentations which forms ‘psychic mechanics’, Herbart’s redefinition of the notion ‘apperception’ also finds its place. It no longer means, as in Leibniz or Kant, the highest unity of consciousness, but “the assimilation and the elaboration of representations by means of a series of other representations, of new ones by means of old, sometimes of old ones by means of new” (Bumann 1965:29). Steinthal also took this meaning of ‘apperception’ from Herbart, while Wundt assigned a rather different meaning to it (cf. below:2.3.3).

Among the scholars who can rightly be considered the inspirations of Steinthal’s thought, Humboldt was the first to catch his interest. Humboldt also remained his fundamental point of reference during his entire academic life. As Bumann (1965:5) tells us, Steinthal was actively involved with Humboldt’s theories from his first terms at the university. His doctoral dissertation (Steinthal 1847) explicitly takes a Humboldtian perspective and a detailed confrontation with Humboldt’s doctrines pervades all his major writings (even if Steinthal’s thought gradually became more autonomous and even critical of Humboldt’s). Remember, finally, that Steinthal also edited Humboldt’s linguistic writings. I will now list the Humboldtian ideas which mostly influenced Steinthal’s thought, perhaps modified in ways which are not always made explicit. I will not check, however, the extent of Steinthal’s fidelity to his source in any particular way, since what concerns us now is not Humboldt’s doctrine but its use by Steinthal.

One of Humboldt’s statements which mostly influenced Steinthal was the well-known one that language is not érgon, but enérgeia, together with its (almost) immediate corollary: the view of language as continuing creativity (cf. Aarsleff 1988:xx). According to Steinthal (1871:86), there is no difference between the early creation of language, its being learnt by the child and its daily use. Given this perspective, language is obviously not considered an ‘invention’ by a social group with a communicative goal, but as a moment in the development of human self-consciousness. Clearly, Steinthal wished to underline his difference from Humboldt on this point: he maintained that he had made Humboldt’s views ‘immanent’ since he had put the problem in a psychological, rather than a metaphysical, framework. Once again, it is not important for us to establish if Steinthal was actually right (however see above:fn.15). One has, however, to bear in mind that the assumption of an ‘anticonventionalistic’ view of language origin does not necessarily also imply the assumption of an ‘innatistic’ view. Such an assumption, indeed, was not made by Steinthal, at least not explicitly.

21 E.g., Porzig (1923:153) remarks that Steinthal took the concept of ‘inner linguistic form’ from Humboldt, but he employed it in a way that was largely different from Humboldt’s.
Steinthal took from Humboldt also the idea that an inseparable connection binds language and thought. This connection was not conceived of in the tradition of General Grammar, which considered language as the expression of an independently given thought: instead, Steinthal viewed language as a “thought-forming organ” (Steinthal 1888:65). In this context, the notion of ‘inner linguistic form’ which Steinthal took from Humboldt became crucial. He developed and modified it in an essential way, but I think that he did not betray its original value. As should be obvious, such values are very difficult to define in an exact way: the endless debates about it are well-known.

Delbrück (1904:47-48) sees an ambiguity in the concept of inner linguistic form: according to his interpretation, Humboldt should have distinguished, even if not explicitly, a “general” inner linguistic form from a “national” one. The first form would be shared by the whole human race; the second one would be peculiar to each nation. About twenty years later, Porzig (1923:151) maintained that inner linguistic form was an “ideal norm” on the basis of which any empirical language has to be evaluated. Porzig also held that these two conceptions of inner linguistic form struggle with each other in Humboldt’s system. The first conception is of a more “psychological” kind and it refers to a state of the individual speaker. The second conception is more “logical”, and refers to the proper expression of the “ideal contents of thought”.

It would therefore seem that three different values may be assigned to the notion of ‘inner linguistic form’. Of course, they do not contradict each other; on the contrary, they are interconnected: but they are different nonetheless. The three values are: 1) an individual psychic object; 2) a characteristic peculiar to a language; 3) a characteristic of language in general. Whether this interpretation correctly and fully accounts for the problematic Humboldtian concept or not, it is certain that all three values of inner linguistic form we have listed can be found in Steinthal’s work. That of the individual psychic object comes into play when language development is dealt with. The remaining two play an essential role in the classification and evaluation of the various language groups (see below:2.2.3). Among the additions and modifications performed by Steinthal to Humboldt’s original concept of inner linguistic form, one can note the following ones: 1) the distinction of three ‘stages’ within it with respect to

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22 I refer to the debates within the Humboldtian tradition. As will be seen below (2.4.2), a highly different meaning was given to the phrase ‘inner linguistic form’ by Marty.

23 On this topic, Steinthal’s terminology certainly does not make things clearer: as will be seen, he opposes ‘form languages’ to ‘formless languages’. The puzzle can be solved, however, keeping in mind that, according to Steinthal (1860a:89), grammatical formation is present in all languages to a certain extent. It is the “idea of language” which is realized in a different way according to the different languages. See also below:2.2.3.
language development; 2) the building on its basis of a typological classification of languages very different from Humboldt's.

2.2 The "divorce" of grammar from logic

In a letter to Heyse (who was by then seriously ill) dated 10/1/1855, Steinthal wrote: "Sie müssen länger leben; ich verliere in Ihnen meinen einzigen Leser; und ich habe keine große Lust, für dieses Grimmsche und Beckersche Volk zu schreiben [you must go on living; I am losing with you my only reader; and I do not feel like writing for those Grimmian and Beckerian people]" (quoted from Bumann 1965:21). Evidently Steinthal felt in total disagreement with the purely historical view of language (which he personified with Grimm) and with the tradition of General Grammar (which he personified with Becker). We have seen in 2.1.1. that Becker's attitude towards such a tradition was not so slavish as one would imagine from Steinthal's account. We have even said (see above:19) that Becker's views on language origin do not seem too distant from Humboldt's and Steinthal's. We have also noticed, however, that Becker still conceives of language as an expression of thought, while Humboldt and Steinthal tend to assign it a more active role: a "thought-forming" capacity. At any rate, Steinthal considers Becker as the champion of General Grammar and engages a sharp polemic against him in Grammatik, Logik und Psychologie (Steinthal 1855). This book, however, is not limited to such a polemic: he aims at showing the essential inappropriateness of any logic-based approach to language study, which he wants to replace with a psychology-based one.

In order to put Steinthal's case against logic in a correct historical perspective, it is very important to bear in mind that 'logic' is still used in a Port-Royal sense by Steinthal and by his contemporaries as well. In other words, logic is conceived of as the standard of correct reasoning, as the "art of thinking". The transformation of logic in a calculus, its ensuing separation from philosophy and its gradual mathematization was still in its infancy: Boole's Mathematical Analysis of Logic appeared in 1847. Steinthal was certainly not acquainted with these new trends. A perhaps more astonishing fact is that such new tendencies are not even hinted at by any other linguists until the 1930's. Logicians whom

24 But remember the strict relation posited by Humboldt between 'laws of thinking' and 'grammatical forms'; see above:21.

25 On the conceptions of logic across the different ages, see the insightful remarks in Seuren (1998:133-139).

26 E.g., Jespersen (1924:114) quotes Peano but no reference to Russell is found throughout the entire volume, not even in the discussion about the verb 'to be'. It is difficult to think that Jespersen (or any other European scholar) could know the former but not the second. Jespersen is likely to have considered his own system and Russell's 'logistic' as mutually incompatible. It is not by accident, therefore, that a paper like Næs (1932), which is based just on logistic, had
they quote and discuss always stem from the Port-Royal, or, at any rate, from the philosophical tradition (like Brentano). The reason for such behavior lies probably in the fact that psychologism, which dominated all of theoretical linguistics between the 19th century and 20th century, felt uncomfortable with the new symbolic logic. Today's logicians, in turn, show very little interest in the logicians of the psychologistic age, whom linguists knew very well. It is no accident that the monumental work by W. & M. Kneale (1962) does not mention Sigwart or Wundt, and it mentions Brentano only once (in a footnote), and it relegates J.S. Mill to the chapter dealing with “Logic after the Renaissance”.

Let us now turn to the essential lines of Steinthal’s polemic against logic-based grammars. Language and thought do not coincide: it is possible to think without words, as is the case in animal thought or in deaf-mute thought or in logical and mathematical deduction (Steinthal 1855:153ff.). Hence logic as the science of correct thinking, and especially of correct judgement cannot be identified with grammar. Language is independent from logic: therefore logic cannot even be the standard on which language has to be evaluated. Also, the principles according to which a grammarian or a logician judges the formation of sentences are essentially different. E.g., a sentence like ‘This round table is square’ fully satisfies the grammarian, but the logician condemns it, since it is ‘nonsense’. On the other hand, sentences like Dieser Tafel sind rund [lit. ‘this table are round’] or hic tabula sunt rotundum [lit. ‘this (masc.) table (fem.) are round (neuter)’] do not worry the logician but they are condemned by the grammarian (Steinthal 1855:220). Hence grammar isn’t identical with logic since its categories are not the logical ones. It is, however, organized as an empirical science: therefore, the laws of the logical organization of knowledge apply to it.

The need to sharply differentiate between grammar and logic implies the necessity of clearly distinguishing the logical categories of ‘concept’ and ‘judgement’ from the linguistic ones of ‘word’ and ‘sentence’. Grammar does not deal with concepts, but with “images of concepts”. Whoever tries to single out concepts starting from language makes the same mistake as someone who tries to reconstruct history starting from the pictures of historical personages. In

Jespersen’s theories among its critical aims. They were criticized, among other things, for utilizing the logic of classes only, and not the logic of relations, and for wrongly assigning a special role to the grammatical function of ‘subject’. “New” logic, therefore, especially criticized linguistics for its still being linked to the Aristotelian model. But the problem of which kind of logic is the most appropriate for natural language analysis is still totally open, of course.

27 An exception is Michaelis’ review of Freges Begriffsschrift, which appeared in Steinthal’s and Lazarus’ journal Zeitschrift für Völkerpsychologie und Sprachwissenschaft (Michaelis 1880). However, interest in Frege by linguists of that age seems to be limited to that event.

28 For the different treatment of this problem given by Husserl (1928), see below:2.4.3.
an analogous way, sentence and judgement do not coincide (Steinthal 1855:175). “If therefore the judgement is the image of the real activity, so the sentence is - not at all the image of the judgement, but - the image of the psychological process by which the judgement has formed” (Steinthal 1855:195). Hence Steinthal replaces logic with psychology, concept with image, judgement with sentence, which is defined as “the apperception of a mental content” (Steinthal 1860a:100). As a matter of fact, this divorcing of grammar from logic never became definitive: in his scientific practice, Steinthal often made recourse to ‘logical’ notions, as we will see when dealing with impersonal constructions and with the notion of ‘subject’ in general (see below:3.3.1).

2.3 ‘Ethnopsychology’ and language classification

As already mentioned in 2.2.1, a problem which Steinthal felt obliged to solve was the diversity of languages. With Humboldt’s work and with the development of historical-comparative grammar, language diversity, which could be considered as an accidental fact in the framework of General Grammar, had gained the rank of an essential, not to say constitutive, feature of human language. As has been seen, Steinthal was a follower of Humboldt and had Bopp as one of his teachers. Furthermore, the problem of the opposition between ‘language’ and ‘languages’ was caught by Heyse, too. Steinthal, for his part, wished to put all these problems in a psychologistic framework. To do so, he had to add to general psychology another kind of psychology, namely ‘ethnopsychology’ (Völkerpsychologie). The first type of psychology dealt with language as a human capacity; the second one aimed at explaining the differences between languages.

One has not to think, however, that ethnopsychology was conceived as a mere ancillary science to linguistics. This was not so for Steinthal nor for Lazarus before him. Its founders thought that ethnopsychology was necessary to give an explanation of all psychological facts which are not accountable for in terms of individual psychology; among them, linguistic ones occupy the first place. Such facts can be adequately explained, according to Steinthal and Lazarus, only on the basis of the interrelations that individuals contract with each other within a community. Lazarus and Steinthal (1860:5-6) maintained that inside the human community fully particular psychological relations, events, and creations occur which do not concern at all man as an individual, nor originate from him as such. [...] In short, one is dealing with the mind of a totality which is different from all minds belonging to this same totality and which governs all of them. Let therefore the man as mental individual remain the topic of individual psychology, such as psychology has been until now; but let’s put besides it, as its continuation, psychology of the social man or of human society, which we call ethnopsychology. (Lazarus & Steinthal 1860:5-6)
We will see in the following sections that ethnopsychology gained considerable success and that its elaboration probably reached its peak with Wundt. Paul (1920:10) started his attack against ethnopsychology by remarking that such a term means “two essentially different things”: on the one hand, “the doctrine of general conditions of spiritual life in society”, and on the other, “the particular features of the spirit of different the peoples”. Ethnopsychology therefore deals with the social nature of language and with the diversity of languages as well. Paul saw one of the intrinsic weaknesses of this discipline precisely in this duality of tasks. From a historical perspective, one may remark that the first kind of problem later became the main topic both for sociologically-oriented and of pragmatically-oriented theories of language; the second kind developed under the name of ‘linguistic typology’.

Let us now deal with the language classification worked out by Steinthal within his ‘ethnopsychological’ perspective. Its key notion is ‘linguistic form’ (on the different meanings of which see above:37). The main distinction is therefore the one between ‘formless languages’ (formlose Sprachen, A) and ‘form languages’ (Form-Sprachen, B). Within each of these two groups, Steinthal opposes 1) ‘juxtaposing’ (nebesetzend) languages to 2) ‘modifying’ (abwandelnd) ones. These latter languages can accomplish their modifications in a variety of ways. The end result is the classification which follows.

A) Formless languages:
1) juxtaposing: languages of ‘posterior India’ (Thai and Burmese)
2) modifying: a) Polynesian languages; b) Uralo-Altaic languages; c) Amerindian languages.

B) Form languages:
1) juxtaposing: Chinese.
2) modifying: a) Egyptian; b) Semitic; c) ‘Sanskritic’ (i.e., Indo-European).

What characterizes ‘formless languages’ is “the expression of formal content specifications as if they were matter” (Steinthal 1860a:317); for example, if the plural is expressed by means of words such as ‘many’, ‘all’, or the tense by means of particles such as ‘once’, or the prepositions by means of substantives such as ‘front’, ‘back’ (ibid.).

By contrast, the expression of grammatical relations through inflectional means is a characteristic of ‘form languages’. As a consequence, also Subject/Predicate relations are expressed in the most developed way in form languages, which have a finite verb and a nominative ending. According to Steinthal (1855:364-365), however, the salient feature of form languages does not lie in subject-verb agreement, but in the fact that a relationship with the subject is explicitly shown by verb inflection. The subject in its turn can be expressed
or not (and it is always ‘mentally added’ anyway). The essential property of verbs in such languages lies therefore in the expression of personal relation.

The expression of the predication relation is poor in formless languages: in Annamese, the words ‘mountain high’ can mean both ‘the high mountain’ and ‘the mountain is high’ (Steinthal 1860a:325; cf. Steinthal 1847:24). Chinese opposes the two constructions through word order, but according to Steinthal such a process shows that “the development of the idea of language” is still slight, since word order is “a rhetorical means” (Steinthal 1847:24-26; 1860a:328). Only the most developed form languages (i.e., the Indo-European ones) are free of “poor expression” of the predication relation. In the Semitic languages, however, these poor expressions may sometimes occur. Such languages lack the copula and distinguish attributive from predicative constructions according to the finite vs. non-finite form of the noun or of the adjective. If both show the same form, the construction is attributive; on the other hand, if the noun, for example, shows the finite form and the adjective the non-finite one, the construction is predicative. If the predicate is definite, the third person singular pronoun is normally used as copula. When both subject and predicate, however, are definite, there are no formal means to distinguish between them. Hence it becomes necessary to take recourse to word order, but, as we have just seen, this is an unsatisfactory means, according to Steinthal (1860a:264-266).

In Steinthal’s view, the most developed Indo-European languages (hence the most developed languages of all) are Greek (among ancient languages) and German (among modern ones). The fact that the German predicative adjective is not inflected would seem to bring about a contradiction between such an evaluation and what has just been said about the expression of predication through formal means. Steinthal, however, maintains that such a way of expressing the predicative relation is totally adequate (and it is therefore another proof of the excellence of German), since “a nominative has no real sense within a predicate”, the only task of the predicate being that of ascribing a property to the subject “in a wholly abstract way”. Therefore, “the most appropriate form” is the abstract stem (Steinthal 1860a:303).

3. Developments of psychologism
3.1 Ethnopsychology in Gabelentz

The general psychological view of language held by Steinthal achieved considerable success, as we have just said. Also, the special ‘ethnopsychological’ perspective of research inspired many scholars. Their investigations, however, had different developments, which were often critical of the original model (a possible exception is Misteli 1893). Among those linguists inspired by Steinthal, but essentially independent of him, one has surely to quote Georg von der Gabelentz, who published two important essays about ‘comparative syntax’ in
Lazarus and Steinthal's journal (Gabelentz 1869; 1874-75). In his main work, Gabelentz (1901[1891]:3) distinguishes three meanings of the term ‘language’: a) ‘discourse’ (Rede); b) ‘a totality of expressive means for any thought’; c) ‘linguistic capacity’ (Sprachvermögen), i.e. “a faculty innate to all peoples of expressing thought by means of language”. In this connection, one can see a partial similarity with some distinctions proposed by Steinthal. Within ‘language in general’, Steinthal distinguished ‘speech’ (Sprechen), ‘linguistic capacity’ (Sprachfähigkeit), ‘linguistic material’ (Sprachmaterial) and ‘language’ (Sprache). The relationship between language as a universal human capacity and language diversity is another topic common to Gabelentz and Steinthal (the latter is expressly acknowledged as a forerunner in the field at the beginning of Gabelentz 1869). For Gabelentz (1874-75:130), ‘comparative linguistics’ is constituted by two parts: the genealogical one, which orders languages according to their kinship, and the ethnopsychological one, whose aim is to account for “the possible relationship of linguistic expression and the concepts or thoughts to be expressed”.

Gabelentz then follows the research line traced by Steinthal, and, before him, by Humboldt: the analysis of the relationship between language and ethnos. Gabelentz also introduced the term ‘typology’ in linguistics and sketched the future tasks of the discipline in terms one would today label ‘implicational’ (Gabelentz 1901[1891]:481). We have to remark, however, that the criteria which govern Gabelentz’s typology are rather different from the ones followed by Humboldt and by Steinthal (and this difference is often stressed by Gabelentz himself). First of all, Gabelentz frequently insists on the prerequisite that the investigation of “exotic” languages be done first-hand by the typologist and not on the basis of grammars or dictionaries compiled by other scholars. Moreover, he denies the alleged superiority of Indo-European languages over other language groups. As a consequence, the opposition between ‘form languages’ and ‘formless languages’ disappears in his system. The fact that Gabelentz was a specialist of East Asian languages surely helped him to adopt such views. Indeed, if a language only uses syntactic means to express grammatical relations, this fact does not imply that its grammar has a lesser “forming strength”. Speaking of Chinese, Gabelentz (p.362) notes: “that the effort towards formation was weaker here than in our Indo-European ancestors can be hardly maintained. Chinese has only followed other ways and worked out a different matter: not word-formation, but syntax”. Here Gabelentz was

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29 This term was evidently felt to be so new that it was not even understood: Gabelentz’s (1894) article, commonly (and here as well) quoted as “Typologie der Sprache... etc.” is originally entitled “Hypologie der Sprache”, which of course makes no sense. As the editors of *Indogermanische Forschungen* say, proofs were about to be sent for correction to Gabelentz when his death was announced.
facing a problem already touched on by Steinthal: the different evolution affecting two ‘form languages’, Indo-European and Chinese, the former supposedly reaching a higher development in respect of the latter (cf. Steinthal 1860a:277-278; see also above:42). Steinthal, as has been seen, labeled the means used by Chinese to indicate the predication relation (i.e., word order) ‘rhetorical’: Gabelentz, on the contrary, views it as a wholly syntactic process. At any rate, Gabelentz remarked, many of the features allegedly showing the superiority of Indo-European languages with respect to other language groups are not restricted to those languages only. Moreover, Indo-European languages show features which could be considered as typical of ‘inferior’ languages. Gabelentz (1901[1891]:327) quotes the fact that the nominative case appears both on the subject and on the nominal predicate: this is a confusion that Finnic languages, for example, do not incur.

In addition, the notions of ‘inner linguistic form’ and ‘outer linguistic form’ derived from Humboldt and Steinthal are also thoroughly revised by Gabelentz. He states that no language can be considered ‘formless’. The only questions to ask are what is formed in any given language and by which means such a form is brought about. The former question is “about the inner form”, the latter one “about the outer form” (Gabelentz 1901[1891]:327). After a detailed survey of Humboldt, Steinthal and Misteli’s points of view, Gabelentz notes that a good deal of the linguistic facts adduced by these scholars as representative of the different degrees of linguistic form concern more the outer form than the inner one (p.343).

Moreover, Gabelentz very consistently pursues the investigation of the actual connections between the structure of a given language (or a given group of languages) and the ‘spirit’ of the peoples who speak it. For example, comparing Malay languages and Semitic languages, which show remarkable structural similarities such as the verb in first position, he notes that remarkable affinities also exist between the histories of the two peoples. As Phoenicians were great seamen and the Arabs great explorers, so Malays boldly sailed the open sea (pp.411-415).

Hence Gabelentz rejects the evaluation side of ethnopsychology, i.e. the attempt to describe different languages as different degrees of realization of the ‘idea of language’. On the other side, he fully accepts what we could call the relativistic side of ethnopsychology, namely the hypothesis that an inseparable connection exists between the structure of language(s) and the structure of thought.
3.2 Paul and other opponents of ethnopsychology

It is not an easy matter at all to evaluate the extent to which Steinthal’s work influenced the formation of Neogrammarian linguistic thought. Of course, Steinthal is quoted (together with Scherer) as one of the inspirations of that doctrine on the opening pages of *Morphologische Untersuchungen* (Brugmann & Osthoff 1878). One has also to remember that, according to Delbrück, Steinthal’s work was necessarily implied by Paul’s (cf. above:31). However, as already observed by Robins (1978), while Steinthal’s (1860c) essay which Brugmann and Osthoff refer to clearly lies within an ethnopsychological framework, the two Neogrammarian scholars strongly maintain that language is strictly individual. In a nutshell, one could say that the Neogrammarians reject the Hegelian and, more generally, Romantic components of Steinthal’s thought while they share its Herbartian component. The first are represented, for example, by ethnopsychology and by the identification of ‘historicity’ with ‘spirit’; the second lies in the description of the individual speaker’s activity by means of psychological categories.

Not all Neogrammarians, however, expressly reject ethnopsychology: this task was taken on by Hermann Paul. Hence his standard definition as the ‘theoretician of the Neogrammarian school’, which is actually not very well motivated, is surely relevant in this connection. According to Paul, the assumption of a specific kind of psychology named ‘ethnopsychology’ is motivated neither from the psychological point of view in general, nor from the point of view of the investigation of that particular kind of psychic object which is called ‘language’. We have already quoted (see above:41) Paul’s remark that ethnopsychology is a spurious concept: indeed, it attempts to embrace the diversity of thought among different peoples and the superindividual aspect of the psychic activity as well. Paul remarks, however, that we have no evidence that such a psychic activity exists:

> Every purely psychic mutual effect realizes itself only within the individual’s mind. All exchanges between different minds are indirect and transmitted in a

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30 See, e.g., Ziemer (1883:146), who still refers to the “lessons of ethnopsychology”.

31 Morpurgo Davies (1987) and, after her, Graffi (1988) have attempted to show that the standard picture of the Neogrammarians as a school uninterested in theoretical problems is a fully distorted one. As a consequence, Paul cannot be treated as the only theoretician among the Neogrammarians, but simply as the best one. It is, furthermore, a wild simplification to view the Neogrammarians as a monolithic group: we will see in many occasions that the Neogrammarians often took positions largely different from each other about several topics. I would not subscribe, however, to Thümmler’s (1985:139) statement that Paul should not even be considered a Neogrammarian.

32 In what follows, accordingly to the general criterion expressed above (p.xiii), I will quote Paul’s text from its last edition (1920). The polemic against ethnopsychology appears from the first edition (1880) onwards, however. Another important essay on this subject is Paul (1910).
physical way. [...] There can be only an individual psychology, to which no ethnopsychology, or whatever name one could give to it, may be counterpoised. (Paul 1920:12-13).

One could object, however, that if we do not assume the existence of entities, or at least of relationships, which lie above the individual, we cannot explain such phenomena as the linguistic ones. Actually, these linguistic phenomena consist precisely in the relations which develop in a community and which motivated the genesis of a discipline like ethnopsychology. Paul’s answer to such an objection is based on a simple assumption which one could call “the constitutional uniformity of individuals”. According to him,

the content of representations in itself cannot be transferred. Everything that we believe to know about the representation of another individual only rests on conclusions which have been drawn about our own. We further presuppose that the mind of the other is in the same relationship with the external world as our own mind, that the same physical impressions bring about in it the same representations as in our own, and that such representations connect with each other in the same way. (Paul 1920:15)

These assumptions about the constitutional uniformity of individuals are restated with emphasis a few pages later (p.19). One could maintain that Paul’s insistence of the role of the individual is inseparable from his reduction of language to ‘idiolect’. This is a criticism raised against Paul by Weinreich, Labov & Herzog (1968), with a certain amount of terminological anachronism (the term ‘idiolect’ does not occur at all in Paul). Weinreich & al. say that Paul on this point essentially anticipates the Chomskian notion of the ‘ideal speaker’. This interpretation is not totally justified. Paul maintains, of course, that the real object of linguistics is the linguistic activity of all individuals, but “in their mutual action on each other” (Paul 1920:24). Paul focuses his attention on the ‘idiolect’, but he is equally interested in the activity of the different speakers in a linguistic community. This activity brings about what Paul calls ‘linguistic usage’ (Sprachusus), which is a sort of average drawn from the comparison of single linguistic organisms (p.29). It excludes those aspects of individual linguistic activity which are not shared by a plurality of speakers. One therefore sees that Paul, differently from Chomsky, does not neglect the problem of linguistic communication. He only maintains that this problem can be investigated without making recourse to ‘ethnopsychology’. For a systematic confrontation between Chomsky’s and Paul’s positions I refer to Graffi (1995).

Considerations which sound rather similar to Paul’s can be found in the work of a forerunner of the dialogical-communicative conception of language: Philip Wegener (about whom see also below:3.2.2; 4.1.3). The comparison between Paul and Wegener (which Knobloch 1988:224-228 sketches in a very useful way) clearly shows that such similarities are based on rather different
principles. For Paul, the constitutional uniformity of individuals is a biologically-oriented assumption. For Wegener, the cooperation between speaker and listener, which leads the latter to ascribe his same psychic processes to the former, derives from a conception of language as an ‘essentially dialogic’ phenomenon. Nevertheless, both Paul and Wegener assume as a starting point the analysis of the actual communication process. The assumption of a constitutional uniformity of individuals is a necessary presupposition for Wegener, too: “we unconsciously presuppose in the speaker our same psychic processes and our same psychic organism” (Wegener 1885:69). Later, Wegener (1920:2-4) polemized against ethnopsychology and particularly with Wundt, criticizing him for having neglected the fundamental dialogic aspect of language and for having focused his attention on the speaker only. In a similar way, Paul, in his preface to the fourth edition of the *Prinzipien* (Paul 1920:v-vi), stated that the question which was “at the center of his inquiry”, namely the mutual effect of individuals on each other, had been completely neglected by Wundt. Paul’s basic criticism of Wundt concerns his exclusive concentration on the speaker, with no consideration of the hearer and of speaker/hearer interrelations. We will see in 4.1.5 that Paul relates his disagreement with Wundt about the definition of the sentence to just this point.

When arguing against ethnopsychology, Paul also faces the problem of the classification of sciences and of the position to be assigned to pure psychology. Steinthal and Lazarus opposed the ‘sciences of nature’ to the ‘sciences of spirit’. Differently from many of their contemporaries (cf. Bumann 1965:40; Poggi 1977:547), they put psychology in the second group since they found some elements of progress and development inside psychic processes; such elements, however, were lacking from natural processes. In Paul’s view, progress and development do not oppose sciences of nature and sciences of spirit, but ‘historical’ and ‘nomothetical’ sciences (*Geschichtswissenschaften* vs. *Gesetzeswissenschaften*). \(^{33}\) Hence both ‘historical sciences of nature’ and ‘historical sciences of culture’ can exist: the “characteristic feature” of culture is “the action of psychic elements” (Paul 1920:6). However,

*There is no culture on an exclusively psychic basis; hence it is, at least, very inaccurate to label the sciences of culture as sciences of spirit. Indeed, there is only one pure science of spirit, namely psychology as nomothetical science. As soon as...*  

\(^{33}\) According to Bühler (1934:5), this opposition is analogous to the one introduced by Windelband (1894) and Rickert (1921) between ‘nomothetical’ and ‘idiographic’ sciences. The latter are so called because their aim is the investigation and explanation of individual facts. Paul would put linguistics among idiographic sciences. This interpretation appears to be correct in its main lines, but Paul’s position appears somewhat more complicated, as we will see immediately. The question deserves deeper treatment.
as we enter the territory of historical development, we have to do, besides psy­
chic forces, with physical ones. (ibid.)

Psychology is an ‘experimental nomothetical science’ (Paul 1920:3) but its
domain of inquiry is the spirit (or the mind). Paul therefore rejects the identifi­
cation made by Lazarus & Steinthal (1860) of ‘spiritual’ with ‘historical’ and
of ‘natural’ with ‘mechanical’. Linguistics is classified by Paul among ‘histori­
cal sciences of culture’. In the only passage of the Prinzipien which was never
forgotten by the following generations of linguists, Paul denied that any ‘non­
historical’ study could reach the level of science (Paul 1920:20).

Reis (1978:182) very appropriately notices that Paul’s intention by no
means was to equate ‘historical’ with ‘diachronic’ and consequently to reject
any synchronic approach. ‘Historical’, in Paul’s sense, covers both synchronic
and diachronic facts. We would add that ‘historical’ has a technical sense in
Paul’s work, in opposition to ‘nomothetical’; as has been seen, it refers to all
domains of reality where development appears. We have also seen, however,
that linguistics, being a historical science of culture, contains (individual) psy­
chology as an essential nomothetical component. It is surprising (but not so
much so) that in the few lines which follow the passage quoted above, Paul
allows that something ‘not historical’ can exist in language study:

The only thing that would remain of a non-historical treatment would be general
reflections about the individual use of language and about the behavior of the
individual with respect to general language use. (Paul 1920:21-22)

Hence the ‘non-historical’ component of language lies in the constitution of the
individual speakers. Now it is important to remember that, in Paul’s view, the
only non-fictitious, non-abstract,\(^3\) entities are exactly these single ‘psychic
organisms’. Cf. the following passage: “the described psychic organisms are
the authentic bearers of the historical development. What is actually spoken
has no development at all” (p.28). ‘Linguistic usage’ is only derivative.

Let us now turn to what Paul and other Neogrammarians retain of Stein­
thal’s program: the attempt to describe language through the ‘psychic mechan­
ics’ borrowed from Herbart. Paul (1920:25) notes that one of Steinthal’s main
achievements is to have stressed the importance of unconscious elements
within language: “all utterances of linguistic activity flow from that dark space
of the unconscious within the mind” (ibid.). Hence, the whole psychic activity
on which language is based unfolds itself through a complex dynamic of repre­

\(^3\) It is important to bear in mind that terms like ‘abstract’, ‘abstraction’ almost always have a
negative connotation for Paul; cf., e.g., the end of the quotation from Paul (1920:26-27) repro­
duced below. See also Morpurgo Davies (1978:45ff.), who shows that Paul does not admit the
existence of units like ‘stem’ or ‘ending’ exactly because of their abstract nature.
sentations enter consciousness groupwise and so they remain within the uncon­scious. Representations of subsequent sounds associate with each other and they also associate with representations of word meanings and of syntactic re­lationships. For example, the cases of the same noun associate together, and so do the different tenses, the different persons of the same verb, etc.; then all nouns, or adjectives, all verbs, etc.; then all different word forms having the same function, e.g. all plurals, all genitives, all perfects, etc.; furthermore, “all sentence forms associate in form or in function”. All these associations can occur without clear awareness; “they must not be confused with the categories abstracted through grammatical reflection, although the former usually match the latter” (ibid.)

This analysis of the dynamics of linguistic representations lends psychological support to one of the key concepts of the Neogrammarian doctrine in general and of Paul’s linguistic theory in particular: analogy. Partially similar meaning associations (e.g., the different cases of the same noun, or the different cases of the same verb) form what Paul calls ‘material groups’. ‘Formal groups’, for their part, are made up by “the sum of all action nominals, of all comparatives, of all first persons of a verb” (Paul 1920:107). The crossing of material groups with formal groups brings about what Paul (ibid.) calls ‘pro­portional groups’: e.g., Latin *mensa* : *mensam* : *mensae* = *hortus* : *hortum* : *horti*. These last groups are responsible for the majority of phenomena tradi­tionally called ‘analogical’. Such phenomena of analogy were no longer con­sidered by the Neogrammarians as something which disturbs linguistic change, but as the instantiation of a fundamental principle which governs this change along with the lack of exceptions to sound laws. It may seem that, for some Neogrammarians, this latter principle relegates the principle of analogy to a subordinate place, whose almost sole function is to account for some seeming exceptions to sound laws. This, however, does not happen in Paul, who consid­ers analogy as the most important factor among those governing human lin­guistic activity. As Morpurgo Davies (1978:42) writes,

Paul [...] argues that speech production is impossible without analogy because speech production calls for continuous creation and creation is based on anal­ogy. This is tantamount to saying that without analogy language cannot exist; hence analogy must belong to all phases of language.

The ‘creative power’ of analogy operates not only inside phonology, morphol­ogy and word formation but also inside syntax. Paul (1920:110) maintains that only a small part of words and word groups is generated by simply reproducing memorized expressions. An equally important part is played by a “combinatorial activity” based on the existence of ‘proportional groups’. This process is dubbed by Paul ‘analogical formation’. Paul furthermore states that
only a very small part of the sentences we utter are stored in the memory; the majority of them are formed on the spur of the moment.

Paul’s attention to the “creative” aspect of linguistic activity was surely due to Steinthal’s influence; and, in turn, Steinthal was influenced by Humboldt. It is a different question, however, whether Paul also borrowed from Steinthal the technical means to treat such creativity, i.e. analogy. The answer to this question appears to be negative, especially on the basis of what has been noted by Morpurgo Davies (1978:44-45). Steinthal (e.g., 1860c;142) stressed the character of novelty of the sentences produced by the speakers exactly as Paul did, but he did not think that such a phenomenon was based on analogy: he spoke rather of a “creation determined by laws” (p.143). So Paul borrowed from Steinthal the general view of language as a psychic mechanism, but his dependence stops at this point. Indeed, whereas Steinthal seems to treat syntactic creativity as a peculiar problem, Paul considers it as one of the many instantiations of analogy. And one has to add that Paul is especially interested in the morphological aspects of analogy (cf. Morpurgo Davies, I.c.).

3.3 Wundt’s impact on linguistics

Wilhelm Wundt was a physician and a physiologist: he studied medicine in Tübingen and subsequently he was a student of the Berlin physiologist Johannes Müller. Afterwards, he was an assistant of a great physicist and physiologist Hermann Helmholtz, who also was a former student of Müller’s (cf. Poggi 1977:493). In 1875 Wundt was appointed professor of psychology at Leipzig University, where he founded the first laboratory of experimental psychology in 1879. Until then, the teaching of psychology had been entrusted only to philosophers; so Wundt engaged himself in typically philosophical matters and published, among other things, a treatise on logic and an exposition of his philosophical system. At the beginning of the 20th century, when he was almost 70 years old, he expanded his attention to language within the framework of a monumental project of Völkerpsychologie. As a result, he published two large volumes under the title Die Sprache (Wundt 1912[1900]). These volumes brought many reactions also from ‘professional’ linguists. This was easily explainable: firstly, Wundt and his encyclopedical thought were enjoying great popularity; secondly, the general psychologistic attitude held by contemporary linguists inevitably felt challenged by such a work. In fact, Wundt argued against Steinthal’s conception of psychological mechanisms but at the same time he strongly revived ethnopsychology and proposed many “heterodox” analyses of some linguistic phenomena. The debate between Wundt and the Neogrammarians (hot, but never rancorous) probably reached its height in 1901 with the appearance of Delbrück’s (1901) criticism of Wundt and with the reply of the latter. I will come back to this debate in 2.3.4. In the present
section, I will deal with some features of Wundt’s psychology. I will limit mysellf to those features which are needed to better understand his views about language, which will be discussed immediately afterwards.

Wundt describes his own psychology as ‘empirical’ (in opposition to ‘metaphysical’), as the ‘science of the immediate experience’ (in opposition to the ‘psychology of the internal sense’), as ‘explanatory’ (in opposition to ‘descriptive’), as ‘volitionistic’ (in opposition to ‘intellectualistic’); cf. Wundt (1905:1-20). Hence Wundt does not distinguish anymore between ‘internal’ and ‘external’ experience as the classical psychological systems did. Psychology has ‘immediate experience’ as its object; therefore it is opposed to natural sciences, which are sciences of ‘mediate experience’, and it is a “complementary science” to them. Furthermore, psychology is the foundation of the sciences of spirit, since their content “consists in the actions derived from human experiences and in their effects” (Wundt 1905:19).

Wundt views psychic phenomena as ‘processes’ and not as ‘objects’. He rejects every conception of the mind as a ‘substance’, as the “room of the representations”, and he relegates it to the role of an “auxiliary concept” (Wundt 1905:388). These assumptions also lead him to deny the existence of ‘unconscious’ representations and to speak, instead, of ‘degrees of consciousness’ and of ‘levels of attention’. The highest such level is that of ‘apperception’, which Wundt (p.252) defines as “the single process by means of which any psychic content is brought to a clear conception”. On a level inferior to apperceptions there lie ‘associations’, which are defined as ‘passive experiences’ (passive Erlebnisse) (p.307).

The giving up of the distinction between ‘internal experience’ (as the origin of our representations) and ‘external experience’ (as their content) and the rejection of the view of the mind as a substance force Wundt to a new conception of the relationships between physiology and psychology. To this end, he works out the ‘principle of psycho-physical parallelism’, which he defines as follows: “jedem elementaren Vorgang auf psychischer Seite ein solcher auf physischer entspricht [to every elementary process on the psychic side there corresponds another on the physical side]” (Wundt 1905:394). This principle means that experience, which is unique in itself, can be the object of a ‘mediate’ as well as of an ‘immediate’ analysis. The first kind of analysis belongs to natural sciences; the second to psychology (p.395).

Linguistics began to experience the impact of Wundt’s psychology even before he brought out his volumes about language. A former student of Wundt’s, O. Dittrich, reviewing the third edition (1898) of Paul’s Prinzipien der Sprachgeschichte, stated that the psychological model on which that work was based (the Herbartian one) could still be considered the standard one by the time of the first edition (1880) and perhaps also of the second one (1886),
but it was by then superseded by Wundt’s ‘experimental psychology’ (Dittrich 1899:539-540). In particular, Dittrich criticized the use of the notion of ‘unconscious’ and the treatment of linguistic phenomena in terms of ‘psychic mechanics’ (see above:48-49). Dittrich (ibid.) then declared his assent to the ‘volitionistic’ conception of psychology. Such a conception appeared especially appropriate to him as far as language was concerned, since the notions of ‘act of will’ and ‘speaker’s goal’ play a very important role in it. All this implied a refusal of the absolute individualism which was typical of Paul’s conception, and, as a logical corollary, the appeal to ethnopsychology. As we have said, only one year later the first part of Wundt’s _Völkerpsychologie_ appeared, whose very topic was language.

For Wundt, ethnopsychology is the complement of experimental psychology. Indeed, this part of psychology, while surely being Wundt’s most important contribution to this science, does not exhaust it. Experimental psychology and ethnopsychology are different both in their methods and in their contents. Wundt notes that two methods can basically be distinguished within natural sciences: experiment and observation. The subject matter of experiment are the ‘processes’, and of observation the ‘objects’ (cf. Wundt 1905:24ff.). Both methods are applied in psychology: individual psychology, which investigates psychic processes, is based on experiment; ethnopsychology, which deals with language, myth, customs, i.e. with “psychic objects whose nature is relatively steady”, is based on observation (p.28). Hence Wundt went exactly the opposite way in comparison to Paul and the other Neogrammarians: the latter scholars adopted the individual psychology component of Steinthal’s program but they rejected the idea itself of ethnopsychology. Wundt, on the other hand, wholly reversed the treatment of individual psychology but he kept his faith to the idea that the assumption of superindividual, ‘ethnic’ processes was necessary to explain the functioning of language. Note that we have spoken of ‘processes’, not of ‘entities’: Wundt, in keeping with his rejection of the view of the mind as a substance, is forced to give up also the Steinthalian notion of ‘people mind’ (or ‘people spirit’; _Volksseele_ or _Volksgeist_).

For Wundt, language is the essential condition for the formation of a ‘spiritual community’ (_geistige Gemeinschaft_). Originally, it belongs to “expressive individual movements”, but it later becomes “the essential form of any shared spiritual content” (Wundt 1905:366). Its development within the child is obviously triggered by the communication within the social group. There exist, however, some ‘inclinations’ (_Anlagen_) for language which enable it to develop even when communication does not occur. This is shown, for example, by the emergence of sign language in deaf-mute children, even for those with no explicit training in it (p.367).
For Wundt, as for Steinthal before him, the ethnopsychological approach to language also has the function of solving an apparent contradiction, that between language variety and the existence of a single, general, ‘linguistic capacity’ (cf. above:40). It is difficult, Wundt says, to establish principles of syntactic organization which have a general value. For example, the only basic principle one can assume concerning word order is the requirement that it should match the order of representations: the linguistic elements which occur first are those “which mostly excite feelings and fix attention” (Wundt 1905:371). Hence, apart from laws of such a kind, which can be derived from general psychological principles, laws governing syntactic structures of various languages belong to the subject matter of ethnopsychology (p.372).

The typological diversity of languages calls for an evaluation of them: as we have already seen, “more developed” languages are opposed to “less developed” ones. This evaluation is based on the lexical and grammatical systems of the different languages. It is not by chance, therefore, that the notions of inner and outer linguistic form reappear in this connection (cf., e.g., Wundt 1912 II:436-458).

These notions are, according to Wundt, closely related to each other: the inner form consists of the “psychic motivations” which bring about the outer form as their effect (Wundt 1912[1900] II:441-442). Only the purely phonetic side of language is weakly connected to these psychological features. From the point of view of “the connections of linguistic thought”, one can distinguish a “fragmentary” thought (like, such as, for example, in Bushman) and a “rational” (diskursiv) thought; the latter is further divided into “synthetic” and “analytical”. From the point of view of “the direction of linguistic thought”, we distinguish an “objectual” from a “situational” thought, and an “objective” thought from a “subjective” one. Objective thought catches relations and processes without the filtering evaluation of the thinking subject; subjective thought relates every being and every happening to the activity of the thinking self (p.451). Objective thought prefers attributive connections, subjective thought prefers predicative ones. Wundt considers the opposition between attributive and predicative constructions as a difference between two opposed language types. Indo-European languages are essentially predicative: indeed, predicative form overrode attributive form in them so that attributive sentences were assigned a predicative outer form, through the introduction of the copula (p.280). On the contrary, most “exotic” languages belong to the attributive type. They normally form their sentences by juxtaposing noun-like forms (besides, these languages often lack a clearly identifiable verb). In some cases, these attributive connections can be the germ of predicative connections (p.351). These developments can be the generalization of the predicative form or the preservation of complex attributive forms, to which a simple predicative form is
added. This opposition between sentential forms is related to the opposition between the two psychic processes of ‘apperception’ and ‘association’ (see above). Remember that association, in Wundt’s sense, is automatic, since it does not require the active intervention of consciousness, while this intervention does take place within apperception. Predicative sentential forms are formed by apperceptive connections only, while associative connections prevail in attributive forms (p.328). Finally, Wundt divides “contents of linguistic thought” between a “concrete” content and an “abstract” content (for example, ‘hand’ vs. ‘five’). Within the latter, a “classificatory” and a “generalizing” type are to be further distinguished (pp.454-455). These types of thought can be considered as matching different degrees of development. However, this matching must not be considered as an unqualified evaluation: concrete thought has some advantages that abstract thought has lost (p.456).

According to Knobloch (1988:432), Wundt’s classification of the different “types of thought”, being based on the syntactic structures of the various language types, restored the old unity of grammar, logic and psychology (argued against by Steinthal) albeit “with an inverted sign”, i.e. assigning prevalence to psychology instead of logic. Knobloch (pp.438-439) also remarks that ‘logical’ coincides with ‘apperceptive’ in Wundt; hence, while for Steinthal, logic is opposed to psychology, for Wundt, logic is psychology. These remarks appear to be essentially correct. They can also be strengthened by examining Wundt’s treatment of the emergence of syntax, without which “no language cannot even be imagined” (Wundt 1905:371). In every language, word and sentence are “essential forms of thought”. Sentence is the “more original form”, “since thought is firstly given as a whole and only afterwards is analyzed into its parts” (ibid.). This analysis is based on the ‘law of duality of logical forms of thought’, according to which the content of the whole representation is firstly divided into two parts each of which can in its turn divided into two further parts, and so on. The first division corresponds to the subject/predicate dichotomy which is subsequently replicated into those of noun and attribute, verb and object, verb and adverb, etc. (p.326). “In this way, the judgement, which finds its linguistic expression in the sentence, originates from the process of apperceptive analysis” (ibid.). The psychologistic conception of the parallelism between language and thought therefore reaches its peak with Wundt’s work. Brentano and his students, especially Anton Marty, vehemently argued against such a conception, as will be seen below (2.4.1-2.4.3).

3.4 The debate between Wundt and the Neogrammarians

Wundt and the Neogrammarians took exactly opposite paths in the implementation of Steinthal’s program. It is not surprising, therefore, that the Neogrammarians sharply reacted against Wundt’s views on language. Delbrück’s
polemical book and the immediate reply to it by Wundt have already been mentioned. Paul, for his part, worked out a fourth edition of his *Prinzipien* essentially to disprove Wundt’s statements. In this section, we deal with the more general aspects of the debate; the specific syntactic problems will be discussed in chapters 3 and 4. I am going to present the objections to Wundt concerning those aspects of his linguistic and psychological thought that have been sketched in the preceding section.

First of all, Paul committed himself to defending the idea of the “dark space of consciousness” from the attacks it had experienced by Wundt and his followers. Paul restated that this was the basis for explaining linguistic associations; his opponents denied it in the name of the processual view of psychic phenomena and of the ‘principle of the psycho-physical parallelism’ (see above:51). Paul essentially gave a methodological answer to Wundt’s principled objections to Herbartian psychology: in the first place, he recalled that the “physical effects” alluded to by the ‘principle of psycho-physical parallelism’ were far from having been proved, “despite all physiology and experimental psychology” (Paul 1920:25fn.1). Without reliable proofs, Paul maintained (while at the same time professing that proofs in favor of his theses would emerge from his book), it was impossible to decide *a priori* on which basis the several linguistic representations associate with each other. The idea of a “dark space of the unconscious within the mind” had therefore the same function as a natural science hypothesis, “which succeeds in establishing a connection between the isolated facts and in accounting for what must occur under given conditions” (ibid.).

Paul was also obliged to discuss again the question of the legitimacy of ethnopsychology. He therefore reopened the polemic he had been engaged in with Steinthal and Lazarus since the first edition (1880) of *Prinzipien*. He devoted to such polemic several additions to the fourth edition of the volume and a whole essay as well (Paul 1910) where he stated that the “five fundamental problems of linguistics” could be solved without any appeal to ethnopsychology. These problems are 1) the way in which linguistic activity takes place; 2) language learning; 3) language change; 4) the splitting of languages into dialects, and 5) language origin. Linguistic activity, Paul maintained, is always realized as a communication process between two different psychic organisms through a physical medium (cf. above:45-46). Hence the linguistic representations of the speaker cannot directly pass to the hearer, but linguistic sounds can excite representations already present in the hearer’s mind, and, possibly, cause new connections of representations. Representations excited within the hearer never exactly match the speaker’s: when this difference goes beyond a certain limit, misunderstandings originate (Paul 1910:367). Language learning by the child follows this same pattern, with a further difference: the sounds produced by the
adults do not excite representations already present in the child, but s/he creates them on the basis of her/his linguistic experience. This implies that the language acquired by the child will never be identical to the one of the preceding generations (pp.367-368). These considerations lead to a complete reversal of the problem of linguistic differentiation. “The supposed linguistic unity has never existed. There are as many languages as individuals” (p.368). Therefore, when we speak of a language or of a dialect, we actually abstract from individual differences. The so-called ‘dialect partition’ (Dialektspaltung) only means that such individual differences have trespassed a certain limit, so that they make mutual comprehension impossible (Paul 1910:369; 1920:38).

The problem of language change is strictly connected to the two preceding ones: if language is only individual, if in a certain sense it is “newly created” by every child in the learning age, then changeability is one of its essential features (ibid.). The last problem, language origin, can only be solved by assuming that it is governed by the same factors operating in historically attested linguistic activity and in language learning by the child (Paul 1910:370; 1920:35). Paul’s conclusion was that ethnopsychology was not only an unnecessary hypothesis, but also a wrong one: since it did not grasp the essentiality of the communication process, it was obliged to assume the intervention of a not well defined ‘people mind’ (Volksgeist) in order to explain language variation (Paul 1910:371).

Delbrück (1901) first described and compared Herbart’s and Wundt’s systems of psychology with such a clarity and a terseness which are still a standard for a scientific review (pp.6-44). Afterwards, he devoted himself to a detailed and systematic confutation of Wundt (1912[1900]), whose reply appeared a few months later (Wundt 1901). The debate between the two scholars (on which see also Seuren 1998:106-108) centered on several points: one of them concerned the general conclusions which can be drawn from the treatment of “exotic” languages (cf. Delbrück pp.44-48 and Wundt pp.24-32). Another topic of discussion was the importance assigned by Wundt to sign language (Gebärden­sprache); cf. Delbrück (pp.48-70) and Wundt (pp.35-50). Other topics were language origin and language change (cf. Delbrück pp.71-115 and Wundt pp.51-68; 82-110). There followed some syntactic arguments, to which I will return in the following chapters (see, e.g., 4.1.4). For the time being, I only mention Delbrück’s criticism of Wundt for his use of the phrase “attributive languages”. Delbrück found that it was illegitimate to speak of “attributive sentences”, which would just be the peculiar feature of attributive languages, according to Wundt. Delbrück (p.149) maintained that the term ‘attributive’ should be used to mean only cases “where an adjective forms a part of the naming of an object, e.g. ‘the green tree’”. Wundt’s attributive sentences should be named, Delbrück remarked (ibid.), nominal sentences. Wundt main-
tained, on his side, that the difference between attributive and predicative sentences mirrors a difference between levels of thought: the attributive form of sentences represents a feature of the “most primitive” stages of linguistic development (Wundt 1901:75-77). Wundt objected that Delbrück was taking into consideration only Indo-European languages, here, as in other cases. In his turn, Delbrück replied that Wundt arbitrarily presented “exotic” languages as evidence of an alleged primitive stage of language. Wundt (1901:78) added that “there was a time in which attributive sentences had greater importance even in Indo-European languages”: there should be some traces of such a period, mainly represented by what Wundt called “emotional sentences” (Gefühlssätze), i.e., essentially, by exclamatory sentences. Furthermore, Wundt (ibid.) suggested that the opposition of the two sentence types and their interpretation as successive stages of development would be connected to the difference of ‘degrees of consciousness’: attributive sentences would correspond to associative processes, predicative sentences to apperceptions.

As can be seen, the acceptance of Wundt’s linguistic theories often presupposed the acceptance or the rejection of his psychological theories. However, Delbrück did not criticize Wundt in this respect (differently from Paul), but he only affirmed that the “practical” (today one would rather say “empirical”) linguist is essentially indifferent to the choice of any psychological system: both Herbartian ‘intellectualistic’ and Wundtian ‘volitionistic’ psychology can work equally well (Delbrück 1901:43-44). This point of the debate between Delbrück and Wundt was the one which was to mark the history of the relationships between linguistics and psychology in the sharpest way. Indeed, Wundt very strongly reacted against this statement by Delbrück, which clearly betrayed the latter’s skepticism towards a psychologistic view of linguistics, and in particular of syntax. Wundt (1901:11) maintained that such a statement implied a paradoxical conclusion, namely that both kinds of psychology could be true. A few pages later, Wundt (p.21) added that, while Herbart wished to apply his own psychology to language, he aimed at drawing elements for his psychology from the study of language. Hence, the two points of view would be essentially different; if Herbart’s could somehow be considered as “external” to language, Wundt suggested, this could not be said about his own. Nevertheless, about thirty years later Delbrück’s skepticism emerged as a winner and it held such a position for about thirty years more. Bloomfield’s implicit reference to Delbrück’s positions and his resuming of them have been quoted in 1.2., above. During the period of about thirty years which lie between Delbrück and Bloomfield, other factors also contributed, however, to push psychologism to its crisis. Among such factors we would include the emergence of new conceptions of psychology, which developed independently from Steinthal and/or Wundt. We now turn to these new conceptions.
4. The criticism of psychologism: Brentano, Marty, Husserl

4.1 Brentano's 'intentionalistric' psychology

In the same year (1874) when Wundt's Grundzüge der physiologischen Psychologie (Leipzig: Engelmann) was published, Psychologie vom empirischen Standpunkt (Leipzig: Duncker & Humblot) by Franz Brentano also appeared. This volume (as did many others by the same author, along with his oral teaching) was to exert a major influence on the history of psychology and of philosophy. As is well known students of Brentano included Edmund Husserl (who decided to change to philosophy from mathematics after attending his lectures) and the psychologist Carl Stumpf, who in turn was the teacher of Köhler and Koffka, the first Gestalt-psychologists. In the field of philosophy of language, the most excellent of Brentano's student was undoubtedly Anton Marty, to whom I will turn in the following section. I will start by sketching a comparison between Brentano and Wundt's approaches. There will follow some observations about those aspects of Brentano's theories which mostly influenced Marty's theory of language.35

Titchener's essay (1976[1921]) is still a good starting point to compare Brentano and Wundt's psychological theories. Titchener firstly remarks on what is shared by both scholars:

They agree that psychology holds a place of high importance in the fellowship of the sciences, and that it is logically prior to natural science. They agree that it may dispense with the concept of substance and confine itself to an account of phenomena. They reject the unconscious as a principle of psychological explanation. They define the unity of consciousness in substantially the same terms. (Titchener 1976[1921]:81-82)

An anti-Herbartian attitude is therefore what is shared by Brentano and Wundt: both reject the assumptions of a substance called 'mind' and of an 'unconscious space'. At this point, however, similarities stop and differences begin to appear, which turn out to be far greater than the likenesses. Again quoting Titchener (1921[1976]:84), one would say that "Brentano's psychology is essentially a matter of argument, and that Wundt's is essentially a matter of description". In other words, Wundt is mainly interested in describing the origin and the development of our psychic experiences (Erlebnisse), which he conceives as processes, whereas Brentano investigates their structure. This different perspective motivates Brentano's lack of interest in experimental psychology (which on the contrary, lay at the core of Wundt's interests) and Brentano's distinction between 'genetic psychology' and 'descriptive psychology'.

35 A bibliography of Brentano's writings, as well as of the writings about him can be found in McAlister (1976). Here I have mainly utilized Gilson's (1955) monograph, besides the essays collected in the above mentioned anthology.
(whereas Wundt does not even hint at such a distinction). “Unlike genetic or explanatory psychology, descriptive psychology is not concerned with the causal status of psychological phenomena or with the relations that they bear to physical and chemical processes” (Chisolm 1976:92). We have to remark, for exactness’ sake, that this distinction between the two kinds of psychology follows the appearance of Psychologie vom empirischen Standpunkt by some decades. In particular, we want to note the absence of a similar distinction in Wundt. According to him, genetic psychology is probably descriptive psychology in itself, since in his view psychological description is a description of the psycho-physical process, while in Brentano’s view it is the description of the structure of the psychic act.

The two fundamental features of the psychic act, according to Brentano (cf. Gilson 1955:51) are: 1) every psychic act is conscious; 2) every psychic act is directed towards an object, i.e., as Brentano says borrowing a term used within Scholasticism, it is ‘intentional’. The first of these two features is ascribed to psychic acts also by Wundt (even though with totally different motivations) but the second one is peculiar to Brentano’s framework. The care of defining the relationship between psychic act and its object is wholly extraneous to Wundt. For Brentano, it forms the basis of descriptive psychology, which in turn is considered by him as “the fundamental discipline of philosophy”. This ‘objectual’ foundation of psychology is therefore opposed to the ‘representational’ one typically held by Steinthal and also by Wundt (despite all the differences between these last two scholars). It crucially influenced Marty’s conception of language and the polemic that he and his follower Funke engaged in against the linguists whom they called “Romantic”: among others, Humboldt, Steinthal and Wundt (Funke 1927:51-94).

The care for ‘objectuality’ led Brentano to discuss also the ways in which our linguistic expressions describe the relationship between our thought and things. For Brentano, not all linguistic expressions have an autonomous meaning; that is, not all of them indicate a given object, a given ‘real’. Many of them have a meaning only together with other expressions, i.e. they are ‘cosignificant’ (mitbedeutend). As is plain, the most typical expressions belonging to this class are conjunctions, prepositions and adverbs. According to Brentano, adjectives and nouns are also cosignificant, if they do not indicate any ‘real’. As Gilson (1955:144) comments, nouns do not have any sense if they do not indicate anything real: they may be nouns for grammar, but not for logic or psychology. At a late stage of his work, Brentano ended up refusing to use the label of ‘noun’ in its proper sense (namely the logical and psychological one) to all abstract nouns, since they do not indicate any ‘real’; he classified them among cosignificant expressions (cf. Gilson 1955:159-160; 162-163). Brentano’s concerns are, as may be seen, mainly of a logical and metaphysical
character. It will be seen in a moment, however, that they impinged on Marty’s system, which was directed to more centrally linguistic topics. It is also important to note that Brentano, like Steinthal, emphasizes the non-identity between logical and grammatical categories. Unlike Steinthal, however, Brentano does not consider logic as totally extraneous to grammar but he evaluates grammar, so to speak, with recourse to the standards of logic and psychology. The latter is conceived, furthermore, as independent from language and linguistics both in its contents and in its methods: Brentano therefore distinguishes himself from Steinthal also in this respect.

4.2 Marty’s philosophy of language

Marty aims at establishing a ‘psychological-empirical’ theory of language. Given this perspective, he vehemently argues against the line of thought that, in his opinion, leads from Humboldt through Steinthal to Wundt. His polemic is especially centered on 1) language origin; 2) the relationship between language and thought; 3) the notion of ‘inner form’.

Marty is decidedly against a ‘nativist’ view of language. Language originated in order to satisfy communicative needs, hence ‘teleologically’, even if ‘without a plan’ (planlos). Actually, neither Steinthal nor Wundt definitely spoke of innatism. They spoke rather of an “instinctive development of language”, of a product of the “individual expressive movements”. Marty, however, very cleverly remarked that such a view of the origin and development of language was, by necessity, nativist (Marty 1916-20 I, part 2:303-304). However, as we have just seen, this process of language development, although it is teleological and goal-directed, is also ‘without a plan’. It is just this lack of a plan which lies at the basis of the language/thought relationship, which, according to Marty, is always imperfect. Every language sometimes shows redundancies, sometimes deficiencies, analogies as well as anomalies (Marty 1916-20 II, part 1:18): as a consequence, the logician cannot base his system of

36 Marty belongs to those linguists who have been involved in the (often sterile) debate about forerunners: his theories have been considered by Kuroda (1972) as an anticipation of some of Chomsky’s statements. Such an interpretation has been criticized by Parret (1976). This last essay is, however, very useful for the understanding of Marty’s thought.

37 The use of such terms as ‘teleological’ immediately suggests the hypothesis of an influence by Marty on the Prague school (also taking into consideration the very concrete fact that Marty was professor in Prague for some decades). Jakobson’s (1973:12-13) testimony corroborates this hypothesis.

38 Throughout the present book, I will often refer to the posthumous works by Marty, edited by O. Funke (see especially Marty 1940 and 1950). The anthology quoted as Marty (1916-20) is formed by papers originally published in different places during the author’s life; they were collected after his death in two volumes, each consisting of two separate parts. For more information about the vicissitudes of Marty’s writings, see the preface by Funke to Marty (1940).
categories on a given language. Up to this point, Marty does not seem to differ very much from Steinthal, even if their motivations are radically different: but, while Steinthal opted for the divorce between linguistics and logic, Marty’s solution was totally opposite. For Marty, these reflections on the “illogical” character of natural languages do not force us only to study those representations which are expressed by language: on the contrary, they make the need felt for “a treatment of thought which is independent from language” (ibid.). In other words: while in Steinthal’s and especially in Wundt’s framework, thought which is linguistically expressed is language, for Marty thought is an independently existing object which language denotes in a more or less adequate way.

Marty cannot neglect the results of 19th century linguistics which pushed the Port-Royal version of General Grammar to its crisis. At the same time, however, he is not ready to give up the assumption of universal contents of thought: obviously, this perspective could not even be conceivable if it were not based on Brentano’s psychology and critique of language. Marty is opposed to some of Steinthal’s other fundamental assumptions as well, such as the sharp separation between grammar and logic and the existence of language types totally different from each other. He distinguishes logic as “the science of correct judgement” (this was the sense Steinthal gave to the term ‘logic’) from logic in the psychological sense, namely as a science of the forms of thought (Marty 1908:82). Such forms are indeed universal, but they are not expressed by the same categories in all languages (p.89).

Given all this, it should be no surprise that the expression ‘inner linguistic form’ has a radically different meaning in Marty’s work from the one it has in Humboldt and (although with some modifications; cf. above:2.2.1) also in Steinthal. For Marty, inner linguistic form is not to be confused with meaning; rather, it is an “auxiliary representation”, an intermediate level between meaning and phonetic form. One may ask why Marty keeps on utilizing the phrase ‘inner linguistic form’ even if he assigns to it a meaning so radically different from the original Humboldtian one. The reason lies in the fact that he qualifies this “auxiliary representation” as inner to mean that it is accessible to inner experience only (Marty 1908:153; cf. Funke 1927:129).

Marty distinguishes two kinds of inner linguistic form: the ‘figurative’ one and the ‘constructive’ one. The inner form of the first kind makes the metaphorical and metonymical extension of meanings possible: when a German says Blutorange, he plainly does not refer to a blood-spotted orange, but he uses the root of ‘blood’ as an auxiliary representation to indicate color. If we speak of a “wavering judgement”, it is because we extend the same auxiliary representation we experience in the case of a wavering object to a psychic activity such as a judgement (see Funke 1923:178). The existence of such a figu-
rative inner linguistic form finds an explanation in the nature of language, which, according to Marty, is “teleological, but without a plan”. Primeval signs originally have an immediate imitative value, which later takes on additional meanings: think, for example, of a sign like bau bau, which originally only means a dog’s noise, and later means the animal too (see Funke 1923:181; 1927:127).

Constructive inner linguistic form (on which see Marty 1908:144ff.) essentially concerns the domain of syntax. We saw in the preceding section that Brentano remarked that some expressions are ‘cosignificant’, i.e. they do not design a specified object: they realize a meaning only when they are combined with others. The same meaning can therefore be expressed through forms which are all syntactically connected, but each in a different way from the others. Funke (1923:182) illustrates the problem by sketching a confrontation between Marty and Wundt. Wundt would interpret the difference between Latin amavi, French j'ai aimé, German ich habe geliebt (all meaning ‘I loved’) as instances of the opposition between synthetic vs. analytical thought. Marty, by contrast, considers them as different ‘constructive inner forms’. The meaning of all such expressions is identical: what differs is their inner (and obviously also their outer) linguistic form. Hence one again sees that, in the framework sketched by Brentano and by Marty after him, the language/thought relationship is shown as “reversed” in contrast with the research line represented by Steinthal and Wundt among others. Language is no longer treated as the most authoritative witness of thought, both individual and ethnic: rather it is thought, viewed as an autonomous and universal entity, which dictates the criteria according to which linguistic expressions are to be classified.

In this perspective, the distinction traced by Marty between ‘autosemantic’ and ‘synsemantic’ signs is a fundamental one. The signs of the first kind are those which “taken in isolation, express a psychic content which is communicable in itself”; the other signs do not have such a capacity (see Marty 1908:205). If natural languages were not syntactically constructed, there would be no synsemantic signs (p.532). Note that the terms ‘autosemantic’ and ‘synsemantic’ only partially match the Peripatetic notions of ‘categorematic’ and ‘syncategorematic’. Thus, sitzt (‘sits’), geht (‘goes’), etc., since they are ‘predicable’, are categorematic, but they are not autosemantic. Only Gehender (‘the one who goes’), Sitzer (‘the one who sits’), er geht (‘he goes’), er sitzt (‘he sits’), etc., are autosemantic (Marty 1908:206).

Autosemantic signs are divided into ‘emotives’ (exclamatory sentences, commands, questions), ‘assertions’ (declarative sentences) and ‘suggestives of representations’ (Vorstellungssuggestive), i.e. nouns (Marty 1908:476). This classification is based on Brentano’s taxonomy of psychic phenomena: ‘affective movements’ (Gemütsbewegungen), ‘judgements’ (Urteile) and ‘represen-
tations’ (Vorstellungen). Nouns can be ‘simple’ (e.g., ‘house’), or ‘partitioned’ (gegliedert, e.g., ‘big house’); cf. Marty (1940:187). There exists an essential difference between nouns and other autosemantic signs: nouns are autosemantic only “theoretically”, the others “in practice”. Indeed, we do not speak by uttering nouns in isolation, but sentences or speeches (cf. Marty 1908:477; 1950:19).

As can be seen, Marty labels as ‘nouns’ also what we would call ‘noun phrases’. He indeed maintains that no difference exists, from a ‘semasiological’ point of view, between simple words, compounds and word arrangements (Wortfügungen). That is to say, there are no differences between the kinds of meaning they can express: the difference only lies in the way of expression. What is expressed in a given language through a word is often expressed in another language through a compound, and vice versa. Analogous synonymies can be found also within the same language. It is furthermore well known that an identical concept can be expressed through a word and through a word group as well: instead of ‘square’, we can say ‘equilateral rectangular quadrilateral’ (Marty 1950:45-46).

Synsemantic signs are subdivided into ‘logically based’ and ‘not logically based’. The first are defined as those which are matched by an analogous composition in thought or, simply, in meaning; the others are those which do not have such a matching (Marty 1940:126). Within this latter group, a special class is formed by the so-called ‘emotives’. Some of them have both the outer and inner form of statements but they are actually orders or requests: e.g., ich wünschte, dass du dies tust (‘I would like that you do that’; p.202). Other ‘emotives’ contribute to change “the utterance coloring”: e.g., Sie dürfen sich irren (‘you may be wrong’) instead of Sie irren (‘you are wrong’; p.204). Other cases of ‘not logically based synsemantics’ are given by the so-called ‘correlations’ and ‘modifications’, and by the syntactic connections where abstract nouns appear. Abstract nouns, indeed, are only seemingly autosemantic, but in fact they are ‘onomatoid synsemantics’ (Marty 1940:197; 150:62-63).

4.3 Husserl

I will only touch on the work of the most famous (as well as most widely researched) student of Brentano’s. Works about Husserl are numerous, and his research in the field of the philosophy of language has not been as extensive as Marty’s. Moreover, a useful comparison between these two scholars has been undertaken by Parret (1976).

Hence I limit myself to examine the solution given by Husserl to a problem already discussed by Steinthal (cf. above:2.2.2): the relationship between ‘well-

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39 For the meaning of such terms see below (4.2.2).
formedness’ according to the grammarian and according to the logician. As may be recalled, Steinthal maintained that the sentence ‘This round table is square’ is perfectly good for the grammarian, while the logician would condemn it as ‘nonsense’. For Husserl, on the other hand, such sentences are not to be considered as cases of nonsense, but rather of countersense. These two types of opposition to sense must be kept distinct since they are different both in their nature and in the kind of rules which are necessary to prevent them. For example, Husserl says (1928[1900]:326), a phrase such as ‘a round square’ has a “unitary sense”, to which, however, no existing object may correspond. By contrast, there is no sense at all corresponding to a word sequence as ‘a round or’, or ‘a man and is’.

Husserl therefore investigates a problem not faced by Steinthal: the possibilities of categorial combination of the various classes of expressions (as may be recalled, the only task assigned to grammar by Steinthal was the establishing of agreement rules). Husserl solves it, as can be seen, by means of an ‘objectual’ approach to meaning. This approach had a remarkable influence on some proposals of sentence analysis (see below:4.1.5).

I will not even touch on the debate which originated between Brentano and Marty, on the one side, and Husserl on the other, which was precisely about ‘psychologism’. According to Husserl, some psychologistic elements still remained in Brentano’s framework. Brentano, however, rejected such a criticism: he maintained that, if ‘psychologism’ meant a doctrine denying the universal value of knowledge, he certainly could not be counted among its supporters (cf. Gilson 1955:204-205fn.). An analogous position was held by Marty. The problem was of an essentially gnoseological kind: was it necessary to establish a “pure” theory of knowledge (namely, a theory which does not appeal to psychological categories), or not? Husserl asserted such a necessity and this was the starting point of his polemic against Brentano and Marty. Despite all these differences, however, the whole Brentanian school marked a turning-point with respect to representational psychology. Many linguists of the first decades of the 20th century appeared to have been persuaded of the importance of this turning point (see, e.g., Porzig 1924:129).

5. Towards the crisis of psychologism

5.1 Overview

We have quoted Knobloch’s statement that Wundt restored the unity between grammar, logic and psychology, which had been broken by Steinthal, “with an inverted sign”: according to Wundt, both linguistic and logical categories instantiate psychological categories (p.54). We saw that Marty argued against such a radically psychologistic view: he criticized the ‘language/thought parallelism’ assumption and the identification of ‘inner linguis-
tic form' with meaning. Marty's criticism of Wundt's (and also Steinthal's) radical psychologism involved the statement that universal contents of thought exist and the (partial) resumption of hypotheses of General Grammar.

‘Ethnopsychological’ approaches, for their part, were a solution agreed on by few linguists to a problem which all felt as fundamental: to explain how language, which is a typically individual product, nevertheless accomplishes the task of communicating. The linguists of the French school (see next section) solved this problem by maintaining that language was a social phenomenon. As a consequence, they overlooked its creative aspect both in its acquisition and in its usage. Other linguists, like Paul, instead restated the strictly individual character of every linguistic activity.

Finally, Wundt’s psychological theories began to be called into question, even by professional psychologists. Van Ginneken (1907) attempted to give a psychological explanation of linguistic phenomena in a framework totally different from Wundt’s. The Würzburg school was engaged in proving the existence of “thought without images” and it submitted to experimental studies also those “spiritual products historically given” like language, which, in Wundt’s opinion, could be investigated only by means of observation (cf. above:2.3.3).

The general psychologistic attitude, which since Steinthal had become a feature common to all linguists however different the individual positions might have been, was therefore approaching a crisis. It is not surprising, then, that since the beginning of the 1920s some scholars, often with very different orientations, such as Otto Jespersen and Karl Bühler went on stressing the totally particular nature of language. Neither Jespersen nor Bühler (who was a psychologist) took a decidedly antypsychologistic position. Nevertheless, there is no doubt that their studies (especially Bühler’s) paved the way to the view of language as an autonomous system. As we will see, such a view was typical of structural linguistics both in Europe and in America.

5.2 Language as a 'social phenomenon': the French school and the school of Geneva

The rather strong connections which still link linguists like Meillet, Vendryes, Bally, Sechehaye and Saussure himself to the age of psychologism should not be overlooked. In the present section, therefore, such links will be investigated, and it will emerge that in some cases psychologistic positions were abandoned by the above mentioned linguists, while in others they continued to be adopted. Also the positions of one psychologist heavily influenced by Meillet and by the Geneva linguists, namely Henri Delacroix, will be briefly discussed.

‘General linguistics’ in Meillet’s sense sees as its task the definition of the set of possibilities, based on laws, psychological and physiological, which gov-
ern linguistic change. Particular socio-historical situations determine which of such possibilities are actually realized. These views are clearly expressed by Meillet (1926[1906]:16), whose conclusion is that “language is mainly a social phenomenon” (le langage est éminemment un fait social). The sociological view of language seems largely to prevail over the psychological one in Meillet’s work, especially as far as the creative aspect of language is concerned. Meillet (1938[1922]:10) maintained that the average man speaks mainly by means of invariant formulas. Hence he does not appear to consider the problem of linguistic, and in particular of syntactic, creativity; this problem, however, was felt strongly by linguists of the preceding generations such as Steinitz or Paul (see, e.g., 2.3.2, above). In Meillet’s view, as well as in Vendryes’, the problem of language origin and its development as a mental capacity also loses its meaning. Language acquisition by the child is no longer treated as the recreation within the individual of a phenomenon characterizing mankind as such, but as a simple product of imitation (Vendryes 1921:8-9). Psychology seems to change increasingly from the “basic science” of linguistics into an “auxiliary science”, within Meillet and Vendryes’ framework. For example, Vendryes refers to psychology when he investigates ‘affective language’ (Vendryes 1921:162-189). Psychology is increasingly relegated to parole; langue becomes (at least in Meillet) an exclusively sociological concept. Language as a human capacity receives scarce attention.

A consideration of psychological problems, however, can be found within Geneva school, especially in the work of Bally and Sechehaye. Bally’s psychologistic orientation is especially shown by his ‘stylistics’, which he defines as “the investigation of expressive procedures in language” (Bally 1936[1913]:109). Sechehaye, starting with his earliest works, shows a constant interest in solving the contradictions between the individual and the social aspects of language.

The reference that linguists of the French and of the Geneva schools make to psychological, physiological and sociological categories raises the problem of their relationships to Wundt. Meillet (1926[1906]:6) argued against the abuse by linguists of “vulgar psychology”: he almost literally repeated analogous observations by Wundt (cf., e.g., Wundt 1901:17), who created the phrase “vulgar” (i.e., “unscientific”) psychology. Some years later, Meillet gave a very positive evaluation of Wundt’s efforts to connect linguistics with psychology stating that they had brought about “noteworthy progress”, the effect of which were yet to be fully appreciated (Meillet 1926[1918]:48). Sechehaye’s (1908) programmatic work assumed a psychologistic perspective as fundamental: references to Wundt, therefore, became compulsory. However, Sechehaye marked his difference from him at a very early stage: Wundt had failed to address the “grammatical problem”, namely that which concerns the
“psychophysiological foundation” of “the origins, laws and functioning of grammar” (Sechehaye 1908:24). However, many similarities with Wundt still remain in Sechehaye (1908), such as the distinction between ‘individual psychology’ and ‘collective psychology’ as the two disciplines on which ‘theoretical linguistics’ is based. ‘Science of the affective language’ corresponds to the former one, ‘science of organized language’ to the latter. Sechehaye, however, always shows a certain perplexity regarding ‘collective psychology’ (Sechehaye 1908:97). This perplexity finally became a refusal of the hypostasis of any superindividual entity: “we do not think that the sociological view of language forces us to admit the existence of such a language in itself” (Sechehaye 1933:65). Interest in Wundt’s thought gradually vanished even on the part of linguists of the French school. Meillet, in his review of Delacroix (1930), wrote that Wundt’s influence on linguistic studies “had never been deep”, and that it was by then reduced to a minimum (Meillet 1931:2). In this instance, Meillet was, probably, not totally true to fact.

Delacroix’s work appears to be very much indebted to Meillet’s, but it also shows some very interesting original ideas. In discussing Wundt’s theories, he noted that their problematic core lay exactly in the difficulty of reconciling the postulation of superindividual categories with the intrinsically individual nature of linguistic facts (Delacroix 1930[1924]:58-59). Delacroix, possibly because he was a psychologist, rejected as exaggerated the positions originating from Durkheim which depicted language as a “social compulsion”, with no room left for the individual (p.597). On the contrary, he especially stressed that language is a universal capacity peculiar to humans. This was, according to Delacroix, ‘language in the proper sense’. He therefore maintained that the Saussurean dichotomy langue/parole was insufficient, and that it had to be replaced by a quadruplet of concepts: besides 1) ‘language in the proper sense’, there are 2) langue as a ‘set of linguistic customs’, 3) ‘speech’ (parler) or ‘verbal formulation’, and 4) parole, i.e. ‘the psychophysical device which allows the individual speaker to externalize his linguistic system’ (pp.2-3). Hence, he also seems to implicitly criticize Saussure for having paid too little attention to language as ‘capacity’ and hence having adopted Durkheim’s extreme positions (cf. also pp.71-72). On this point, Delacroix anticipates Doroszewski (1933). Today, after the appearance of Saussure’s unpublished works and of De Mauro’s (1972) and Koerner’s (1973) important studies, Delacroix’s criticism no longer appears well grounded: Durkheim’s influence on Saussure was extremely limited. Furthermore, it has been shown that the word langage in Saussure does not only mean the total of langue and parole, but it also refers to that human universal capacity on which Delacroix focused his attention. However, such a mistaken interpretation of Saussure’s thought was unavoidable in the
20s and 30s. In any case, Delacroix’s criticisms sound more adequate if they are viewed as directed at Meillet and Vendryes rather than to Saussure.

Delacroix borrowed several notions from the linguists of the French school: first of all, the importance assigned to sociological categories but also some traces of the General Grammar tradition such as the assumption of the universality of noun and verb (Delacroix 1930[1924]:225-228). On this subject, Meillet (1926[1920]:175-176) had maintained that the verb/noun distinction was common to all languages and that the verb was distinguished from the noun even if this difference was not morphologically realized. In an analogous vein, Delacroix (1930[1924]:226) remarked that the verb/noun distinction was shown in the sentence even in languages where it was not manifested in words taken in isolation. A few pages later, Delacroix took a position that one could dub “weakly universalistic”:

General language conditions ensure that all languages contain certain grammatical categories. Starting from such a minimum of logic, without which no language is possible, grammatical categories and logical categories cease to match. [...] Such basic categories are present in all languages. (pp.231-232)

As can be seen, logical categories, that Steinthal had vehemently tried to expel from linguistics, again show up in Delacroix: after quoting Steinthal, he indeed affirms that “general grammar is very limited in its scope” (p.242). Delacroix therefore recognizes some logical categories within human language even if he admits that they are only partially mirrored by grammatical categories. On the other hand, a certain mismatch also exists between grammatical and psychological categories. It is therefore the interrelation between these three kinds of categories that determines the structure of human language and the variety of languages. A similar position is also held by Sechehaye: in his study on the “logical structure of the sentence” (Sechehaye 1926a), he aims at showing that the cases where this structure deviates from the logical standards do not mean that language is essentially illogical since they can be explained given certain psychological assumptions. The logic which is spoken about essentially seems an Aristotelianism tempered with common sense. This view of language as a wholly sui generis logical and psychological structure also characterizes Jespersen’s thought.

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40 As will be seen, analogous positions were also held by Sapir and by Brøndal (see below:188; 191).
5.3 Logic and psychology vs. grammar in Jespersen

Meillet (1925:6-7), in his review of two books by Jespersen, wrote that the Danish linguist came back to General Grammar, but as a linguist, not as a logician. How is such a statement to be interpreted, which Meillet did not motivate? (He only stressed the risk of returning to General Grammar without any careful study of a large variety of languages).

As a matter of fact, Jespersen originally appeared rather skeptical about the attempts at building a general (or universal) grammar: they seemed to him fully outmoded in light of the results of 19th century linguistics. On this subject, he quoted as an oddity a passage of J.S. Mill, dating back to 1867, where he says that “the principles and rules of grammar are the means by which the forms of language are made to correspond with the universal forms of thought” (Jespersen 1924:47). Immediately afterwards (p.48), he recalls Steinthal’s statement that a universal grammar is no more conceivable than a universal form of political constitution or of religion (cf. Steinthal 1860a:104). However, Jespersen is far from accepting Steinthal’s divorce of grammar from logic: on the contrary, he maintains that “we should cultivate a broader-minded logic” (Jespersen 1924:344). Such a logic would be “of the greatest value for the building up of our grammatical system and for the formulation of our grammatical rules or laws” (p.345). Thus, Jespersen argues against the application to language of a prescriptive logic, which wants to impose its patterns upon grammar (e.g., by labeling languages which show a double negation as ‘illogical’). Actually, Jespersen explains the peculiar relationship between logic and grammar in two different senses (although not always using explicit terms). On the one hand, he indeed means that the grammatical system is organized according to its own laws: in this sense one can speak of a “language logic”, as in Jespersen (1913). It is shown, for example, by the grammatical ‘ranks’, on which see below:4.2.3. On the other hand, Jespersen refers to the fact that some universal notions are expressed through different syntactic structures in different languages. These structures can be recognized only if they satisfy what we could call the ‘principle of morphological transparency’:

we should recognize in the syntax of any language only such categories which have found in that language formal expression, but it will be remembered that ‘form’ is taken in a very wide sense, including form-words and word-position. (Jespersen 1924:50)

Hence we get, according to Jespersen, syntactic categories peculiar to each individual language, on the one hand; and extralinguistic categories of a universal kind, on the other: “they are universal in so far as they are applicable to all languages, though rarely expressed in them in a clear and unmistakable way” (Jespersen 1924:55). These latter categories are named ‘notional’ by Jespersen. “It will be the grammarian’s task in each case to investigate the relation
between the notional and the syntactic categories" (ibid.). This relation is often complex and multiform, such as the one between morphological and syntactic categories. Jespersen exemplifies it showing how a single syntactic category (the English preterit) is expressed through different forms and gives expression to different notions. Actually, the English preterit can be formed through very different means: adjoining a suffix ‘-ed’ (e.g., ‘handed’), or a suffix ‘-t’ (e.g., ‘fixed’), or a suffix ‘-d’ (e.g., ‘showed’); the adjunction of a suffix can combine with an inner change, like in ‘left’; the kernel may remain unchanged (e.g., ‘put’), or it can show only an inner change (e.g., ‘drank’), or even it can be a different kernel (like in ‘was’). Nevertheless, all these forms belong to the same syntactic category and they can all mean several different notions: past time; unreality in present time (‘If we knew, I wish we knew’); future time (‘It is time you went to bed’); shifted present time (‘How did you know I was a Dane?’); “all times” (‘Men were deceivers ever’). Jespersen’s conclusion (p.56) is that “syntactic categories, thus, Janus-like, face both ways, towards form, and towards notion”.

Jespersen’s position may appear similar to Marty’s. His ‘notional categories’ correspond to Marty’s ‘meaning’, syntactic categories to ‘inner form’. These similar conclusions, however, are reached by the two scholars from very different starting points. For Marty, the fundamental concern is to define the relationship between language and contents of thought. Hence his perspective is of a psychological kind, in Brentano’s sense of the word. On the other hand, any hint of “intentional psychology” is lacking in Jespersen. In his works, the term ‘notional category’ generically means ‘extralinguistic category’. Furthermore, he does not seem especially interested in determining what the exact nature of these extralinguistic entities is:

Some of them relate to such facts of the world without as sex, others to mental states or to logic, but for want of a better common name for these extralingual categories I shall use the adjective notional and the substantive notion. (Jespersen 1924:55)

Jespersen is not a philosopher, nor a psychologist: he is, so to speak, a pure grammarian, who is searching for the laws peculiar to linguistic structures. “Grammatical science” must be based both on “sound psychology” and on “sane logic”, but it cannot be reduced to any of these two disciplines (p.344). Psychology is no longer the basic science of linguistics, but it has become an auxiliary science: it “should assist us in understanding what is going on in the minds of speakers” (ibid.). This is especially important in order to explain the creation and the functioning of what Jespersen calls ‘free expressions’. For Jespersen, only a part of our utterances is formed by the repetition of fixed and memorized ‘formulas’. A crucial role is played by the creation of new utterances (namely, the ‘free expressions’) in every single situation. These new ut-
terances are built according to “a certain pattern” (p.19). Language acquisition by the child consists precisely in the assimilation of such patterns:

An infant is not taught the grammatical rule that the subject is to be placed first, or that the indirect object regularly precedes the direct object; and yet, without any grammatical instruction, from innumerable sentences heard and understood he will abstract some notion of their structure which is definite enough to guide him in framing sentences of his own. (ibid.)

In conclusion, Jespersen focuses his attention on the creative aspect of language which was also characteristic of Steinthalian psychologism. One can also note that linguistic creativity is not explained by resorting to analogy: in this respect, Jespersen is therefore closer to Steinthal than to Paul (cf. above: 2.3.2). On the other hand, Jespersen does not adopt any ‘representational’ perspective: terms like ‘representation’ and its derivatives never occur in Jespersen (1924). He also does not identify ‘inner form’ with ‘meaning’. Language (and especially ‘grammar’) begins to be viewed as a fully specific psychic entity, autonomous with respect to other mental capacities.

5.4 Bühler and the functional view of language

Bühler’s theory of language has gained renewed attention in recent years and several careful studies have been devoted to it (see, e.g., Eschbach 1988). So we can limit ourselves to dealing with those aspects which are mainly connected to the topic of this chapter, namely the rise and fall of psychologism. As is well known, Bühler viewed three functions (Leistungen) within language: the ‘expression’ (Ausdruck) of the speaker’s experiences (Erlebnisse), the ‘representation’ (Darstellung) of objects and state of affairs, and the ‘appeal’ (Appe­pell) to the hearer to gain her/his attention and to guide her/his behavior. As a consequence, the linguistic sign functions at the same time as a ‘symptom’ of the speaker’s experience, as a ‘symbol’ of extralinguistic reality and as a ‘signal’ for the hearer (Bühler 1934:28). Trubeeckoj (1939a:17-18) ascribed to Bühler “the great merit” of “having brought to light a fact so important and nevertheless so long unnoticed”. Two decades later, Jakobson (1963:216) deemed Bühler’s model a simple “elucidation” of the traditional one. Trubeeckoj’s assessment was surely more correct than Jakobson’s, which is however historically understandable: in the sixties, the set of problems which gave rise to Bühler’s triad of concepts appeared extremely remote, relegated to an age considered prehistoric - ‘traditional’ – by a structural linguist like Jakob­son.

Bühler based his recognition of the three fundamental functions of language on a critical examination of the main linguistic theories of his time. They appeared to him irreparably one-sided. Wundt considered language only as expression (cf. Bühler 1918:3-4); “in extreme opposition to him” (p.8), Husserl
saw in language only the function of representation; Marty, for his part, recognized only the function of appeal (cf. Bühler 1922:62). Plainly, these topics appeared exceedingly remote to Jakobson in the sixties. The historical paradox (which was probably unavoidable) lay in the fact that Bühler’s theories appeared as inextricably bound to the age of psychologism although they had contributed to its crisis and to its eventual abandonment.

As a matter of fact, Bühler stresses many times the absolute particularity of linguistic phenomena. They are completely different from the ones investigated by physics (Bühler 1934:15). Besides, he maintained that the problem of the place of linguistics, among natural or human sciences, which was so important for Paul (cf. above: 2.3.2), was a throwback to Cartesian dualism, restated in terms of modern psycho-physics (p.6). On the basis of his own conception of language as a sign system, Saussure had already succeeded in recognizing its particular features: however, he had not pushed himself so far as to explicitly acknowledge that the primary data of linguistics are simply linguistic facts, not physical, physiological, psychological facts, etc. (p.9). These considerations are based on what Bühler (p.42) names Prinzip der abstraktiven Relevanz (‘Principle of abstractive relevance’): linguistic signs get their value not on the basis of their material nature but of the features which distinguish them from the other signs of the system. Language, being a sign system, is intersubjective, superindividual by its very nature. So Bühler was able to explain the functioning of language as a means of communication without being obliged to hypostasize entities the existence of which is difficult to prove, like those of ethnopsychology. In an analogous way to Saussure, Bühler therefore arrives at encapsulating a social moment within language on the basis of semiological analysis. Nevertheless, he does not acknowledge the priority of the Geneva linguist and instead he bases his considerations on Trubeckoj’s work: the opposition phonetics vs. phonology and the ensuing notion of ‘relevance’ plainly lay the foundation of the Prinzip der abstraktiven Relevanz (Bühler 1934:28-30). However, as it was seen in 2.5.2, above, while investigating the question of the Durkheim/Saussure relationships, Saussurean thought was correctly understood only in rather recent times. Bühler therefore carries only a limited responsibility for its inaccurate rendition.
CHAPTER 3

“WHAT IS SYNTAX?”

0. Introduction

The “divorce” between grammar and logic pronounced by Steinthal (see 2.2.2) provided a theoretical motivation for an attitude which was becoming more and more widespread among linguists (and particularly among syntacticians) around the middle of 19th century: the wish to free themselves from the model of syntactic analysis deriving from Port-Royal Grammaire (Arnauld & Lancelot 1676[1660]) and Logique (Arnauld & Nicole 1683[1662]). The most famous of such analyses is presented at the beginning of 3.1.: that of every sentence into Subject, Copula and Predicate. This analysis was accepted by many, but not all, scholars lying in the general grammar tradition and even by some of the early historical comparative grammarians, such as Bopp. This testifies to the links which still connect general grammar and the early phase of historical-comparative grammar, which have been stressed in 2.1. above. The whole abandonment of the Port-Royal logic-based model of syntax was accomplished only in the second half of the 19th century. However, if scholars of that age generally reject such a model, they do not agree on what exactly syntax should be. Ries’ book (1927[1894]) which also gives the title to the present chapter was an attempt to answer such a question. Mainly as an effect of Steinthal’s statements (cf. above:2.2.), the majority of syntacticians tried to replace logic-based categories with psychological ones. Hence, notions such as the ‘psychological’ subject and predicate were worked out, which were opposed to the corresponding ‘logical’ ones (see 3.2.1-3.2.2). However, no general agreement was found on the individuation and the definition of such allegedly psychological categories and they were eventually abandoned during the

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1 According to Kneales (1962:320) “the general conception of logic […] expounded in this book was widely accepted and continued to dominate the treatment of logic by most philosophers for the next 200 years”. Jellinek (1913-14 I:30) writes that the Port-Royal Grammaire, apart from its high reputation in France, also had a strong influence in Germany (the 1746 edition was actually printed in Erlangen).
first decades of 20th century (see 3.2.3.-3.2.4). This is, therefore, a specially clear instance of that "rise and fall of psychologistic syntax" which has been investigated in the preceding chapter. Another similar instance is represented by the debate on impersonal constructions (see 3.3.). Once again, our investigation starts from Port-Royal grammar: according to it, the proper analysis of impersonal sentences shows that they contain a subject, a copula and a predicate, like any other sentence. The results arrived at by historical-comparative grammar apparently contradict such an analysis: ancient Indo-European languages offer ample evidence that impersonal sentences are 'subjectless', as the essay by Miklosich (1883b) calls them. Not all linguists, however, even if they belonged to the group of historical-comparative grammarians, or shared the psychologistic attitude (Steinthal himself is among them), or both, accepted Miklosich's view. In this case too, the debate does not reach any definite conclusion (see 3.3.1). In the last decades of the psychologistic age, discussions mainly concentrate on the nature of the 'seeming subject' in languages which realize it. Once again, the different proposals contrast with each other; a shared result, however, is that such seeming subjects ('it' in English, il in French, es in German) are to be differently analyzed according to the verb with which they occur (see 3.3.2).

1. Crisis in the logic-based model of syntax

As is well known (see also above, 2.1.1) the fundamental feature of the Port-Royal view of language is the conception of linguistic operations as phonic displays of "operations of our mind", i.e. 'conception', 'judgement' and 'reasoning'.2 The most important of these, according to the Grammaire, is judgement:

> car les hommes ne parlent gueres pour exprimer simplement ce qu'ils conçoivent; mais c'est presque toujours pour exprimer les jugemens qu'ils font des choses qu'ils conçoivent. (Arnauld & Lancelot 1676[1660]:28)

[Because people do not speak to simply express what they conceive, but almost always to express judgments about the things they conceive.]

From this perspective, the basic linguistic form is the sentence (called 'proposition' by the Port-Royal scholars), since it is the expression of the judgement. The sentence is by necessity composed of subject and predicate (both of which are connected to 'conception') and of copula (which realizes the 'judgement', "the proper activity of our mind"); pp.28-29). Therefore, the structure of any proposition has always to be analyzed as consisting of Subject - Verb 'to be' - Predicate, since "c'est la mesme chose de dire 'Pierre vit', que de dire, 'Pierre

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2 These workings are defined in the Grammaire (part II, ch. 1). A fourth one is added in the Logique: 'ordering', i.e. 'method'.
est vivant’ [it is the same thing to say ‘Peter lives’ or ‘Peter is living’]” (p.96).
The assignment of such a fundamental role to the copula leads to the further
assumption that ‘to be’, viz. the ‘substantive’ verb, is the only real verb (see
above:2.1.1).

This tripartite analysis of the proposition gained great success: for instance,
it was adopted by Christian Wolff in his Philosophia rationalis sive logica
(1732). In this work, the terms ‘predicate’ and ‘copula’ reappear, besides the
term ‘subject’ already present in Port-Royal. Wolff, like the Port-Royal
grammarians, maintains that three elements are necessarily present in the ‘ut-
terance or proposition’: the notion “on which a judgement is expressed” (i.e.
the subject), the notion which “is connected to it or separated from it”, depen-
ding on the affirmative or negative polarity of the sentence (i.e. the predi-
cate), and “the small word which shows the linking of subject and predicate”
(i.e. the copula). The copula is “explicitly put” or “it is hidden in the word indic-
ist the predicate”. Wolff, then, accepted the Port-Royal analysis: he only
changed its terminology, in part. The strong influence of the Port-Royal gram-
mar on the German linguistic tradition was undoubtedly due also to Wolff’s
work, which had an enormous influence on German culture in general (cf., e.g.,
Delbrück 1893-1900 I: 25). Gottfried Hermann’s De Emendanda ratione
Graecae grammaticae (1801), Delbrück continues, also fits exactly into such a
framework even though its author declared himself an adherent of Kantian
philosophy. Indeed, Hermann also explicitly adopted the tripartite analysis of
proposition into Subject, Predicate and Copula.

3 The history of these terms is very complex, and rather puzzling. Actually, ‘subject’ and
‘predicate’ belong to the linguistic tradition of Western Europe since Boethius’ translation of
Aristotle’s De Interpretatione: these were Boethius’ translations of the Greek words hyp-
pokeimenon and kategorion, respectively. The first puzzle lies in the fact that, whereas
the original Greek terms mean ontological notions (on this point see Kahn 1973:40-46, among
others), this ontological meaning often overlaps with a linguistic one in Boethius (cf. Graffi
1986:93 n.14). These terms appear to be replaced, in the grammarians of the Middle Ages, by
suppositum and appositum respectively, while subiectum and praedicatum seem restricted to
logicians’ usage. This is born out by an anonymous 13th century manuscript, reproduced in De
Rijk (1967:380) and often quoted (e.g., by Benedini 1988:64 and by Lepschy 1992). However,
this terminological opposition between logicians and grammarians is not so clear-cut: e.g.,
Hunt (1980) remarks that subiectum and praedicatum are also used with a grammatical mean-
ing. This wavering between the two terminological pairs lasts until the beginnings of the mod-
ern times (cf. Lepschy 1992). ‘Subject’ is the term used in Port-Royal Grammaire, which,
however, prefers ‘attribute’ to ‘predicate’. ‘Predicate’ occurs, however, in the Logique (part II,
ch. III), where it is said to be equivalent to ‘attribute’. The invention of the term ‘copula’ is
ascribed to Abelard, in his Dialectica, but it seems to have taken a very long time to become
popular. The so-called ‘traditional’ terminology for the analysis of the sentence seems to have
been settled by Wolf. On these matters, see Delbrück (1893-1900 I: 23-25) and, more recently,
Positions like Hermann’s were by no means exceptional. Many other grammarians at the end of the 18th and the beginning of the 19th centuries still follow copula theory, even if the philosophical framework they adopt is no longer the Cartesian one of Port-Royal. A particularly outstanding example is the Kantian grammarian A.F. Bernhardi, but his position is surely not isolated. Forsgren (1973:112) lists about 30 grammars of this period which base their analysis of the sentence on the copula theory. What is most surprising, however, is that copula theory was espoused by the alleged founder of historical-comparative grammar, i.e. of the new paradigm which was to supersede the “old” general grammar: Franz Bopp. His definition of the verb sounds indeed very similar to the Port-Royal one:

A verb, in the most restricted meaning of the term, is that part of speech, by which a subject is connected with its attribute. According to this definition it would appear, that there can exist only one verb, namely, the substantive verb, in Latin esse; in English, to be. (Bopp 1820:13 [1989:22])

Bopp also analyzes some verbal forms in Indo-European languages on the basis of such general assumptions:

The Latin verb, dat, expresses the proposition, he gives, or he is giving: the letter t, indicating the third person, is the subject, da expresses the attribute of giving, and the grammatical copula is understood. In the verb potest, the latter is expressed, and potest unites in itself the three essential parts of speech, t being the subject, es the copula, and pot the attribute. (p.14[23])

Many tenses in several Indo-European languages are formed, according to Bopp, through agglutination of the ‘substantive verb’ to an ‘attributive’ root: e.g. the future in Greek and in Sanskrit (pp.45; 47[45; 47]). Also the sygmatic aorist of the Greek verb is interpreted as showing the presence of the root meaning ‘to be’ (p.56[53]). It is not totally clear if Bopp maintains that this root is present, at least etymologically, in every form of every verb of all the languages examined by him. In fact, one can find statements that seem not to assume such a radical position: see, e.g., p.61[56-57]. In other places, however, he appears inclined to maintain it in full (pp.57-58[54-55]).

Nevertheless, the acceptance of copula theory was not general even in the 18th century. The most notable exception was Du Marsais, who meant by ‘attributive’ “all that remains of the proposition, excluding the subject” (Sahlin 1928:116). This kind of analysis gained more and more support in the subsequent decades: copula theory, as well as the assumption of the equivalence between the sentence-forms ‘Peter lives’ and ‘Peter is living’, began to be

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4 This analysis was still accepted some decades later by Schleicher and by Pott. See Schleicher 1865:513 and Pott (1880a:clxxviiifn).
gradually abandoned towards the end of 18th century and their decline accelerated since 1820. In 1823, a German grammarian, H. Stephani, labels the alleged equivalence of the two sentence-forms as “cunning and self-deceiving” (see Forsgren 1973:116-119; 1992:134-137). Becker and the other members of the Frankfurter Gelehrterverein für deutsche Sprache essentially follow the same line. Actually, Becker does not seem to totally give up copula theory: he refers to the “many Amerindian languages” which do not have any other means than the verb to express the predicate, i.e. which do not have the construction ‘copula + predicative adjective’ (Becker 1841[1827]:232; see also the discussion in Forsgren 1992:137). In his view, languages that have both ways of expressing the predicate are “more developed”. It may be interesting, in this connection, to take a glance at Grimm and Humboldt’s treatments of the copula since they show some similarities to Becker’s.

The use of the phrase ‘substantive verb’ to mean the verb to be is quite common throughout Grimm’s Deutsche Grammatik, but Grimm does not suggest the analysis of every clause in the form Subject-Copula-Predicate. In fact, he appears rather skeptical about the hypothesis of the affixation of a verb ‘to be’ to the root in order to form a preterit or a future. Another topic on which Grimm seems to hold a position different from that of the General Grammar tradition is his definition of subject:

Subject is distinguished into casus rectus (nom., voc., and obliquus (gen., dat., acc.). As a rule, the obliquus is dependent from the rectus in the active voice, the rectus from the obliquus in the passive voice. (Grimm 1898[1837]:1)

This definition, apparently, aims at capturing the notion of logical subject, which is not always identical with the grammatical one. Grimm does not resort to such a terminological distinction (which is typical of the second half of 19th century, as will be seen in the next section), but possibly he hints at it. This is confirmed also by the following passage: “French grammarians name the casus rectus sujet, the obliquus régime, suitably so for the active, unsuitably for the passive” (ibid.). Actually, Grimm seems to use the term ‘subject’ to designate any argument (to use modern terminology) in several other cases too. Such a statement would imply that several subjects could occur within a sentence, hence, one could assume, several arguments. See also the following passage, taken from the section devoted to infinitival constructions:

Here we should not mix the subject governed by the main verb with that connected to the infinitive. Old High German hi pat in queman means rogavi eum ut veniret, the acc. in belongs to pat, not to queman; by contrast, in ih weiz in waltan, scio eum regnare, it is not connected with weiz, but immediately with waltan. (pp.129-130)
It seems, then, that Grimm would label ‘subject’ also the accusative direct object in. But Grimm’s terminological use is not always consistent. See, e.g., Grimm (p.684), where case assignment is discussed: “Subject is the nominative in innumerable cases, with active, intransitive and passive verb”. In the same section, where the accusative is dealt with, the noun which is put in the accusative case is not given the name ‘subject’. As in many other instances, therefore, these waverings testify to the intricate mixture of traditional and new views which characterizes the approach to syntactic problems by the founders of historical-comparative grammar. Grimm, however, shows an attitude surely more innovative than Bopp’s.

Let us now turn to Humboldt. He sometimes seems rather close to the analyses of General Grammar, or, rather, to the analyses which stem from it, such as Bopp’s analysis of Indo-European conjugation. Sometimes, however, he seems to follow other paths. In Humboldt (1836 §21:cclxxii), Bopp’s hypothesis of the presence of a root ‘be’ in Sanskrit verbal forms is explicitly accepted. Some years previously, however, Humboldt had been more uncertain about Bopp’s reconstruction, at least insofar it concerned Greek; cf. his letter to Bopp (Humboldt 1821:61). Humboldt’s doubts, however, are more of an empirical than of a theoretical kind. One may remark that Humboldt does not identify the verbal construction with the construction ‘copula + participle’: “I love’ is a pure expression of the verb; ‘I am a loving [person]’ (that is, ‘I am accustomed to love’) is, strictly speaking, not a verb form but a sentence” (Humboldt 1836 §21:cclxxix; 1988:193). On the other hand, Humboldt seems to assume an ‘understood’ copula in languages which lack morphologically clearly identifiable verbs:

In languages where the verb possesses no indications whatever of its true function, or very imperfect ones, it coincides, more or less, with the attributive, that is, with a noun, and the verb proper, which indicates the actual positing of what is thought, must be literally supplied to the subject and this attributive, as the verb ‘to be’. (Humboldt 1836, §21:cclxxviii; 1988:192)

“The force of the verb” can be expressed in many cases through the insertion of ‘be’, which, in many cases, is “simply understood” (Humboldt 1836, §24:cccxviii; 1988:236). The “true” verbal form must contain “the formal indication of the person” (Humboldt 1836, §21:ccxci; 1988:200). One would incline to conclude that Humboldt does not fully adopt the Port-Royal doctrine, but in some sense he reshapes it for his own goals: the pure form of the sentence is no more Subject-Copula-Predicate, but, perhaps, Subject-(inflected) Verb (see also above:2.1.2, about the central role that the verb plays in Humboldt’s view of syntax). A verb ‘to be’ is inserted or understood when the predicate does not show a clear verbal nature.
Returning to Becker’s attitude towards copula theory and its implications, one could tentatively conclude that it is rather close to Grimm’s and Humboldt’s observations on the matter. All these scholars reject the assumption that any sentence can, not to say must, be paraphrased by another one containing the copula. The two kinds of sentences differ from each other in their meaning and they belong to two different stages of language history (Grimm) or of language development (Becker and, perhaps, Humboldt). This denial of a universal presence of the copula brings with itself another important consequence: the predicate is identified with the verb.

Becker’s position may be further illustrated, for example, by a passage quoted by Forsgren (1992:136), where it is said that the basic form of the predicate is the verb. The ‘assertive force’ of the sentence, that Port-Royal assigned to only one word, the ‘substantive verb’ to be, is now seen as the most typical feature of any finite verb. This was to have another highly important consequence: even the idea that the other two parts of the sentence besides the copula, i.e. subject and predicate, are on a par with each other, begins to lose its force. In fact, it begins to be replaced with the assumption that there is only one ‘essential’ part of the sentence, namely the predicate, expressed by the verb. The superiority of the predicate over the subject is due on the one hand to the assertive force of the predicate, and on the other to its possibility of also expressing the subject by means of the inflectional endings.

One finds in these last heirs of Grammaire générale a hint of many discussions which characterize the subsequent decades and which will be examined throughout this chapter and the following one. Delbrück’s criticism of Hermann’s analysis of proposition (see above) is an example in point; cf. Delbrück (1893-1900 I:28-30). Delbrück noticed that the assumption of the tripartite model of analysis ran against the existence of two other sentential types in Indo-European languages: the monadic one instantiated by the impersonal verbs like pluit (‘it rains’), and the bipartite of the kind equus currit (‘the horse runs’). The first type proves that there exist subjectless sentences (a topic to which we will return in 3.3.1-3.3.2). The second one could not be analyzed by assuming an equivalence between currit and currens est, since “such an analysis may be justified from the point of view of logic, but the study of languages raises objections against it” (Delbrück 1893-1900 I:29). In fact, there is no empirical evidence that the indicative present of Indo-European languages contains a form of the verb ‘to be’. Furthermore, Delbrück went on, the so-called ‘substantive verb’ did not originally have a copula value but (possibly) the meaning of verb of existence (cf. ibid.).

Historical-comparative grammar, therefore, felt the syntactic model of the tradition of the *grammaire générale et raisonnée* to be a straitjacket imposed on linguistic reality. As we already said, Steinhall’s outspoken polemic against Becker gave a theoretical justification to this rebellion. He did not limit himself to deny the identity between logic and grammar but he also based grammar on a discipline which was decidedly more modern and was, moreover, perceived as essentially different from logic: psychology. Delbrück (1893-1900 I:57) maintained that Steinhall’s greatest achievement was his application of Herbart’s psychology to linguistics. Linguistics, and syntax in particular, clearly felt the need of a ‘grounding’ science: since they could no longer choose logic, they chose psychology.

However, the detachment from logic took place in a much less smooth way than the wild polemics against general grammar we have spoken about would lead us to imagine. The prospect of creating a ‘psychologic’ syntax, however theoretically appealing, was certainly unable to offer any satisfying results easily or rapidly. On the contrary, as will be seen in the subsequent sections, the rise of psychologism multiplied terms, concepts and kinds of analysis. ‘Logical’ and ‘psychological’ categories were added to grammatical ones; often the different notions (especially the ‘logical’ and the ‘psychological’ ones) were not clearly defined and tended to be confused in the works of different scholars (and sometimes also in those of the same scholar). In other words, we will encounter cases where the same phenomena are sometimes labeled as logical, sometimes as psychological. All this therefore explains why the crisis of the logic-based model, together with the inability to find an equally all-encompassing new model, induced a kind a skepticism about syntax in some scholars: this led to the abandonment of some of the most typical topics of this field of linguistics. Many factors contributed to cause this state of affairs. One of these factors was the difficulty, not to say the impossibility, of giving up some of the achievements of logic-based syntax; the not always striking results achieved by the efforts to build a new ‘psychological’ syntax were another factor.6

Let us come back to Delbrück’s historical introduction to his treatise of comparative syntax: I shall make abundant recourse to it during this discussion, since I deem it a very good, if not the best, example of the standard attitude of

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6 Delbrück does not even quote Ziemer’s (1883) book: this is one of the first works (if not the very first) which attempted to apply systematically associationistic psychology to syntax. It strictly followed the neogrammatical creed tracing back to Steinhall. Ziemer’s psychological approach, however, did not offer any new model of syntax: it limited itself to interpreting some scattered phenomena on the basis of a single principle, which wasn’t even of a specifically syntactic nature, i.e. analogy. This was probably the reason why Delbrück did not assign any place to Ziemer in his overview of works dealing with syntactic theory.
that age towards syntactic problems. Delbrück argued against the analysis of the proposition (of every proposition) into Subject, Predicate and Copula with many sound arguments. Nevertheless, he couldn’t help noting the absolute necessity of the first two concepts for any syntactic theory. His eventual evaluation of the (allegedly) syntactic studies of ancient times was that the ancient grammarians had overlooked two concepts “which no kind of syntax can do without”, namely those of subject and predicate (Delbrück 1893-1900 I:12). In the third volume of his monumental work, Delbrück (1893-1900 III:6) said that he was interpreting the concepts of subject and predicate not in the psychological, but in the traditional grammatical sense, “borrowed from logic”. Here Delbrück was hinting at the ‘psychological’ notions of subject and predicate worked out by Gabelentz and by Paul about which we shall speak in 3.2.2. Clearly, a purely psychological approach did not seem totally adequate to him. Moreover, we shall see that even Gabelentz and Paul did not replace grammatical categories with psychological ones but rather they added the latter ones to the former. Positions more radically innovating were held by Wegener and Svedelius (see below:3.2.3).

This rather summary account should give us evidence of the considerable perplexity many 19th century linguists felt about the nature and the goals of syntax. Ries’ work (1927[1894]) was a serious attempt to investigate the reasons for such perplexity and to dispel them. In fact, his book was characterized by the demand for a definite role for syntax. First of all, Ries was concerned to specify what syntax should not be. Syntax should not be ‘mixed syntax’ (Mischsyntax), nor ‘syntax à la Miklosich’ (the great Slavic philologist, whose work Ries criticizes, tacitly assuming that it is especially representative of the attitude towards syntax held by historical-comparative linguists). A typical feature of Mischsyntax is according to Ries (1927[1894]:147fn.11) the treatment under the same head of essentially different problems: e.g., the theory of parts of speech and the theory of the sentence. Such an attitude is an old one (Ries traces it back to Apollonius Dyscolus). The followers of Mischsyntax are not, therefore, a unitary group: “their common feature is their lack of a system” (p.15). One of the pitfalls of Mischsyntax is the role given to (allegedly) logical arguments: e.g., the main and the subordinate clause are not defined in grammatical terms but in logical ones. But this kind of definition has nothing to do with what the correct syntactic approach should be. Miklosich’s approach to syntax is caused by his need to reject Mischsyntax. Miklosich, however, considers syntax as the part of grammar dealing with the meaning of word-classes and word-forms (cf. Miklosich 1883a:122). According to Miklosich, therefore, syntax is reduced to what one would today call ‘morphosyntax’ and has nothing to do with sentence theory.
Actually, even Delbrück’s (1893-1900) three-volume work is to a large extent devoted to morphosyntactic topics. Besides containing the historical introduction we have often referred to, the first volume deals with gender and with case; the second volume, with tense, mood, aspect and voice. Sentence theory appears only at the beginning of the third volume, which also deals with compounds, agreement, classification of the different sentence types, as well as the etymology of the relative particles in the various Indo-European languages. It is probably no accident that this last of Delbrück’s volumes opens with a “debate with Ries”. Delbrück recognized the importance and the suggestiveness of Ries’ book but he maintained at the same time that he had not felt himself obliged to change the plan of his own work (Delbrück 1893-1900 III:5). Delbrück was surely right, from his point of view: he had rejected Miklosich’s view of syntax before the appearance of Ries’ monograph (cf. Delbrück 1893-1900 I:62). In the third volume (p.3), he recalls his own definition of syntax “in agreement with the tradition”: “the doctrine of the sentence and of its parts”. It is undeniable, however, that the treatment of such topics receives comparatively little space in his work. The reason for this possibly lies in Delbrück’s perplexity about both the traditional logic-based model and the new psychologistic one (see above:57).

Ries reacts against a “nihilistic” view such as that of Miklosich, and stresses the absolute necessity of a theory of the sentence. He also maintains, however, that syntax is not to be identified with it. Actually, syntax is “die Lehre vom Satze und den übrigen Wortgefügen [the doctrine of the sentence and of the other word arrangements]” (Ries 1927[1894]:61). The kind of syntax Ries wants to build is a strictly grammatical one: logical as well as psychological considerations are extraneous to it (Ries 1931:33). One could say that the type of syntax advocated by Ries is in a certain sense an upsetting of the Beck-erian, logic-based approach to syntax (cf. Ries 1927[1894]:27). Like logical syntax, grammatical syntax has to build up a theory of the sentence and, in general, of word arrangements: this theory, however, cannot treat syntactic structures as an expression of independently given thoughts; instead, it tries to discover their own laws of organization. According to Ries, the fundamental misunderstanding of logical syntax lies in the identification of syntax with the

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7 Ries (1927[1894]:181) explicitly acknowledged this. He added that Delbrück’s statement was unknown to him by the time of the first edition of his book.
8 The well-known Vorlesungen über Syntax by Jakob Wackernagel (1926-28[1920-24]), too, almost exclusively deal with morphosyntactic categories and with parts of speech. Wackernagel expressly recognizes the importance of Ries’ work, but he also says he chose not only a “synthetic” approach (like Ries), but also an “analytical” one (namely, the investigation of the meanings of the inflectional forms). In fact, Wackernagel’s whole work is characterized exclusively by the analytical approach. The expected theory of the sentence (cf. Wackernagel 1926-28[1920-24II:110] did never appear.
‘theory of meaning’ (*Bedeutungslehre*) while the oppositions are twofold and superimposed on each other: syntax vs. ‘word theory’ (*Wortlehre*) on the one hand, and ‘theory of forms’ (*Formenlehre*) vs. theory of meaning on the other. So, just as we have a theory both of the forms and the meanings of words, we should have a theory both of the forms and of the meanings of word arrangements: a ‘syntax of the form’ and a ‘syntax of the meaning’ (cf. Ries 1927[1894]:79). In Ries’ view, of course, it is necessary to start from the former to arrive at the latter. Ries therefore appears to have taken a clearer position than Delbrück towards the traditional logic-based model. This must be abandoned insofar as it wants to treat linguistic forms as pictures of the operations of our mind, but its goal of building a theory of the sentence has to be adopted and accomplished.

One can provisionally conclude that a widespread uncertainty about what syntax really is characterized the whole historical period since the decline of the general grammar tradition until the first decades of 20th century. All scholars agreed in abandoning the logic-based model but the suggested alternatives were not always well defined or well understood. Furthermore, many elements of the allegedly rejected model re-surfaced in research practice. Such a state of affairs is not surprising: it probably marks every age when a given paradigm (in this case, the logical-based syntax) comes to a crisis. Moreover, we can single out certain fundamental topics of debate. 1) The assumption of psychology as the basic science for linguistics led to the working out of ‘psychological’ categories which were opposed - but more often added - to ‘logical’ and ‘grammatical’ ones. 2) Concerning the sentence, the refusal to equate it with judgement really was a result shared by all scholars of the time. This paved the way for many different interpretations, however: some linguists assigned to the sentence a structure not very different from the one typical of logic-based syntax; some others went as far as to state that some sentences were “one-member” (namely, formed by an element only) and that in some cases there was no clear distinction between sentence and word. 3) The debate on the nature of word groups originally focused on the relationship between word group and sentence and on the possibility of distinguishing between them. Later, it dealt with the internal nature of word groups.

In the second part of the present chapter, we will investigate the main categories of ‘psychologistic’ syntax; in the next chapter, we will deal with the sentence and with word groups. Hence we will follow a pattern suggested by the three volumes by Ries (1927[1894], 1928, 1931): in my view, they represent the most detailed and coherent system of syntax worked out in the psychologistic age.
2. Grammatical, logical and psychological categories

2.1 ‘Syntactic’ order and ‘psychological’ order

The debate we are going to describe lasted for the whole psychologistic age (see also Seuren 1998:120-133). It will be seen that several positions were held, in some cases totally opposed to each other. The thread of such a debate is not always easy to follow, especially since the words ‘grammatical’, ‘logical’ and ‘psychological’ are given different meanings by different scholars (and often also by the same scholar). Approximately, one can say that the categories named ‘grammatical’ are those of traditional syntax, which coincide with ‘logical’ categories within this framework. Sometimes, however, these terms are kept sharply distinct; for example, by Marty (consistently with his rejection of any “language/thought parallelism”; cf. above:2.4.2). For his part, Wegener assigns to ‘logical’ a meaning which is analogous (if not identical) with the meaning of ‘psychological’ in Gabelentz: both terms mean a partition of the sentence which is opposed to the ‘grammatical’ one and which is based on word order or on focusing of elements. Paul shows a certain amount of waver­ing between Gabelentz’s and Wegener’s terminological use, together with some occurrences of ‘logical’ in a sense closer to Marty’s (cf. below:3.2.2). Furthermore, some scholars use ‘logical subject’ to mean ‘agent’. In what follows, I will reproduce the different authors’ terminology: wherever necessary, I will explain its value.

The notions of ‘psychological subject’ and ‘psychological predicate’ are standardly considered as deriving from Gabelentz’s work (1869). However, the French philologist (albeit of German origin) Henri Weil (1879[1844]:viii) stated that Gabelentz’s general ideas were no different from the ones expressed by himself twenty-five years earlier. Weil was not quite wrong, as will be seen immediately.

Weil’s starting point lies in the critique of Beauzée, who, in the item langue of d’Alembert and Diderot’s Encyclopédie, had borrowed from Girard the distinc­tion between ‘analogical’ and ‘transpositive’ languages. Languages of the first class are so dubbed because their word order matches the order of ideas; ‘transpositive’ languages do not have this property. As can be seen, Beauzée was still bound to the theory of ordre naturel (see above:2.1.1). French, Italian and Spanish were quoted by Beauzée as instances of analogical languages; Greek, Latin and German as instances of transpositive languages. Hence the analogical type would coincide with the order Subject - (Copula) - Predicate: the logic-based model was also the standard for the classification and evaluation of languages. Weil stressed a rather paradoxical conclusion of Beauzée’s analysis: ancient peoples would have been “devoid of logic”, they would have been “less natural than the moderns” (Weil 1879[1844]:13; 1887:23). To maintain that ancients made up this want of logic, Weil went on, by means of
the inflexional plenty of their languages which allowed them to express the order of ideas in an unambiguous way, does not get rid of the paradox. Weil’s provisional conclusion was therefore that “the syntactic march is not the march of ideas”. It is easy to see that Weil uses the word ‘idea’ in a sense which is different from Beauzée’s and of that of the general grammar tradition: it is no longer synonymous with ‘concept’; rather, it is closer to what Steinthal would call ‘representation’. So it has a subjective value instead of an objective one. In an analogous way, ‘thought’ does not mean, in Weil, an objective (or at least intersubjective) entity anymore, but it means the psychic activity of the individual.9 This does not mean that Weil seeks comfort in an absolute subjectivism or in an exclusively representational psychology. According to him, the objective foundation does not lie in universal forms of thought, but in what one could anachronistically name ‘states of affairs’:

Syntax relates to the exterior, to things; the succession of the words relates to the speaking subject, to the mind of man. There are in the proposition two different movements: an objective movement, which is expressed by syntactic relations; and a subjective movement, which is expressed by the order of the words. (Weil 1879[1844]:21; 1887:30)

Hence sentences like Romulus Romam condidit (‘Romulus (nom.) Rome (acc.) founded’), Romam condidit Romulus, Condidit Romam Romulus, have the same syntax, according to Weil. The state of affairs which they describe is the same, but the “march of ideas” is different: the ‘point of departure’, the ‘initial notion’ (point de départ, notion initiale), “which is equally present to him who speaks and to him who hears” (p. 20; 1887:29), is Romulus in the first sentence, Rome in the second and the action of founding in the last. Analogously, the ‘goal of the discourse’ (but du discours), “the information that is to be imparted to another” (p.21; 1887:30), is different in each of the three sentences. This division into ‘point of departure’ and ‘goal’ “is found in almost all we say” (p.20; 1887:29). Any part of speech can represent the ‘initial notion of the thought’, even the verb meaning ‘existence pure and simple’: ‘there was a king’ (cf. p.24; 1887:33). Hence the difference between ancient and modern languages does not lie in the fact that the former belong to the ‘transpositive’ and the latter to the ‘analogical’ type but in the fact that word order in modern languages expresses both the order of ideas and the syntactic order as well (p.28; 1887:37).

Weil’s distinction between ‘initial notion’ and ‘goal’ largely overlaps with Gabelentz’s concepts of ‘psychological subject’ and ‘psychological predicate’ (as already observed by Bergaigne 1878:3). This does not necessarily mean

9 Scaglione (1972:339; 1978:X-XI) thinks that Weil’s doctrine is based on Condillac’s associationistic theory of liaison des idées, even if the former scholar does not quote the latter.
that Gabelentz took his ideas from Weil without quoting his source: his postulation of categories which, while preserving the traditional labels, refer to ‘psychological’ phenomena, may derive from his original Steinthalian moulding and from his acquaintance with languages very different from Indoeuropean ones (see above: 2.3.1). As a matter of fact, Gabelentz (1874-75: 129; 335-336) insists that the ‘psychological subject’ and ‘psychological predicate’ can be reasonably assumed to be universal, while the grammatical systems of the individual languages show an extreme variety. However, even the way Gabelentz introduces such notions is similar to Weil’s. Both scholars start from what we could dub the ‘communicative situation’ and mean by ‘thought’ the contents of the individual mind. Gabelentz (1869: 378) says that, in addressing another person, we “direct her/his attention towards something”, about which “we make her/him think so and so”. The thing towards which the attention of the addressee is directed is named by Gabelentz ‘psychological subject’; what s/he is made think about it, ‘psychological predicate’. This partition of the sentence into psychological subject vs. predicate is neither absolute nor exhaustive: in the speech process, the last uttered part functions as the psychological predicate of the preceding ones, which are in their turn its psychological subject (Gabelentz 1874-75: 137).

Any part of speech can function as psychological subject even if it is not a substantive-like element, from a grammatical point of view. For example, in a sentence as Vor drei Tagen war mein Geburtstag (lit. ‘Three days ago was my anniversary’), vor drei Tagen is not the grammatical subject, but it is the psychological subject (Gabelentz 1901: 370). Gabelentz (1869: 379) maintains that the natural order puts the subject before the predicate: such an order is a rule for grammatical subject and predicate, whereas it is an exceptionless law for the homonymous psychological categories. The psychological subject is put at the beginning of the speech: it forms the ‘theme’ of the speech (cf. Gabelentz 1901: 373).

Gabelentz shows that, in some languages, the distinction between psychological subject and predicate is phonetically realized by means of special particles. In Japanese, the particle va,10 “an emphatic suffix, or, more exactly, an interjection”, first of all performs the task of separating the subject from the predicate. However, it is not only postposed to the (grammatical) subject, but it has also a function similar to that of expressions such as the English ‘as to’, ‘with regard to’, German was...betrifft, French quant à, Latin quod, quod attinet ad, Dutch wat...angaat (Gabelentz 1874-75: 321). Gabelentz remarks that va can follow several ‘sentence members’ (Satzglieder; on the history of such concept see below: 4.2.1): the locative, the dative, the adverb, some postposi-

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10 I am reproducing Gabelentz’s transcription of Japanese writing.
tions, gerundive forms, etc. (Gabelentz 1874-75:321-324). Va therefore has the function of focusing on a given sentence member, which is none other than the psychological subject (cf. p.325).

The traditional theory of Indo-European agglutination, especially as proposed by Bopp (cf. above:76), is also reinterpreted by Gabelentz according to the categories of psychological subject and predicate. The verbal root would have been the grammatical predicate and the psychological subject as well; conversely, the personal ending (originally a pronoun) was the grammatical (or ‘logical’) subject but it was the predicate from the psychological point of view. This particular order, which inverts grammatical categories and psychological categories, can be explained by assuming “that in the infancy of language one was satisfied to direct the other’s attention towards the phenomena and sensations in themselves and that the grammatical subject was indicated only later” (Gabelentz 1869:382).

2.2 The ‘logical’ and ‘psychological’ subject and predicate

It has been seen that the respective order of the elements is the criterion followed by Gabelentz to single out the ‘psychological’ subject and predicate. Wegener (1885), for his part, opposes the traditional ‘grammatical’ categories with the ‘logical’ categories of subject and predicate. These are defined on the basis of the criteria of novelty and interest, accordingly to Wegener’s dialogical-communicative view of language (cf. above:2.3.2). Wegener (1885:20) called the subject “the group of representations about which one makes an utterance” and the predicate “the utterance itself”. The subject is “the uninteresting given”, the predicate “what is interesting and new”. The former category is the ‘logical subject’, the latter the ‘logical predicate’. Wegener concedes that the term ‘logical subject’ can give rise to some misunderstandings since it is standardly used to mean ‘agent’: therefore, he prefers to name it the ‘exposition’. The logical predicate, on the other hand, is that part of sentence bearing the main stress. From the grammatical point of view, it can be any grammatical category (p.140). In some cases, we can get utterances formed only by a logical predicate, especially when the situation is so clear that it does not need an ‘exposition’. Actually, Wegener remarks, language development, both in the child and in the human species, proceeds from single word utterances to binary utterances as it learns to account for increasingly complex situations. Originally, then, all terms are predicates; later, through a progressive ‘fading’ (Abblassen) they can also take over the subject function (p.54).

Which is the respective order of the ‘logical’ subject and predicate? Wegener (pp.31-32) notices that there exist three tendencies which in part contrast with each other: 1) putting the logical predicate at the beginning; 2) making the logical predicate coincide with the grammatical predicate; 3) in modern
languages, putting the grammatical predicate after the subject. The first tendency expresses the speaker’s most spontaneous attitude: in the communicative act, the natural tendency is first to utter what appears as the most interesting thing, and later to give the situation co-ordinates, if necessary. This impulse to express first what interests most is opposed by the need to be understood by the hearer: this need is satisfied by ‘exposing’ the situation and by putting such exposition, most of the time, before the logical predicate. According to Wegener, the evolution of Indo-European languages shows the gradual prevailing of this last tendency upon the original need to immediately express the logical predicate.

Thus Wegener, like Gabelentz, rethinks the agglutinating theory of the origin of the Indo-European but the analysis of the two scholars is slightly different since their way of analyzing the sentence differs. Therefore, the verbal root of a form like *ed-mi is for Gabelentz the psychological subject, accordingly to his criterion, which gives that name to the category put at the beginning of the sentence. For Wegener, on the other hand, that same form is the logical predicate, which is followed by the logical subject or ‘exposition’ (Wegener 1885:41). This order has been inverted in modern Indo-European languages: j’ai, tu as, ich habe, du hast, ‘I have’, ‘you have’. Wegener also analyzes other classes of phenomena in terms of the ‘logical’ categories of subject and predicate. For example, he considers the formation of noun inflection to be exactly identical to verbal inflection: the nominal theme represents the logical predicate and the inflectional endings represent the ‘exposition’ (cf. p.42; 205). Clearly, Wegener does not employ the term ‘logical’ in the traditional sense but uses it to denote some categories which in part do not coincide with the traditional ones. He bases his utterance analysis on such new categories. His goal, therefore, is analogous to Gabelentz’s even if their labels are different (what the first scholar dubs ‘logical’ is named ‘psychological’ by the other). Their analyses are sometimes opposed as well (what Gabelentz considers as the ‘subject’ is, in some cases, a ‘predicate’ for Wegener). Nevertheless, both Gabelentz’s ‘psychological’ categories and Wegener’s ‘logical’ ones have an immediate linguistic realization: they always single out some specified parts of the sentence, which may or may not coincide with the homonymous ‘grammatical’ parts.

Paul’s position, which, too, crucially employs the distinction between ‘logical’, ‘psychological’ and ‘grammatical’ functions as well, is much more fuzzy and complex. ‘Logical’ categories do not coincide with grammatical ones but they cannot be neglected by the linguist (cf. Paul 1920:36). Paul clearly gives to the term ‘logical’ its standard meaning and in this respect his position is different from Wegener’s. However, possibly the most significant element of his
approach lies in his assumption that not only logical, but also psychological categories match grammatical ones only in part (ibid.).

The terms ‘psychological subject’ and ‘psychological predicate’ also have in Paul’s work a different meaning from the ones they have in Gabelentz.\textsuperscript{11} They no longer mean the two parts into which every utterance has to be partitioned: rather, they mean two psychic entities, and the distinction between grammatical subject and predicate is based on their relationship. The psychological subject is “the first mass of representations within the speaker’s conscience”, to which a second mass is added, the psychological predicate (Paul 1920:124-125). The respective order of occurrence of these two entities (first the subject, then the predicate) has absolute validity only from the psychological point of view. Therefore, Paul argues against Gabelentz, the order of elements within the sentence does not warrant beyond any doubt that its first part forms the psychological subject and its second part the psychological predicate (p.126). Thus, Paul takes an intermediate position between Gabelentz’s and Wegener’s, but his starting point is different with respect to both: even though he maintains that the psychological subject does not always occupy sentence initial position, he does not agree to consider this position as the originally standard one for the predicate.

Which criteria does Paul propose to identify the psychological subject and the psychological predicate? First of all, he remarks that, in any sentence, several elements (words or word groups) can form the psychological predicate, according to different contextual conditions. For example, if a sentence like \textit{Karl fährt morgen nach Berlin} (‘Karl travels (by a surface vehicle) tomorrow to Berlin’) is uttered without giving any other information to the hearer, \textit{Karl} is the subject (both grammatical and psychological) of the predicate \textit{fährt}, which in turn is the psychological subject of \textit{morgen} and \textit{nach Berlin}. However, Paul goes on, if it has already been said that Karl will travel tomorrow but it has not been said where, the predicate is \textit{nach Berlin}. If a journey of Karl’s to Berlin has already been spoken about but we do not yet know when it will take place, the predicate is \textit{morgen}. If we know that Karl will travel tomorrow to Berlin but we do not know by which means of transportation, the predicate is \textit{fährt}. If, finally, we know that someone will travel to Berlin tomorrow, but we do not yet know who, the predicate is \textit{Karl}. These four different values that can be taken by such a sentence can be further clarified by showing that it can func-

\textsuperscript{11} Bear in mind, however, that Paul shows a certain amount of uncertainty in the naming of the categories opposed to the grammatical ones: Dittrich (1899:541f.) noted that Paul, in the third edition (1898) of his \textit{Prinzipien}, had replaced throughout the book the term ‘logical subject’ of the preceding edition (1886) with ‘psychological subject’. Paul’s terminological uncertainty is further evidence of what we are insisting on throughout the present chapter: the inability of the psychologistic model to fully replace the logical-based one of the general grammar tradition.
tion as an answer to four different questions: Wohin reist Karl morgen? ('Where does Karl travel tomorrow?') -Nach Berlin ('to Berlin'). Wann reist Karl nach Berlin? ('When will Karl travel to Berlin?') -Morgen ('tomorrow'). Wie reist Karl morgen nach Berlin? ('How does Karl go to Berlin?') -Er fährt ('he travels (by a surface vehicle)'). Wer reist morgen nach Berlin? ('Who travels tomorrow to Berlin?') -Karl. Therefore, the psychological predicate is the most important part of the sentence, and the goal of the sentence is its communication (Paul 1920:283). The psychological subject is that part of the sentence whose importance is inferior only to the psychological predicate; the remaining parts of the sentence are dubbed 'connectives' (Bindeglieder) by Paul. For example, in a sentence like ‘Mary has toothache’, ‘Mary’ would be the subject, ‘toothache’ the predicate, and ‘has’ the connective (Paul 1920:284).

Paul also deals with the split that in some cases originates between grammatical and psychological categories. Paul’s problem is the same as Gabelentz’s and Wegener’s: given his different kind of analysis, however, Paul does not always identify the first occurring category with the subject (like Gabelentz) or with the predicate (like Wegener). Paul remarks that such an opposition between grammatical and psychological categories can be reconciled, in many cases, through special expressive processes which formally assimilate the second kind of category to the former. The first example quoted by Paul is the construction which one would call today a ‘pseudo-cleft sentence’: ‘What I most prize in a woman, is her affection, not her intellect’. Similarly, the contradiction that may sometimes originate between grammatical and psychological subject can be solved by putting the latter into the nominative case and by using a resumptive pronoun: ‘He that can discern the loveliness [sic] of things, we call him poet’ (Carlyle). Also the change from a construction like ‘me was given a book’ to one like ‘I was given a book’ shows an analogous formal assimilation of the psychological subject to the logical one (Paul 1920:286).

2.3 ‘Subject’ is not a linguistic category

The doctoral dissertation by the Swedish romanist Carl Svedelius (1897) represents the most explicit abandonment of the logical-based model of syntax. This dissertation had very scant success, probably because of the radical novelty of many of its proposals. For Svedelius (1897:5), not only the traditional logical concepts but also the traditional logical terms of ‘subject’ and ‘predicate’ must be banished from linguistics. The invention of ‘psychological’ categories is not sufficient to make what Svedelius considers the crucial step: the analysis of “coordinate language” as “the transmission of ideas between people” (p.1fn.). It is therefore necessary to give up all terms “borrowed from
logic”: ‘proposition’, ‘subject’, ‘predicate’. Within such a new perspective of language analysis, the term ‘proposition’ is replaced by ‘communication’ (p.6).

‘Communications’ in Svedelius’ sense are subdivided into two fundamental kinds: communications ‘of process’ and communications ‘of relation’ (pp.16-21). Examples of the first kind are L’éléphant écrasa l’homme (‘The elephant squashed the man’), Saint-Louis vainquit les infidèles (‘St. Louis beat the infidels’), of the second kind L’éléphant est un pachyderme (‘The elephant is a pachyderm’), Saint-Louis était un roi (‘St. Louis was a king’). The ‘communications of process’ refer to a specified moment, in present, past or future time; those of relation denote a steady relationship. There is no exact matching between Svedelius’ two kinds of communication and the two kinds of sentence, the one showing verbs different from ‘to be’, and the other represented by copular sentences. As a matter of fact, the latter can represent both communications of relation (e.g., Les Espagnols sont fiers, ‘Spaniards are proud’) and communication of process (e.g., Les Espagnols sont fiers de leur reine, ‘Spaniards are proud of their queen’). Moreover, the first kind of sentence can express both communications of process (e.g., Les oiseaux volent bas: il va pleuvoir, ‘Birds are flying low: it’s going to rain’) and of relation (e.g., Les oiseaux volent, ‘Birds fly’) (Svedelius 1897:42-43).

Besides replacing ‘proposition’ with communication, Svedelius (p.7) also gives up, “with a light heart”, the notions of subject and predicate: it does not matter if Delbrück maintains that no system of syntax can do without them (cf. above:81). Svedelius replaces them with two pairs of terms, the first one concerning the communication of process, the second the communication of relation. Within the communication of process, the traditional ‘subject’ is named the terminus a quo (p.17). The terminus a quo is not always phonetically expressed because there exist two such kinds of communication, One of them linguistically realizes only the process: e.g., German Feuer! (to communicate that a fire has broken out), ‘Good morning’, etc. The other kind of communication of process phonetically expresses the terminus a quo: it can or cannot be followed by a terminus ad quem, which corresponds to the traditional ‘object’ (pp.18-19). Svedelius therefore replaces the traditional analysis of ‘proposition’ (=sentence) into Subject, (Copula), Predicate (and Object) with the analysis of ‘communication’ into terminus a quo, ‘process’ and terminus ad quem. Within the communication of relation, ‘subject’ is replaced by the ‘notion of species’ and ‘predicate’ by the ‘notion of genus’. The scope of the first notion may be included in the second, or both may have the identical scope. In the first case, we get a ‘relation of classification’; in the second case, a ‘relation of identity’ (pp.19-21).

Svedelius’ novelty lies in putting all terms on the same plan. He no longer assigns that outstanding position within the sentence to the subject which has
been granted to it since Aristotle. Knobloch (1988:320) noticed some “not accidental affinities” with valency theory (cf. below:6.2.2) on this matter. Even if caution is always necessary when pointing out ‘forerunners’, it appears that this remark is to the point. Another distinction made by Svedelius seems to anticipate Tesnière’s (cf. below:7.2.1), between ‘participant roles’ and ‘circumstantial roles’: I am referring to the distinction between ‘terms’ and ‘complements’. These categories are defined according to the “substantialistic” approach which is typical of Svedelius (terms are said “to contain substances”, while complements do not (Svedelius 1897:53), but the way they are exemplified undoubtedly suggests further analogies with Tesnière’s notions. Examples of ‘terms and processes’ are ....jette une pierre (‘... throws a stone’), ....écrit à sa mère (‘... wrote to her/his mother’), while examples of ‘complements and processes’ are ....jettera tout de suite (‘... will trow immediately’), ....écrit à 7 heures (‘... wrote at seven o’clock’), etc. (ibid.).

After this new definition of the key elements of language analysis, Svedelius faces the problem of word order. The “general rule” governing the order of the communication of ideas is formulated as follows (p.93): “On commence par l’idée la plus actuelle, pour arriver à l’idée la moins actuelle, qui est celle qu’on veut actualiser [One starts with the most present idea, to reach the least present idea, which is the one that one wants to actualize]”. The ‘most present idea’ plainly corresponds to Weil’s ‘initial notion’, the ‘least present idea’ to the ‘goal’. The most common order, Svedelius says (ibid.), chooses the terminus a quo as the most present idea, and the process or the terminus ad quem as the least present idea. In other cases, however, the most present idea can be the terminus ad quem, and the communication starts from there: Cet homme, je ne l’ai jamais vu (‘This man, I have never seen him’). If the most present idea is the process, then “the linguistic unit expressing it is often put before the other units” (p.95): e.g., in a communication like il y avait une fois un roi (‘There was once a king’) the most present idea is the process and what we want to make present is the terminus a quo (cf. ibid.). If the communication contains some complements as well, their order is established by some further rules (p.100).

The results of Svedelius’ analysis that mostly concern us are the following: 1) since the words themselves, not to say the concepts, of subject and predicate are banished from linguistic analysis, there is no longer any need to define their various values, whether grammatical, logical or psychological. 2) This last kind of category loses much of its importance: the analysis of the sentence is led by

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12 Svedelius expressly refers to Weil (p.20), but he states that his basic assumptions are different. He criticizes Weil for his treatment of language as “a mirror of mind”, and for his still being linked to general grammar tradition. This is not totally correct, as we have seen above (85) when commenting on the meaning assigned to the term ‘idea’ by Weil.
essentially ontological considerations (the “terms” represent “substances” which are contrasted with “processes”). Some other scholars followed similar lines of research, and they too gave up the notion of subject, or the appeal to psychological categories, or both.

Two such scholars, who were possibly acquainted with Svedelius’ work, were the Swedish germanist Adolf Noreen and the German romanist Theodor Kalepky. One of the chief concepts of Noreen’s system is ‘gloss’: it denotes an element of the meaning plane (‘sememe’, in Noreen’s terminology) which must necessarily occur together with others (Noreen 1923:236). It is incorrect to identify the gloss with the word or with a ‘member of sentence’ (Satzglied): on the one hand, word groups are also glosses. On the other hand, the flexional ending -s in Vaters (‘father’s’) and the negative prefix un- in ungewiss (‘uncertain’) are glosses as well. The relationship between subject and predicate is a relationship between two glosses: the subject is the main gloss, the predicate the accessory one (Noreen 1923:319; see also below:4.2.3).

Noreen states his agreement with Paul in keeping psychological categories distinct from grammatical ones. He adds, however, that Paul has still left one question open, namely whether subject and predicate are not only psychological, but also grammatical categories (pp.327-328). Noreen’s answer is affirmative in so far as the predicate is concerned: the ‘copula’ denotes the predicative connection and it can be realized either in a periphrastic way (namely, through auxiliary verbs, e.g. Das Pferd ist lahm, ‘the horse is lame’), or in a simple way (namely, through tense endings, e.g. Das Pferd lahmt, ‘the horse limps’). On the other hand, there is no possibility of linguistically singling out the subject, since any linguistic form can take the subject function: not only nouns, but also non-finite verbal forms and even adverbs (e.g., German Hier wurde getantzt, lit. ‘Here was danced’, ‘People have danced here’). For Noreen, therefore, a grammatical category of subject does not exist since it is impossible to define the grammatical features which should identify it. Hence the subject is a purely psychological category.

According to Kalepky, the subject is an entirely extralinguistic category: it is the hypokeimenon in Aristotle’s original meaning, the ‘underlying’ substance whose properties are uttered through the predicate, the kategoroumenon (cf. Kalepky 1928:24). In a sentence like ‘Charles waters the flowers’, the words which denote the three elements of the actual process (‘Charles’, ‘waters’ and ‘the flowers’, respectively) are the ‘predicates’ of these three elements, which, for their part, are the ‘subjects’. Hence it is totally wrong to analyze the sentence into subject and predicate. Kalepky states that this mistaken view of the

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13 Noreen’s principal work, the treatise Vårt språk (‘Our language’), was planned in ten volumes, but it was never finished. A partial German translation by H. Pollak, revised and approved by Noreen, appeared in 1923.
relationship between subject and predicate is due to the wrong way in which grammar, because of its "fearful reverence" before logic, interpreted the notion 'judgement'. If we state that 'The tree is green', we say about the object 'tree' that it has the property of being green: this is a 'primary' judgement. Speaking of such a judgment, it is correct to say that the tree (since it is an element of the actual world) is the subject, and that 'green' is the predicate. Such primary judgements underlie other judgements, those called 'secondary' by Kalepky (p.25): e.g., 'The tree is putting on leaves', 'Charles waters the flowers'. Each of the members of such sentences is a predicate of an element of the actual world, namely of a 'subject' in the proper sense.

As a consequence, Kalepky replaces the terms 'subject' and 'predicate' in the grammatical sense with 'carrier' (Träger) and 'process' (Verlauf), respectively. His change with respect to tradition, however, does not simply concern terminology, since he also denies that "what earlier was wrongly named subject" has a connection with the predicate (or more exactly, the 'process') which is different from that of all other sentence members. The predicate is the core of the sentence and the role of all the other members ('carrier', 'patient', 'goal', 'source', 'instrument', 'manner', 'cause', 'place', 'time') is determined by their relationship with it (cf. Kalepky 1928:26). Summarizing, Kalepky not only relegates the 'subject' among extralinguistic entities, but he also refuses to grant a privileged role to its grammatical equivalent (the 'carrier'). Just like Svedelius, Kalepky therefore appears to be a forerunner of valency theory.

2.4 Towards the abandoning of 'psychological' categories

A detailed investigation of the different uses and values of the term 'subject' was made by Marty in some articles published between the eighties and the nineties of the 19th century, which were later reprinted in Marty (1916-20 II, part 1). Marty worked out a theory of judgement based on Brentano's doctrine: he subdivided utterances into 'thetical', 'categorical' and 'compound'. Thetical utterances express simple judgements, like 'A is', or 'A is not'. Categorical judgements express 'double' judgements, like 'A is white', 'A is different from B': judgements of this kind are 'predications' (Marty 1916-20 II, part 1:316). Compound utterances express compoundings of simple or double judgements: they are instantiated, for example, by sentences such as those containing 'because', 'but', 'while', etc. (Marty 1940:125-177; 1950:32-33). Some judgements which in reality are thetical look like categorical ones, i.e. they look like predications: they can be named 'fictitious predications', or 'categoroids' (Marty 1950:155). Existential and impersonal utterances are examples of such judgements. Hence Marty maintains that one can speak of 'subject' and 'predicate' only in the case of categorical judgements. The wrong idea that every utterance contains both a subject and a predicate is due to the

The “primary rule of natural predication” is that the subject, within the thought of an isolated individual, first expresses what is most known; within the communication process, on the contrary, it must express what the hearer must pay most attention to (p.337). This does not mean, however, that the ‘psychological subject’ has always to be equated with the given, and the psychological predicate with the new, as was held by Gabelentz and Wegener (p.351). Moreover, whatever bears main sentence stress is not always the predicate, nor is what lies in sentence initial position always the subject. Hence not every part of speech can function as subject or predicate even though there can exist some cases of adverbs or of adjectives which take on a substantival function: e.g. heute in Heute war mein Geburtstag (lit. ‘Today was my anniversary’; p.362).

Inconsistencies in the psychological notions were also stressed by Wundt, although his position stands in opposition to Marty’s (cf. above:2.4.2). For Wundt, the concepts of subject and predicate are logical, not psychological. Therefore, it is not appropriate to distinguish between the logical and psychological subject and predicate, as Gabelentz does, for example (cf. Wundt 1912[1900] II:268-269). Nor can the logical subject be opposed to the grammatical one: the two notions coincide. ‘Linguistic transformations’ (sprachliche Umformungen; cf. p.267), like, for example, ‘Caesar crossed the River Rubicone’ and ‘The River Rubicone was crossed by Cæsar’, change the subject since they change the ‘foundation of the utterance’ (Grundlage der Aussage). These remarks by Wundt very clearly illustrate his rebuilding “with an inverted sign” of the traditional unity between grammar, logic and psychology noted by Knobloch (1988); cf. also above:54). The bipartite analysis of the sentence into subject and predicate is a product of the apperceptive analysis which develops according to the ‘law of duality of logical forms of thought’. Therefore, Wundt deems it advisable to replace the notions of psychological subject and predicate with one of ‘dominant representation’ to designate the stressing of given parts of the sentence in respect of other ones. In this case, the distinction is no longer a binary one but it can show different degrees (normally three; cf. Wundt 1912[1900] II:271). For example, within languages whose word order is free and unconditioned by “standard traditional norms”, the basic principle is that “words are ordered according to the degree to which concepts are stressed” (p.363). Given a sentence like Romulus condidit Romam, six different orders are possible depending on the position of the elements S, V and O. The three
"main types" of order are SVO, VOS, OVS.\textsuperscript{14} Italic represents stress (Betonung). The "secondary types" SOV, VSO, OSV derive from the main ones through the permutation of the second element with the third; they express further nuances of meaning. For example, the sentence \textit{Romulus condidit Romam}, with the main order SVO, answers the question ‘Who was Romulus?’. The sentence \textit{Romulus Romam condidit}, with the secondary order SOV, answers the question ‘Who founded Rome?’ (pp.362-363).

Latin examples were also quoted by Bühler (1922), although in a very different linguistic and psychological framework. Bühler too reached the conclusion that the notions of subject and predicate are not logical, but psychological. By ‘logical’, Bühler means that they pertain to the domain of ‘representation’. A Latin sentence like \textit{Amavit patrem filius} (lit. ‘loved father [acc.] son [nom.]’) can be transformed into \textit{Patrem filius amavit}, without any modification of its representational function, since this is expressed by other syntactic means, namely the inflectional endings. Word order variation is a rhetorical phenomenon; that is, it pertains to the functions of ‘expression’ and of ‘appeal’ (cf. Bühler 1922:61). By so doing, Bühler ended the discussion about the psychological categories of subject and predicate which, about fifty years before, Gabelentz (1874-75:134) had claimed belonged to grammar and not to rhetoric.

Psychological conceptions of subject and predicate were also given up by Jespersen. At the end of a detailed survey (Jespersen 1924:147-150) of the positions held by many scholars about the status of such notions (among others, Gabelentz, Wegener, Paul, Svedelius and Noreen), he wrote that “it is much better […] to use subject and predicate exclusively in the sense of grammatical subject and predicate” (p.150). Jespersen opposes the subject to the predicate on the basis of the following criterion: “the subject is comparatively definite and special, while the predicate is less definite, and thus applicable to a greater number of things” (ibid.). Hjelmslev (1928:34) rightly remarked that, although

\textsuperscript{14} These symbols are Wundt’s original ones. In my view, their identity with Greenberg’s labels is only apparent, not substantive (cf. Greenberg 1966[1963] and below:8.3.2). Wundt does not attempt to find correlations between word order within constituents belonging to different categories (like, for example, the position of the genitive with respect to the noun or that of the verb with respect to the object). He only aims at noticing the possibility of starting the sentence with any of the three elements, S, V and O, in a free word order language: this would run according to his ‘principle of anteposing the stressed concepts’. Therefore, he is interested in ‘psychological’ word order, not in ‘grammatical’ one. (This distinction can be considered as partly analogous to the one between ‘logical’ and ‘grammatical’ order made by Bergaigne 1878; cf. also below:4.2.4). The assumption of such a perspective may explain why Wundt, although he admits elsewhere (1912[1900] I:220) that SOV is perfectly standard in Latin, names it “secondary” with respect to the “main order” SVO in the pages we are presently discussing. It seems that what he calls secondary corresponds to what has a “greater representational complexity”.}
Jespersen aimed at a giving a grammatical definition of the subject, he actually gave a “purely logical” one. However, Jespersen (1909-49 III, 11.15) singles out the agreement with the verb as the defining feature of the subject. This definition is purely grammatical unlike the one given in Jespersen (1924).

Since it is repeated word for word in the last theoretical work by the Danish linguist (Jespersen 1937:136), I think that it was his favorite one. How are the constructions not explicitly showing verbal agreement (namely, the ones without finite verbs, like infinitival sentences and other kinds of ‘nexuses’; cf. below:4.1.7) to be analyzed? Jespersen (ibid.) maintains that “the term [sc. ‘subject’] is transferred” to such constructions from the sentences “in the most typical form”, i.e. those containing a finite verb.

As will be noticed, Jespersen’s evidence is the same as Noreen’s, namely verbal agreement, but their conclusions are opposed. This opposition originates from the fact that Noreen investigates grammatical categories in isolation and he attempts to individuate a distinguishing feature for each of them: this is (perhaps) possible in the case of the predicate but not for the subject which can be represented not only by nouns, but also by adjectives, by infinitival verbs, etc. Moreover, Jespersen (1937:136) states that the “subject as a grammatical term can thus be defined only in connexion with the rest of the sentence in its actual form”. Hence it does not matter which part of speech represents the subject: it must only be a ‘primary’ and with the verb has to agree with it.

The problem, however, is still not fully solved, since, within certain sentences, there may be two ‘primaries’ which show an agreement relation with the verb. Such sentences are the copular sentences. Jespersen is obliged to work out his definition of subject (called ‘grammatical’, but actually logical) as the element “comparatively definite and special” mostly to account for these. Based on such a definition, he can explain why “it is possible to say ‘a spiritualist is a man’, but not ‘a man is a spiritualist’ (with a man as the subject), though of course it is possible to say ‘this man is a spiritualist’” (Jespersen 1924:151).

It is interesting to note, however, that the logical pretext which Jespersen needs to resort to in this case is used also to hint at a possible explanation of some very puzzling syntactic facts: the so-called existential sentences. Jespersen (1924:154) notes that weak ‘there’ normally occupies the position of the subject, which is in a certain sense “reduced [...] to an inferior position, because it is indefinite”. The “absurdity” of an “indefinite subject” (Jespersen 1937:141) may explain why, in many languages, the ‘notional subject’ of existential sentences “is hardly treated grammatically like a real subject” (Jesper-

\[15\] Such terminology is based on Jespersen’s doctrine of the ‘three ranks’, on which see below:4.2.3.
Consider constructions like French *il y a* or German *es gibt*. The absence of an essential logical feature (greater definiteness) in the subject is reflected by a syntactic idiosyncrasy: postverbal position, in English and French, and even the accusative case, in German. Discussing this latter case, Jespersen (1937:141) wonders if we should speak of a subject or of an object, or if we should rather say that it is neither. He is plainly led to such doubts by the remark that the criterion of verbal agreement is not met with in such sentences. This is a further proof of the importance that such a purely grammatical fact has in Jespersen’s conception of the notion ‘subject’.

3. The debate on impersonals

3.1 Do ‘subjectless’ sentences exist?

The analysis of impersonal constructions is a good example of the differences between the various approaches to syntax we have examined in the preceding sections. Indeed, the treatment of such constructions still today represents a fundamental problem for any syntactic theory because it is inevitably bound up with the search for an appropriate definition for the categories of subject and predicate. Since this search was at the center of interest in the age we are examining, it is scarcely surprising that impersonal constructions also received special attention by that time not only from linguists, but also from logicians and philosophers as well.

To begin with, we may ask ourselves if a sentence like ‘It rains’ actually contains a subject and a predicate. The most spontaneous answer would be an affirmative one, since both categories are phonetically expressed: the subject (‘it’) and the predicate (‘rains’). The same analysis seems to hold for other languages as well, like French *(Il pleut)*, or German *(Es regnet)*. However, some other languages, like Italian or Spanish, offer contrary evidence, since they do not show any pronominal subject: *Piove, Llueve*. On this basis, one may wonder if English ‘it’, German *es* or French *il*, in these cases, are actually subjects. Moreover, what do they denote? We can also ask ourselves what the status of such pronouns is with respect to the one they have in constructions like ‘It is true that etc.’. Are these last sentence types also to be considered impersonal?

‘Impersonal’, like many other terms belonging to the old grammatical tradition, was often judged inappropriate and misleading. The Port-Royal *Grammaire* is no exception, since it maintains that the label ‘impersonal’ would be fit only for the infinitive (Arnauld & Lancelot 1676[1660]:125). The Messieurs of Port-Royal also remark that “the grammarians commonly call certain verbs ‘impersonal’” which only have third person (ibid.). Among such verbs, the Port-Royal grammar firstly quotes the Latin ones like *me paenitet* (lit. ‘Me regrets’, ‘I regret’), *me pudet* (lit. ‘Me shames’, ‘I feel ashamed’), etc.: they are analyzed as *poena habet me* (‘Regret has me’), *pudor tenet me* (‘Shame holds
A further group of impersonal verbs investigated by the Port-Royal grammar is that of the so-called passive impersonals, like *curritur* (lit. ‘It is run’), *vivitur* (lit. ‘It is lived’): they are analyzed (pp.126-127) as *cursus fit* (‘A run is made), *vita agitur* (‘Life is led’). A verb like *pluit* is said to stand for a whole sentence, containing a subject, a copula and a predicate (p. 129). Quite in accordance with its basic tenets, therefore, Port-Royal grammar attempts to find a Subject-Predicate structure even within those constructions which *prima facie* do not show it, such as the impersonal ones in a language like Latin. This structure is always realized through the connection of a nominative subject with a finite verb. Once more, grammatical, logical and psychological notions end up coinciding.

One hundred and sixty years after Port-Royal, J. Grimm also wondered whether the traditional label ‘impersonal verbs’ was actually appropriate (cf. Grimm 1898[1837]:262-263). First of all, Grimm opposes the ‘grammatical’ point of view with the ‘logical’ (today one would rather say ‘semantic’): the latter would legitimate the use of the term ‘impersonal’, the former not. This is strictly connected to a couple of further questions: 1) what does the subject of impersonal verbs refer to, and 2) how are impersonal verbs to be classified? The cornerstone of Grimm’s analysis is his own view of the subject of verbs like ‘to rain’, ‘to thunder’, which he does not treat as an empty word, but, quite the contrary, as a very particular entity, a kind of God to which the cause of the rain or of the thunder is attributed. Meteorological verbs are therefore singled out as prototypical (‘absolute’, in Grimm’s terms) impersonal verbs. An implicit, but unavoidable, consequence of Grimm’s analysis is that sentences containing impersonal ‘absolute’ verbs must be analyzed as Subject-Predicate structures. Grimm therefore arrives at the same end result as Port-Royal grammar although by a very different path.

This conclusion was no longer generally accepted after the beginning of the crisis of the logic-based model of syntax. Heyse (1856:401-402) suggests the term ‘subjectless verbs’ rather than ‘impersonal verbs’ and in so doing rejects the dogma that every sentence must contain a subject and predicate. The existence of ‘subjectless sentences’ is strongly maintained in Miklosich (1883b), which is the rewriting of an essay published in the 1864 volume of the proceedings of the Vienna Academy of Sciences. At its very beginning (p.1), he states that, in a sentence as *Pluit*, the subject is not only unexpressed, but not even thought. Miklosich’s conclusion (p.25) was therefore that subjectless sentences are sentences which consist only of the predicate. For Miklosich, the presence vs. absence of a pronoun agreeing with the verb does not bear on the possible subjectless nature of the sentence: *Putant* (‘They believe’) and *Dicunt* (‘They say’) have a subject, exactly as *Man sagt* or *On dit*. On the other hand, Miklosich (p.2) states that it is erroneous to consider *es* (‘it’) or the analogous
pronouns that accompany impersonal verbs in many languages as subjects. Hence subject, for Miklosich, is not a formal but a logical category; this does not mean, however, that it must occur in every sentence. The essential difference between the two kinds of sentences is that “in subjectless sentences the predicate occurs as unlimited, absolute, while in sentences containing a subject it is limited by the subject, it is uttered only in relation with the subject” (p.26).

These conclusions were suggested to Miklosich both by his vast experience in the domain of Indo-European languages (many of which show subjectless sentences) and by some theoretical considerations. Such considerations were not at all motivated by a Steinthal-like divorce between linguistics and logic. Quite the contrary, Miklosich founded his analysis of the sentence on a definite logical theory, although different from the traditional one: he resorted to Herbart’s and Trendelenburg’s authority, who had maintained the existence (and, in the case of Trendelenburg, also the priority) of subjectless sentences (cf. Miklosich 1883b:18-19). Hence Miklosich also applauded Brentano and Marty’s theory of judgement with great satisfaction: as we may recall (see above:3.2.4), it distinguished ‘thetical’ from ‘categorical’ judgements and ascribed a Subject-Predicate structure only to the latter ones.

Miklosich’s position certainly did not meet with universal agreement. Soon after its first appearance (1864), it was strongly argued against by Steinthal (1866; see also Steinthal 1860b, which is presupposed by the later essay). Steinthal’s position is very complex and even tortuous, and Miklosich, in his reply, had no difficulty in pointing out some of the inconsistencies contained in it. Steinthal opposed linguistic categories not only to logical ones, but also to psychological ones: hence he analyzed the sentence from three different points of view. As far as the logical aspect was concerned, he kept on maintaining the conception of judgement as a bipartite entity and then he explicitly argued against Herbart’s and Trendelenburg’s positions on which Miklosich’s assumptions were based. He conceded that many impersonal constructions can be reduced to existential or event sentences but he maintained, contrary to Herbart and Trendelenburg, that existence is a predicate, whose subject may be a totally generic entity (Steinthal 1866:238).

Most philosophers and linguists opposing Miklosich’s views postulated a logical or a psychological subject even in the absence of a grammatical one, in order to motivate the assumption of a bipartite structure for impersonal sentences. Steinthal’s position is different: he always ascribes to impersonal verbs a grammatical subject, which is distinguished both from the logical and the psychological subject. Given two sentences like Es freuet mich (lit. ‘It rejoices me’) and Ich freue mich (‘I rejoice’), Steinthal (1860b:82) notes that they may be considered identical from the psychological ‘point of view’ (Rücksicht), but not from the grammatical ‘perspective’ (Hinsicht). The syntactic difference
cannot therefore be ignored if one wants to provide an adequate analysis. If the reduction of language to logic is unmotivated, so is its reduction to psychology (cf. Steinthal 1860b:83).

Steinthal's logical analysis of impersonal sentences is still, essentially, the Port-Royal one: *Es regnet* ('It rains') is paraphrased as *Regen ist* ('Rain is') or *Regen fällt herab* ('Rain falls'). This logical structure does not coincide at all with the grammatical one: according to the latter, *Es regnet* is equated with *Regnen ist* (lit. 'to rain is'), hence to a complex sentence containing an infinitival subject clause. He analyzes *Regnen ist* as two sentences, "equivalent to *Es ist wirklich, daß es regnet* [it is true that it rains]" (Steinthal 1866:240). Steinthal therefore treats verbal infinitival forms on a par with finite ones: the essential nature of the verb lies in the expression of personal relations and such relations are expressed even when the verb has an infinitival form (cf. also Steinthal 1855:371). Hence it is the intrinsic relational nature of the verb which assigns the Subject-Predicate structure to every sentence, impersonal sentences included. What is, then, the subject of impersonals? Steinthal (1866:240) adopts Grimm's interpretation of impersonal *es* (see above). What contrasts impersonal sentences to other sentence kinds is that their subject, which the verb necessarily refers to because of its intrinsically relational nature, is something that language "either cannot or will not disclose" (Steinthal 1866:240).

In spite of Steinthal's criticisms (which were replied to in Miklosich 1883b), Miklosich's analyses stimulated a wide variety of research into impersonals, especially after 1883. This research can readily be subdivided into two groups, according to the assumption vs. the rejection of the existence of subjectless sentences. The essays by Pedersen (1907:134-148) and by Siebs (1910) belong to the first group, together with the passages devoted to the problem in Brugmann (1904) and in Delbrück (1893-1900). To be exact, Delbrück's position on the matter is far from being steady. In the first volume of his work (Delbrück 1893-1900 I:74), he seems to treat impersonal sentences as subjectless sentences. Some years later, however, he explicitly admits that his views on the matter have partially changed; he says he reached the conclusion "that it is impossible, with the means of historical linguistics, to establish if such sentences are cases of ellipsis or not" (Delbrück 1893-1900 III:6). This skeptical conclusion is restated in the chapter about subjectless sentences (pp.23-37) where Delbrück remarks that there is no clear evidence for deciding whether the subjectless impersonal sentence is the older one or if it is the other way around. Delbrück's skepticism was motivated, among other things, by the observation that the subjectless type of impersonal sentence seemed to be gaining ground over the type with the subject. This fact suggested to him that

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16 An analogous classification can be found in Beck (1922).
the latter type was older than the former. The (implicit) consequence is that impersonal constructions should be treated as elliptical sentences, rather than as subjectless sentences in the strictest sense, that is, as containing only the predicate.

Other historical grammarians, however, held a rather different opinion from Delbrück: they stated that the subjectless type was the older one and this assumption strengthened their conviction that subjectless sentences do exist. Such a position was held, among others, by Pedersen (1907) and by Siebs (1910). Siebs stated that the subjectless construction of impersonal weather verbs had to be considered older than the one with the subject. The conclusion that both Pedersen and Siebs drew from their historical investigations was that subjectless sentences actually existed since they were motivated by the reconstruction of the Indo-European Grundsprache. Such a conclusion was almost opposed to Delbrück's, but it lay within the same conceptual framework: the oldest construction is always the more authoritative one. We have further to remark that, unlike Miklosich, these scholars seem to consider the presence vs. the absence of a pronominal subject as crucial for qualifying a sentence as subjectless.

The assumption of subjectless sentences was held, as is natural, not only by most of the historical-comparative grammarians but also by those language philosophers, who, following Brentano, assumed the existence of 'theoretical' judgements. Such scholars (the most important of whom was surely Marty), however, were relegated to a marginal position. Another historical linguist, Brandenstein (1928:12), admitted that only Marty had understood the real nature of impersonals and had recognized them as existential sentences. Brandenstein was obliged to add, however, that Marty's analyses had actually remained unknown, in part because of the obscurity of Marty and Brentano's terminology.

Let us now turn to the group of scholars who opposed Miklosich's assumption of the existence of subjectless sentences. The philosopher Sigwart was considered by many people\(^{17}\) as the leader of this group. First of all, Sigwart (1888:1) stated that an impersonal sentence like *Pluit*, although seemingly lacking a subject, "contains an assertion which can be true or false, hence it has the logical character of a judgement and the grammatical character of a statement". To prove his point, Sigwart singled out a particular kind of judgement, which he named 'naming judgements' (*Benennungsurteile*): examples of them are 'This is Charles', 'This is salt', 'This is the moon' (Sigwart 1888: 13-15).

\(^{17}\) E.g. by Beck (1922), who labels the two groups "the Miklosich group" and "the Sigwart group", according to their agreement vs. dissent with the assumption of subjectless sentences. Shortly before Sigwart, both Schuppe (1886) and Paul had reached similar conclusions, as we will see in a moment.
Sigwart (p.88) stated that genuine impersonal sentences have a denominative judgement as their “logical core”, even if their “course of thought” develops in an opposite way: indeed, in judgements like ‘This is the moon’, etc., we first get the perception of an object which is later subsumed under an already known representation. On the contrary, in judgements like ‘It is thundering’, ‘It is lightening’, the first perception is the one of an event. At any rate, even these last judgements contain a subject, even if it is not only ‘vague’, but also ‘obscure’ (cf. p.27). At the end of his essay (p.75), Sigwart was therefore able to maintain that “every judgment is bipartite”.

Sigwart’s position about impersonals was agreed on by the majority of the logicians and also by a large number of linguists. Nevertheless, such agreement did not extend beyond the general assumption that a subject and a predicate must be present in any judgement. Furthermore, Sigwart’s arguments were based on a particular doctrine of judgement, which did not meet with widespread consent. The basic problem, therefore, was still to explain the empirical facts noticed by Miklosich (the lack of any subject or only the presence of a contentless pronoun in the impersonal sentences of many Indo-European languages) without giving up the traditional doctrine that judgements are bipartite.

As we have already hinted (see fn.17), Paul had worked out arguments very similar to Sigwart’s as early as the second edition (1886) of his Prinzipien: as a matter of fact, he is often quoted by Sigwart. For Paul (1920:131), it is first of all necessary to distinguish grammatical form and the logical relationship designated by it. The pronoun of sentences like ‘It rains’ is certainly a grammatical subject, but it is not a psychological subject at all. Nevertheless, Paul maintains that people like Miklosich and Marty are mistaken in denying the existence of a psychological subject in impersonal sentences, because every sentence is a “connection of two representations”, namely a psychological subject and a psychological” predicate (cf. below:4.1.3). According to Paul, one-member judgements do not exist: their assumption (held, e.g., by Marty and Miklosich) is based on an equivocation between the function and the structure of ‘auxiliary judgements’ (Hilfsurteile: this is the way Paul names ‘thetic’ judgements). Marty may be right in treating a sentence like ‘This pear is ripe’ as a ‘double’ (‘categorical’) judgement, since it is based on two judgements, ‘this object is a pear’ and ‘this object is ripe’. He neglects, however, the fact that such auxiliary judgements may also be uttered in isolation. Hence, even if an auxiliary judgement is a member of a double judgement, this does not imply that it is a one-member judgement. On the contrary, all auxiliary judgements, and all impersonal sentences as well, are bipartite.18

18 According to Brandenstein (1928:17), Paul’s interpretation of Brentano and Marty’s theory of judgement is based on a misunderstanding: Paul thinks that to speak of one-member judge-
Sigwart argued against Miklosich from a logical point of view, Paul from an (allegedly) psychological one. In the same period, a grammarian to whom we will also return below, Franz Kern, worked out an essentially syntactic criticism. Kern (1888[1882]:41) draws a basic distinction between ‘subject’ and ‘subject word’: impersonal verbs (may) lack the latter but they never lack the first. The subject is always contained in the finite verb, and it is expressed by the personal ending. This ending does not denote a relationship only, but “a subsistence […] to which the verbal content is thought to adhere” (p.40). Kern argues that, if Miklosich’s analysis of impersonal sentences were to be right, there would be no difference between *pluit* (‘it rains’) and *pluere* (‘to rain’), because the infinitive also denotes a pure natural event. However, the expression of the “subsistence” indicates something more, namely that it refers to something unknown, to something different both from the speaker and from the hearer (ibid.). The ‘subject word’, on the contrary, is an apposition with respect to the verb. Its presence is never necessary, but always optional; it receives the nominative case in indicative sentences and the vocative case in imperative ones. Impersonal verbs are verbs whose only possible subject word is the word *es* (p.50). The semantic vagueness which characterizes the third person reaches its extreme boundary in impersonal constructions.

Kern’s position is undoubtedly connected to Steinthal’s, but it is different from the latter since it motivates the assumption of a bipartite sentential structure on the basis not of the intrinsically relational nature of the verb but of the structure itself of the finite verb. Given this perspective, the individuation of the meaning of the neuter pronouns which accompany the impersonal verbs no longer has the crucial importance it had for Steinthal. Since these pronouns are no longer treated as subjects but as ‘subject words’, their role is no longer crucial to prove that the sentence has a bipartite structure.

A feature shared by Sigwart, Paul and Kern, besides the rejection of Miklosich’s analysis, is the assumption of a mismatch between the logical, psychological and grammatical levels. On this topic, Wundt’s position is different since the notions of logical and grammatical subject coincide, according to the Leipzig psychologist. Hence the structure of impersonal sentences is analogous to that of other sentence types: both *lego* (‘I read’) and *pluit* (‘It rains’) contain two different representations. The only difference lies in the fact that, in the latter sentence, the object connected with the process expressed by the verb is of an undetermined nature (Wundt 1912[1900] II:227). This object is undetermined but not unreal: from the logical point of view, it denotes “an object which is available, but which is impossible to define more exactly” (p.228). From the psychological point of view, “it denotes the whole complex of the

ments necessarily implies to treat them as indivisible but this is not what Brentano actually maintains.
more constant perceptive contents given contemporarily with the state or the process contained in the verb” (ibid.). Wundt, as we know, sees the bipartite structure of the sentence as a consequence of the ‘duality of the logical forms of thought’: there is no need to resort to what Sigwart called ‘naming judgements’ in order to prove the Subject-Predicate structure of impersonal constructions. They do not show any such kind of judgement at all (cf. p.226). Even in the analysis of impersonals, therefore, Wundt restores the old unity of logic, psychology and grammar, “with an inverted sign”.\textsuperscript{19}

3.2. What does the subject pronoun of impersonal sentences mean?

Brugmann’s memoir (1917) marks a rather radical change of perspective in the discussion of impersonals. First of all, the ‘seeming’ subject es (German) or il (French) is treated from a purely syntactic point of view: there is no longer a discussion about the existence vs. non-existence of a possible referent. In such a way, Brugmann can investigate the function of the subject pronoun of impersonal constructions while at the same time agreeing with Miklosich’s assumption that it is fully contentless.\textsuperscript{20} Brugmann therefore refuses to consider es and the other analogous pronouns as allusions to some supernatural entity. This step allows him to considerably extend the investigation of constructions showing such kinds of pronouns, namely, not to limit it to weather verbs, psychological verbs (like Latin \textit{Me pudet}, ‘I feel ashamed’) and to occurrence verbs (like German \textit{Es schickt sich}, ‘it occurs’). Therefore, what in a certain sense was Miklosich’s conclusion becomes Brugmann’s starting point: once it

\textsuperscript{19} A much more articulated solution to the problem of impersonal constructions is given by the Wundtian scholar O. Dittrich (1909-10). Dittrich distinguishes between ‘general’ and ‘special’ subjects and predicates. Dittrich’s ‘general subject’ refers to what we would call the ‘state of affairs’; a ‘general predicate’ is the assertion that such state of affairs exists, or its being called in question, etc. ‘General’ subjects and predicates occur in every kind of sentence, while the corresponding ‘special’ categories may be missing in certain cases (Dittrich 1909-10:7). The general predicate of impersonal constructions is “a feeling of positive definiteness” (\textit{ein Gefühl von positiver Bestimmtheit}) with respect to a general subject. Such a general subject, in a sentence like \textit{Pluit}, is to be defined as ‘rain’: the speaker definitely knows that the natural event ‘rain’ occurs and asserts this occurrence. Dittrich adds that the general subject of impersonals is in its turn divided into a ‘special predicate’ and a ‘special subject’. In the case of \textit{Pluit}, the special predicate would be the event of ‘raining’ and the special subject the ‘bearer’ of such event, which is unknown to the speaker and is therefore left undetermined (p.14). There is therefore a double motivation for assuming that impersonal sentences are bipartite. – The opposition between ‘general’ and ‘special’ subjects and predicates was also adopted by Beck (1922). Beck identified the ‘general’ subject with the logical one and the ‘special’ subject with the grammatical; he further distinguished the psychological subject from the two preceding ones.

\textsuperscript{20} Note, however, that, contrary to Miklosich, Brugmann (1917:15) states that the other types of pronominal subjects are also semantically empty in languages where they are obligatorily realized.
is assumed that no subject pronoun with such a function has any semantic content, Brugmann may undertake a classification of the several types of the ‘apparent subjects’ es/il.

Brugmann starts from Willmanns’ (1897-99 III) distinction between the truly impersonal es (the standard Es regnet) and the ‘syntactic’ es (the one instantiated by constructions like Es kamen drei Boten, ‘there came three messengers’). He then traces a further subdivision within the first class and distinguishes ‘free’ impersonal constructions from ‘bound’ ones: Es regnet vs. Es scheint, dass... (‘it seems that...’), respectively. Brugmann connects the appearance of the seeming subject to the increasing obligatoryness of the subject both in Germanic and Romance languages. He further maintains that ‘free’ impersonal constructions have been modeled on the ‘bound’ ones; these in turn derive from the use of es as a ‘discourse deictic’ which has a preparatory function with respect to the dependent clause or the infinitival construction following the verb (cf. Brugmann 1917:6; 15). Such preparatory subject pronouns gradually lose their content, until they reached the level of empty formal words. This gradual semantic deprivation of es was paralleled by the rise of the German verb-second phenomenon: the verb must always take the second position in German declarative sentences. As a consequence, the function of es became the one of “covering” sentence initial position. Brugmann strongly restricts the domain of what may be called the impersonal es: referring to Sigwart, he distinguishes it from what he names the ‘situational es’ (p.17), exemplified by constructions like Wird es bald? (‘Will it happen soon?’). One criterion used to differentiate the two kinds of es is the following: situational es can never be absent in any kind of sentence, nor appear in alternative word orders, while the impersonal es can. For example, one can say both Es dürstet mich (lit. ‘It thirsts me’, ‘I am thirsty’) and Mich dürstet (lit. ‘Me thirsts’, ‘I am

21 Other classifications of impersonal subjects were given by some grammarians contemporary with Brugmann. Paul (1916-20 III-IV) opposes “authentic” impersonals to those which show “an anticipation of the real subject”, which can be a noun phrase or a sentence: cf. Es war ein König in Thule (“There was a king in Thule”) vs. Es ist gut, dass du kommst (“It is good that you are coming”). Curme (1922) distinguishes between the two last cases: he names the es of es war ein König in Thule ‘anticipatory’, whereas he names the other es ‘grammatical’. However, both Paul and Curme group these two es together and oppose them to the “authentic” impersonal es. Behaghel (1923-32 I) puts the ‘sentence anticipatory es’ in the same group as the weather es and other impersonal constructions named “authentic” by Paul and Curme, under the general label of “formal subject designation with impersonal verbs and expressions”. On the other hand, constructions like Es war ein König in Thule are treated by Behaghel as a separate group, where es functions as a formal designation of the subject anticipating the material subject. – I am grateful to Alessandra Tomaselli for much useful information about these topics.
thirsty’), because the sentence initial position is already “covered” in the second sentence, and there is no need of the impersonal es.

Brugmann’s hypothesis that free impersonals originated from the model of bound ones was argued against by Corrodi (1925): according to him, the data offered by the history of the German language actually demonstrate the opposite (pp.5-7). The main aim of Corrodi’s work was to determine the value of the subject pronoun within impersonal constructions and to restate the opposition between grammatical categories on the one side and logical and psychological categories on the other (even though in a sense differently from Paul’s work). For Corrodi, subjectless verbs in a grammatical sense are many but there are no verbs without logical or psychological subjects. Corrodi agrees with Brugmann on the fact that the impersonal es became obligatory since the phonetic realization of the subject also became obligatory. However, the impersonal es in his view, refers to the ‘situation’ to which verbs like ‘to rain’, ‘to thunder’ are connected. As a matter of fact, Corrodi’s concept of ‘situation’ replaced what many linguists since Grimm had dubbed the ‘unknown entity’ (or ‘undetermined entity’). Heyde (1926) criticized Corrodi’s analysis because of its vagueness: to say that the impersonal es “refers to a situation” can mean either “it denotes a situation”, or “it says something about a situation”. In both cases, we would arrive at the absurd conclusion that we could paraphrase es donnert as ‘the situation thunders’. On the other hand, if we mean by “referring to a situation” that impersonal sentences “deal with” a given situation, this would not allow us to distinguish them from other sentences (Heyde 1926:152-153). Heyde maintains that we must start from the verb, not from the subject, to investigate impersonals: they express an activity, the cause of which is characterized only as existing, with no further specification (pp.154-155). Similar objections to Corrodi were raised also by Brandenstein (1928:15-16). Corrodi (1927) replied to Heyde by restating that the vagueness of the concept ‘situation’ was determined by the nature of the impersonal constructions itself, which was phenomenal and indefinite. Quoting a distinction made by Bally, Corrodi (p.153) singled out two attitudes towards reality: an “impressionistic-phenomenal” attitude and a “causal or transitive” one. Impersonal constructions would express the first kind of attitude.

The debate between Corrodi and Heyde was unavoidably condemned to sterility. Nevertheless, Kalepky (1927) took it as his starting point in order to face the problem of impersonals in his typically drastic way (cf. above:3.2.3). As we already know, Kalepky blamed the distortions that logic (or, more exactly, a wrong conception of it) had inflicted on grammar. As a consequence, he stated that the problem of impersonals may be important for the first of these sciences, but not for the second. From a linguistic point of view, the sentence is not a necessarily bipartite structure: indeed, the sentence is “das klein-
ste Mitteilungsganze [the smallest communication unit]” (Kalepky 1927:163). Kalepky then ended in his own way the debate on whether impersonal sentences are one-member or bipartite: he affirmed that such a debate was not relevant to grammar. The problem of determining the content of es (and of the analogous pronouns in other languages) was still open, however. For Kalepky, this problem too was actually non-existent: the impersonal es is simply an abridged form of Dingsda, an expression by the means of which we utter that “there is a given thing, well-known to the hearer, the right designation of which is however not found at the moment” (p.169). Hence we must not speak, Kalepky added, of impersonal verbs, but of verbs or verbal forms “which designate a process or a state with an unclear, unknown carrier” (p.170).22 The use of personal pronouns equivalent to Dingsda is not restricted to the subject of impersonal sentences; this is a further proof that they must not be considered an exceptional grammatical phenomenon. One indeed finds many cases where such pronouns have a function different from that of the subject, like ‘to foot it’, or German Er hat es eilig (lit. ‘He has it hasty’, ‘He is in haste’); cf. ibid.. Kalepky (pp. 172-173) therefore concluded that there were no impersonal verbs and that the distinction between logical, psychological and grammatical categories brought about an unnecessary intricacy (cf. also Kalepky 1928:64).

One could remark that Kalepky, rather than solving the problems, was actually removing them: it still remains an open question why the third person singular neuter or masculine pronoun has indefinite meanings only together with given verbs, and not with others. Kalepky’s positions are nonetheless an attempt to cut the Gordian knot which by that time had entangled the debate on impersonals. As a matter of fact, neither question raised at the time of the Miklosich vs. Steinthal debate had yet been solved. No decisive proof had been brought for or against the analysis of impersonal sentences as one-member structures, and it was still impossible to define the exact value of the pronoun functioning as their subject.

Nevertheless, the distinction between the ‘pure impersonal’, ‘bound impersonal’ and ‘syntactic es’ allowed a relative assessment of their value: some scholars reached the conclusion that pronouns like es, it, il, have a greater semantic content when they are the subjects of ‘classical’ (namely, weather) impersonal verbs than when they function as ‘anticipatories of the subject’. Brandenstein (1928:20) named ‘pure impersonals’ only those of the kind es regnet, whereas he assimilated ‘bound impersonals’ with ‘syntactic es’ constructions. This was perfectly consistent with his Martyan assumptions: it would be possible to speak of a subjectless judgement only in the former case, while both a subject and a predicate are present in the latter although “in a special syntactic

22 Remember that ‘carrier’ is the concept which Kalepky substitutes for ‘subject’.
form" (cf. ibid.). Bally (1965[1932]:§238), for his part, remarked that we can speak of a ‘seemng subject’ only for the second class of Brandenstein’s impersonals, because the *es* of ‘pure impersonals’ is an authentic subject. In an analogous vein, Jespersen (1937:30) represents both the subject of ‘He comes’ and the one of ‘It rains’ by means of the same symbol, which is used also to indicate the subject of ‘It is cold today’ (p.83). On the other hand, ‘anticipatory *es*’ and analogous pronouns in other languages (e.g. ‘It is a long way to Tipperary’) are defined by him as ‘lesser subjects’ (p.37).

However, Jespersen (p.138) does not represent a sentence like *Pluit* in the same way as ‘It rains’. Instead, he classifies it among one-member sentences. He therefore remains, so to speak, in an intermediate position between Miklošich and Steintosh, as far as the question of impersonals is concerned. However, we have seen (3.2.4) that the subject is a purely grammatical category for Jespersen. The Danish linguist again follows what we have called his ‘principle of morphological transparency’ (cf. above:69): when a pronoun or a noun phrase is lacking, he does not resort to the postulation of only “alluded” entities, unlike Steintosh. Moreover, it should not be overlooked that whereas Steintosh makes the sentence necessarily coincide with the Subject-Predicate structure (in a grammatical sense), Jespersen sharply distinguishes between the two notions. We will deal with such problems in the next chapter.
CHAPTER 4

THE ANALYSES OF THE SENTENCE
AND OF THE WORD GROUPS

0. Introduction

The definition of sentence given by the Latin grammarian Priscian is the leading thread of the first section of the present chapter (4.1). This definition captures two different aspects of the sentence which distinguish it from any other syntactic unit: the specificity of its grammatical structure on the one hand and that of its being the expression of a 'complete thought' on the other. The first aspect may be called 'analytical', the second 'holistic'. The different ways in which these two aspects, as well as their mutual relation, were conceived in the psychologistic age are investigated.

As in the preceding chapter, our discussion starts from the Port-Royal model of syntax. Port-Royal analysis of the linguistic notion of 'sentence' was based on its identification with the logical notion of 'judgement': a sentence, exactly as a judgement, is formed by a subject, a copula and a predicate (cf. also above:3.1). Therefore, the Port-Royal model of sentence analysis may be called the 'judgement model' (see 4.1.1). With the emergence of historical-comparative grammar and of psychologistic syntax, many different alternatives to this were elaborated: some of which privileged the analytical aspect of the sentence, some others the holistic one. In general, the analytical approaches defined the sentence as a 'connection of representations', the holistic ones insisted on its communicative function (see 4.1.3). A psychologistic definition of the sentence which views it not as a 'connection of representations' but as a 'partition of a total representation' is Wundt's; it can be considered as a restatement of the Port-Royal conception, but with the difference that it no longer bases linguistics and psychology on logic, but linguistics and logic on psychology (see 4.1.4).

The crisis of the Wundtian system and of psychologism in general also involved their conceptions of the sentence. New definitions were proposed whose main goal was to avoid any reference to the notion of representation
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Ries' book (1931) is an interesting essay in accounting both for the analytical and the holistic aspect of the sentence from an essentially grammatical point of view (see 4.1.6). Also Jespersen's definition of sentence (see 4.1.7) tries to avoid any particular commitment to psychologism. One important novelty of Jespersen's treatment is his separation of the holistic aspect of the sentence from its analytical one: Jespersen defines 'sentence' only on the basis of its communicative function, while he coins the label of 'nexus' for the subject-predicate grammatical structure. In Jespersen's view, not all sentences are nexuses, nor all nexuses are sentences.

The second section of this chapter deals with the analysis of word groups. In this case, our investigation does not take Port-Royal grammar as its starting point since the notion itself of word group begins to surface only as early as in the 18th century. Nevertheless, the influence of the judgement model is considerable even on word group analysis: word groups are considered to be derived from sentences not only by linguists within the general grammar tradition (such as Becker), but also by many linguists of the psychologistic age (e.g., Gabelentz, Wegener, Paul) and even by some early 20th century critics of psychologism, such as Marty or Noreen. It is only with Jespersen and Sechehaye that word groups are assigned an autonomous status, independent from that of sentences and of predicative structures in general (see 4.2.1-4.2.2). More or less contemporary with such a recognition of this autonomous status to word groups, the analysis of their internal structure was considerably elaborated in comparison to preceding times. Ries' 'doctrine of word groups' (Ries 1928) and Jespersen's 'theory of the three ranks' are among the most interesting proposals in this direction (see 4.2.3). They somehow anticipate, although in a rather different framework and resorting to different analytical tools, the constituent analysis of the structuralist age. The last section of the chapter (4.2.4) investigates the problem of word order within word groups. The fact that the respective order of the determining and the determined member of word groups is consistent across different word groups in a given language had already been hinted at by Humboldt, but it was systematically investigated by Henri Weil (1897[1844]), who opposed 'ascending' (i.e., OV) languages to 'descending' (i.e., VO) ones. The interest in the topic of word order within word groups and in the principles which could account for it developed considerably in the psychologistic age of syntax, as is shown by works such as those by Gabelentz, Bergaigne and Behaghel, among others. On the other hand, this topic was rather neglected by structural linguistics (with the exception of Tesnière) and re-surfaced only with Greenberg's seminal article (1966[1963]).
1. ‘What is a sentence?’

1.1 The rise and fall of the equation sentence = judgement

Among the definitions of the ‘sentence’ which classical tradition handed down to us, the best known is probably Priscian’s\(^1\) (which in turn can be traced back to Dionysius Thrax): “oratio est ordinatio dictionum congrua, sententiam perfectam demonstrans [a sentence is a coherent word combination, expressing a complete thought]”. This definition catches two aspects of the sentence, which we will call ‘analytical’ and ‘holistic’. The first aspect is referred to through the phrase “ordinatio dictionum congrua”: it asserts that a sentence cannot be formed by any arrangement of words; it is necessary that they follow some criteria of combination. The ‘holistic’ aspect lies in the fact that such a combination has the capacity of expressing a complete thought (“sententiam perfectam demonstrans”). This definition offers nothing more than a few hints: indeed, it does not specify which are the “coherent word-combinations”, and it does not also explain what “a complete thought” is. Furthermore (and this is perhaps what matters most), it does not even suggest what the relation between the two aspects may be: that is to say, why some word combinations are able to express a complete thought, while others are not.

The Port-Royal *Grammaire* approaches the problem in a very lucid way: it captures the analytical aspect in the partition of the sentence into Subject, Copula and Predicate, and the holistic one in the equation sentence = judgement (see above:3.1). Of course, in such an approach the second aspect is unavoidably determined by the first, since all judgments have a tripartite structure. In what follows, when I speak, of the ‘judgement model’, I will be referring to the Port-Royal style of sentence analysis.

Such a model enjoyed great success for more than 150 years. In the first half of 19th century, it was heading for a crisis, which was, however, very slow, as the following survey aims to show. Humboldt does not identify the sentence with judgement: he explicitly distinguishes the logical notion of judgement from the linguistic one of the sentence (see above:2.1.2). The judgement is a simple equation expressed by the copula (‘The earth is round’); the sentence can express a variety of other meanings just by virtue of the different verbal forms it can contain. One could remark, however, that Humboldt does not totally dissociate the sentence from judgement: sentences are seen as concrete instantiations of the abstract structure ‘judgement’ (cf., e.g., Humboldt 1827-29[1903-36] VI:346). Some years after Humboldt, Becker still defined the sentence as “the expression of a thought, i.e. of a predicative judgement”.\(^2\)

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\(^1\) Institutiones grammaticae II, 4.15.

\(^2\) I draw this definition from Ries (1931); its source is *Ausführliche deutsche Grammatik als Kommentar der Schulgrammatik*, Frankfurt/M. 1836-39, I:37.
many occasions, Becker seems to prefer the term ‘thought’ (Gedanke) to ‘judgement’ (Urtheil); however, he often uses them interchangeably as in the given definition. According to Forsgren (1992:68), this innovation would not only be terminological: Becker’s essentially bipartite analysis of the sentence (cf. above:3.1) could not fit well into Port-Royal schema. I would say that Becker remains faithful to the Port-Royal interpretation of the holistic aspect of the sentence, while he is no longer satisfied with its treatment of the analytical aspect.

If Becker no longer appears totally bound to the tradition of general grammar, neither does K.W.L. Heyse, whom Steinthal praised as his own master in linguistics (see above:2.2.1), seem totally free of it. Actually, Heyse (1856:390-391) maintains that the sentence is “an uttered thought” and it is formed by a subject, the sentence topic (Satz-Gegenstand), which expresses the “substance”, and by a predicate (das Ausgesagte), which expresses “the accident” or “attribute of the substance”. The copula states the inherence of the attribute to the subject; also the ending of the finite verb can represent the copula (cf. Heyse 1856:139). This form of the sentence, Heyse notes, is analogous to the one of logical judgement. Sentence and judgement, however, do not coincide: firstly, the logical judgement always has a general value (e.g., ‘God is absolute Mind’), contrary to the sentence; secondly, the sentence can be not only a statement, but also a question, an order or an exclamation. Seidel (1935:28), evaluating Heyse’s views, maintains that they do not exceed Becker’s, since Heyse upholds the opinion that the expression of thought takes the form of judgement, even if he stresses that the sentence has not to be equated with the judgement. I would rather say that Heyse’s system contains notions derived from the general grammar tradition and some innovative ideas as well. One example of the latter is his conception of the copula: Heyse views it no longer as a specific lexical item (the ‘substantive verb’), but as a syntactic relationship, as a connection. In my opinion, Becker and Heyse represent two successive stages of the crisis of the judgement model, which is still at its beginnings in the work of the first scholar, while is more acute in the second.

As may be recalled from 3.1., such a crisis had a theoretical as well as an empirical motivation. The theoretical motivation essentially lay in the divorce of grammar and logic pronounced by Steinthal.\(^3\) The empirical motivation mainly lay in the counterexamples to the analysis of the sentence as a necessarily tri- or bipartite\(^4\) structure. The most important of these counterexamples

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\(^3\) Forsgren (1992:73-74) holds that not even Steinthal succeeded in becoming completely free from the judgement model (‘judgement theory’, in Forsgren’s terms).

\(^4\) This disjunction is necessary since not all grammarians, even if bound by the general grammar tradition, assumed the necessity of the copula.
was offered by utterances not showing a partition into Subject and Predicate: the so-called ‘one-member’ (eingliedrig) utterances. As can be recalled from 3.3.1 above, the whole ‘Miklosich group’ held that impersonal sentences are of such a kind, i.e. they contain a predicate with no subject. In an another essay inspired by Miklosich’s hypotheses, Lugebil (1885), while not totally sharing his conclusions, extended the inventory of ‘one-member’ (or ‘unitary’) sentences. He stated that sentences whose verb is an impersonal one are one-member from the point of view of sense, but not from the point of view of form (Lugebil 1885:41). Moreover, he maintains that even from the point of view of form one-member sentences do exist: these are exemplified by “epiphonematic expressions” (‘What a shame!’), infinitives and participles with a command meaning (‘Come here!’), or “absolute infinitives” like ‘so to speak’ (Lugebil 1885:60-67).

Another difficulty for the Port-Royal model of sentence analysis was represented by ‘nominal’ (or ‘verbless’) sentences, i.e. sentences which contain only a subject and a non-verbal predicate (either a substantive or an adjective) and which do not show any copula or any other finite verb: e.g. Latin *Omnia praeclararara* (‘All excellent things <are> rare’), *Vox populi vox dei* (‘People’s voice <is> God’s voice’), etc. Historical-comparative grammar shows that this kind of sentence was rather widespread in the most ancient Indo-European languages (e.g., Sanskrit and Greek) so that it could be assumed to represent an early Indo-European type. It is obvious that the existence of such kind of sentences caused many problems to what we have been calling the judgement model: in the Port-Royal view of the sentence, it was precisely the copula that had the task of expressing the judgement operation. Nominal sentences, as well as sentences in languages which do not show any finite verbal tense and/or mood, are still one of the greatest problems for any analysis of the sentence based on ‘grammatical’ criteria today.

In this chapter I will examine the efforts to define the sentence by making recourse to alternatives to the judgement model. Only about fifteen of more than 150 sentence definitions collected in Ries (1931) are drawn from works written before the middle of 19th century. This fact testifies to the great theoretical excitement which characterized syntactic research after the fall of the judgement model, but it also demonstrates the lack of a new dominant paradigm. In what follows I have grouped the various theoretical positions firstly by distinguishing two periods: that of ‘representational’ psychology (i.e., until Wundt) and a successive one. Secondly, I distinguish between the different positions according to their prevailing attention towards one or the other facet

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5 This position, already held by Lugebil (1885), was convincingly argued for by Meillet (1906).
of the sentence I outlined above: the analytical or the holistic one. It will be seen that the analytical aspect was tentatively encapsulated through strictly grammatical definitions; in this case, I will speak of a ‘grammatical’ solution to the problem of sentence definition. The holistic aspect of the sentence, for its part, was of special interests to linguists who viewed the sentence as a particular kind of communicative unit. Psychological definitions waver between focussing attention on the first or the second aspect, according to the kind of psychology that is assumed as the framework of reference; Wundt’s definition attempts to encapsulate both of them. Ries (1931) makes undoubtedly the most elaborate and organic effort to give an adequate solution to this set of problems. It will be seen, however, that the reception this received from scholars like Bloomfield and Meillet ended by marking it, rightly or wrongly, as the symbol of a surpassed age. At about the same time as Ries, another grammarian, Jespersen, accomplished a very important conceptual operation: he distinguished the notion of the predicative relationship (which he called ‘nexus’) from that of the sentence. As a result, the analytical and the holistic aspects became totally separated from each other: the realization of the first no longer implied the necessary realization of the second, and vice versa.

1.2 Main clauses and dependent clauses

Within the German-speaking world, the analysis of dependent clauses was considerably deepened in the first decades of 19th century (for detailed surveys, see Forsgren 1973:177-195; 1992:ch.7). The most successful classification was probably the one worked out by Herling. It is based on the identification of the function of the dependent clauses with a part of speech: hence it distinguishes between ‘substantival’, ‘adjectival’ and ‘adverbial’ dependent clauses. E.g., the sentence Der Bothe, welcher gestern ankam, verkündete mir, als er mich sah, daß mein Vetter gestorben sey (‘The messenger who came yesterday, when he saw me, announced to me that my cousin is dead’) would be equivalent to Der gestern angekommene (adjective) Bothe verkündigte mir so eben (adverb) den Tod (substantive) meines Vetters. Becker (1841[1827]) developed a classification of dependent clauses which, while remaining rather close to Herling’s in its practical results, is based more on the theory of Satzglieder (see below:4.2.1; cf. Forsgren 1992:255). What is most interesting for our present concerns, however, is the way in which Becker opposes subordination to coordination. Becker maintains that coordination is an expression of

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7 For more details, besides the references already quoted, see Delbrück (1920:71-72) and Scaglione (1981:97-99).
thoughts through sentences, while subordination is an expression of concepts through the same means (Becker 1841[1827]:470-471). “A concept which in the simple sentence is expressed by means of a conceptual word is represented in the form of a thought” in the complex sentence (Becker 1841[1827]:509-510).

Logic-based syntax therefore captured the peculiar nature of dependent clauses by noting that the “operation of the mind” called a ‘conception’ could be expressed through the form of a judgement (see above: 3.1). However, once the basic assumption of this model had collapsed, i.e. the view that language is the direct expression of the operation of the mind, the notion of dependent clauses became uncertain if not contradictory. A further contribution to this state of affairs was given by historical-comparative grammar, which had replaced an essentially static view of language with a strongly dynamic one and, as a consequence, generally assumed that subordination was derived from coordination. In so doing, historical linguists assigned, more or less unwillingly, the status of a non-essential, derivative phenomenon to the dependent clause. All these facts, together with the emergence of a communicative view of language, contributed to excluding dependent clauses from the set of entities which had to be properly recognized as sentences.

This was obviously a necessary result for linguists who chiefly stressed the holistic facet of the sentence. In fact, if the sentence is defined as a “complete” unit, if what is investigated is its role in “connected speech”, it becomes evident that the dependent clause, which is not autonomous by definition, cannot even be submitted to theoretical analysis. In this perspective, the phrase ‘dependent clauses’ almost sounds like a *contradictio in adjecto*. For instance, according to Marty (1950:18-19), dependent clauses cannot surely be considered as sentences, but rather as “synsemantics in sentential form” (ibid.).

Such a limitation of the notion of the ‘sentence’ was also adopted by the grammarians who chiefly insisted on its analytical side (but see below: [120] on Kern’s position). Ries himself (1931:52) wrote that only main sentences are really sentences and subordinate sentences are not sentences, although they show a structure which is “intermediate between the sentence and the word group”. The view of the sentence as a self-contained unit seems therefore to pervade syntactic studies throughout the 19th and 20th centuries, which from this point of view, marks a regression in comparison to philosophical grammar. Ries’ observations referred to above well document such a situation: they substantially repeat Becker’s, but in a much more confused form. Syntactic theo-

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8 Such a position was not universally accepted, however. For example, Paul (1920:45) rejected it.
ries originating from the crisis of the logical-based model resulted in restricting the label ‘sentence’ to main clauses.

The distinction introduced by Jespersen between the notion of the sentence and that of predication (see above:3.1), however, made it possible to capture a feature shared by both main and dependent clauses. Nevertheless, Jespersen’s distinction preserves the necessary opposition between what can function as a self-contained unit and what does not have this possibility. I will return to these topics in 4.1.7.

1.3 New models of the sentence: ‘psychological’, ‘grammatical’, ‘communicative’

Steinthal’s definition of the sentence runs as follows: “it is the apperception of a mental content, of a content of conscience, in the form of an act outwardly accomplished by an active being” (Steinthal 1860a:100). This (undoubtedly rather opaque) definition alludes to two different aspects of the sentence: the psychological process by means of which a sentence is produced and the form in which such a process appears. The key concept relating to the first aspect is ‘apperception’. As has been seen (cf. above:2.2.1), Steinthal’s use of this concept is borrowed from Herbart: in a later work (Steinthal 1871:171) it is defined as “the movement of two masses of representations towards each other to bring about a knowledge”. Hence two units come into play within the psychological process of apperception. Steinthal (1860a:99) noticed, indeed, that, in the sentence, a synthesis of elements is accomplished by means of which they become a unity. Such a unity has the shape of an action performed by an agent: also this form, therefore, is essentially binary. Steinthal’s definition of the sentence therefore rids itself of any reference to the judgement, and at the same time, by hinting at the “connection of representations”, it paves the way to a variety of analogous definitions, such as Paul’s and Wundt’s. The last mentioned scholars, indeed, were engaged in a heated polemic about the definition of the sentence, but both of them lay within a ‘representational’ framework (see below:4.1.4-4.1.5). It is essential, at any rate, that the elements involved in the process of sentence formation are two “masses of representations” from the point of view of content, the “action” and the “agent” from the point of view of form. In other words, Steinthal is still essentially linked to the Subject-Predicate model, even though he does not explicitly refer to it. Moreover, we may also remember that his analysis of impersonal constructions was based just on such model (cf. above:3.3.1).

Our survey of the debate on impersonal constructions has shown us (cf. above:103) that Paul also rejected Miklosich’s and Marty’s conclusions: he maintained that such sentences might lack the grammatical, but not the psychological subject. This was a consequence of the principle according to which
a sentence is formed by at least two elements, which are distinguished according to their function: the subject and the predicate (Paul 1920:124). It has been seen that Paul assigns a primarily psychological value to these categories which he opposes to the homonymous grammatical categories. However, he seems to actually mean some unspecified extra-linguistic categories. This allows him to solve the problem of apparent one-member sentences easily by stating that they are simply sentences one element of which, normally the psychological subject, does not have any linguistic expression (Paul 1920:129). In some sentence types, such a psychological subject without any linguistic expression can be extracted from what has been said before. An answer, for example, is either formed only by the predicate since the subject is contained in the question, or the whole question is the subject (ibid.). In other cases, the psychological subject is the situation, as in requests or calls for help. In some of these expressions, what is the psychological predicate for the speaker is the subject for the hearer: if one sees a fire and shouts ‘Fire!’, the situation is the subject and the “general concept” fire is the predicate. On the other hand, if one hears the exclamation ‘Fire!’ before seeing the fire, the general concept is the subject, while the situation is the predicate. Finally, there are cases where the linguistic expression is the subject and the situation is the predicate both for the speaker and for the hearer. For example, if someone sees that a child is in danger and he shouts ‘The child!’ in order to call the caretaker, the child is the subject for both people, namely “the object to which the attention has to be directed”, while the dangerous situation is the predicate (Paul 1920:129-130).

According to Paul (p. 121), it is a “widespread mistake” to maintain that the sentence must contain a finite verb. Hence he puts forward a “very general” definition, which reads as follows:

"The sentence is the linguistic expression - the symbol - of the fact that, within the speaker’s mind, the connection of several representations or of several groups of representations has been accomplished and is the means to bring about the same connection of the same representations within the hearer’s mind."

As can be seen, Paul’s definition is firstly concerned with the function of the sentence as a communicative unit which puts the speaker in touch with the hearer. He also insists, however, that the sentence is a “connection of representations”: and speaking of a connection involves referring to an entity which is formed by (at least) two parts. Therefore the analytical aspect of the sentence seems to gain more attention than the holistic one for Paul as for Steinthal before him. However, the connection which produces a sentence is no longer formed by words but by representations and in some cases even by situations. The peculiarity of the sentence as a grammatical structure therefore totally loses its importance. Those linguists contemporary to Paul who saw the finite
verb as the defining property of the sentence obviously took a very different view.

Among this group of linguists, Kern occupies an outstanding position: his views about the nature of the sentence considerably influenced Ries (see below:4.1.6). Kern explicitly admits that the finite verb can be singled out as the grammatical feature individuating the sentence only in inflectional languages since a clear distinction between finite and non-finite verbal forms is missing in other language types. This fact means, for Kern, that the inflectional type is superior to any other one (cf. Kern 1888[1882]:62). We have already hinted (cf. above:3.3.1) at the fundamental role which the verb has in Kern’s system of grammar. The finite verb is not a word class like the noun or the adjective, nor a sentence member like the subject word or the object: rather, “it is the germ of the sentence, its root, without which the tree of the sentence could not exist” (pp.5-6). Kern (p.30) therefore defines the sentence as “a thought expressed with the help of a finite verb”.

If we compare Kern’s definition with Becker’s, we can see that they partly coincide and partly differ: both consider the sentence as the expression of a thought but while, for Becker, the form of such expressions is identical to that of the predicative judgement (namely, Subject plus Predicate), such an identification is not made by Kern. Rather, Kern strongly maintains that sentence and judgement are not equivalent and that the finite verb alone expresses the relationship constituting the sentence (cf. Kern 1888[1882]:35-36). We have seen that Paul branded the assumption that the finite verb is the element individuating the sentence as a “widespread mistake”. Kern could not neglect the problem raised by constructions lacking a finite verb, such as nominal sentences, exclamations, vocatives, and so on: “nobody has denied the occurrence of communications, of expressions of thought, without a finite verb” (p.32). It is surely possible to collect all such different utterance types under the generic label ‘sentence’, Kern maintains, but it is also necessary to trace a distinction between “the most important and widespread” sentences, and the ‘incomplete’ or ‘imperfect’ ones. As will be seen (4.1.6), such a solution was taken up by Ries.

The ways of replacing the judgement model we have investigated so far have mainly focused on the analytical aspect of the sentence, or, at least, they considered this as a necessary precondition for the holistic one. In so doing, they preserved a certain similarity with the Port-Royal framework (see above:113). Let us now consider the definition of the sentence given by Delbrück (1893-1900 I:75). It can easily be seen that he essentially views the sen-

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9 On the notion of ‘subject word’ and its difference from the subject according to Kern, see above (104).
tence as a communicative unit; hence, he is actually interested only in its holistic aspect: “a sentence is an utterance occurring in the articulated speech, which appears as a connected whole both to the speaker and the hearer”. Such a communicative unit is not necessarily a bipartite one since it can also be formed by one element only. This step would solve the problem of impersonals and of the other one-member utterances. Furthermore, Delbrück’s definition does not single out any linguistic element as necessarily characterizing the sentence: therefore, it a priori sidesteps the problems caused by the existence of verbless sentences and of languages lacking a finite verb. Meyer-Lübke’s definition of the sentence is very similar to Delbrück’s. It expressly mentions the possibility that the sentence may be formed by one word only: the sentence is “a word or a word group which appears as a whole in the spoken language and which manifests itself as a communication from one speaker to another” (Meyer-Lübke 1899:306).

Delbrück, however, was not the first to take the communicative function as the main criterion to decide whether a given string of words is a sentence or not. Nor was Meyer-Lübke the first to maintain that such a communicative unit may even be realized through an isolated word. Indeed, Gabelentz, Sweet and Wegener had already called attention to ‘word sentences’ and ‘sentence words’. Gabelentz (1874-75:141-142) noticed that there were some linguistic forms which occur outside of any sentential connections, such as interjections, exclamations, vocatives and imperatives. A few lines later, he added that “a single word may represent a whole sentence”. Sweet (1875-76) lists among ‘sentence words’ (his terminology) imperatives, ‘yes’ and ‘no’, and interjections. Wegener hinted at ‘word sentences’ (Wortsätze) in his 1885 volume and devoted his whole last essay, published after his death (1920), to this very subject. We already know (cf. above:2.3.2) that Wegener’s approach to language is an expressly communicative one: “the essence of all languages is dialogic, not monologic” (Wegener 1920:1). Given this approach, the assumption of ‘word sentences’ is fully legitimated. It is precisely the situation of communication which decides whether a given expression has a sentence value or not (p.5).

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10 As we will see below, Delbrück wavered in assuming the possibility of one-member sentences. In a later work (1901), he opposed ‘sentence’ to ‘utterance’.

11 Gabelentz’s and Sweet’s lists do not exactly match. In particular, Gabelentz does not put ‘yes’ and ‘no’ in the list.
1.4 The sentence as judgement: resumption of the old model in a psychologistic framework

Let us now turn to Wundt's conception of the sentence. He rejects its definition as a "connection of representations" for several reasons. First of all, it is based on a wrong assumption, namely, that such representations may exist apart from the sentence itself. Furthermore, the analysis of the phenomena of regressive and progressive influence makes it very difficult to assume that every word is matched by a definite representation isolated from the others. Wundt stresses the presence of both aspects, analytical and holistic, as we have dubbed them, within the sentence (Wundt 1912[1900] II:243-244). The sentence must be considered as "the resolution of a whole already available within the conscience" (p.243). Wundt (p.248), therefore, defines it as "the linguistic expression of the voluntary partition of a total representation in its components, put in logical relations to each other". The 'total representation' (Gesamtvorstellung) is submitted to a 'partition' (Gliederung), which, in its turn, runs through two successive moments: the first is the "differentiation of parts"; the second their "respective connection" (p.254).

It can readily be seen that, with such a definition of the sentence, some of the most typical elements of Wundt's psychology come into play: e.g., the 'voluntarism' and the conception of thought as a unity pre-existing its analysis into parts (cf. above:2.3.3). Wundt's very peculiar use of the term 'logical' also needs to be stressed: it is so peculiar that he replaces it with 'apperceptive' elsewhere (cf., e.g., Wundt 1905). Moreover Wundt (1912[1900] II:246fn.) opposes a 'psychological' and an 'epistemological' sense of the word 'logical': it is the former that is relevant to the definition of the sentence. It is used precisely to distinguish sentential relationships from other kinds of relationships (cf. p.245). Hence, in this connection, 'logical' means psychological entities which are linguistically expressed: the resumption of the logical tradition "with an inverted sign" again shows up very clearly. This is the reason why I speak of a resumption of the judgement model within a psychological framework.

12 Thümmel (1985) rejects this interpretation of Wundt's thought due to Knobloch (1984). Thümmel's main argument (1985:143) is Wundt's statement (1912[1900] II:254) according to which the 'total representation' is "purely psychological", while it is only the process of its resolution that is 'psychic-linguistic'. One may note, however, that the logico-linguistic analysis of the sentence is, so to speak, a manifestation of the psychological reality underlying it. In the logic-based framework, the grammatical structure mirrors the logical structure which in turn matches the ontological one. In both cases, therefore, linguistic phenomena have no specific properties, since they are simply manifestations of phenomena of another kind. Knobloch's position therefore seems to me essentially correct even though one must be careful not to depict Wundt's ideas (and the Port-Royal ideas as well) as trivial.
How does Wundt treat the problem of one-member sentences? First of all, he rejects the assumption that representations may exist within a sentence which lack any linguistic realization (and therefore he is decidedly opposed to Paul on this subject, too; cf. Wundt 1912[1900] II:237). We have already examined Wundt’s position about impersonal constructions (cf. above:3.3.1): he considers them as always being formed by a subject and a predicate. The remaining instances of one-member sentences are explained by resorting to the notions of ‘incomplete sentences’ and ‘sentence equivalents’. Incomplete sentences are those where “the meaning of the missing words can be unambiguously recovered from the content of what has been uttered” (p.239). Hence an exclamation like ‘Here, a fire!’ is an incomplete sentence since the word ‘here’ unambiguously indicates in which sense it has to be understood. On the contrary, a simple ‘Fire!’ can be linked to the most various psychological contents: therefore, it cannot be defined as a sentence, not even an incomplete one. Child language offers many examples of incomplete sentences, like, e.g., ‘Daddy garden go’, or even ‘Daddy garden’ (p.240). A word like ‘daddy’, on the contrary, cannot be a sentence, not even incomplete, since it lacks all the features which distinguish a sentence from a word (cf. ibid.). Concerning the problem of ‘sentence words’, Wundt recognizes that sentences may be represented even by isolated expressions, like interjections, or especially, like the particles ‘yes’ and ‘no’. Such expressions are not labeled ‘sentences’ by Wundt: he calls them ‘sentence equivalents’ (p.241).

Unlike Kern, Wundt does not consider the finite verb to be the word properly characterizing the sentence. As a consequence, he is not obliged to solve the problem of verbless sentences and of languages lacking a finite verb. Nevertheless, he opposes ‘predicative’ to ‘attributive’ languages (see also above:2.3.3), and he bases this opposition precisely on the form of the sentence in the two different language types. It has also been seen that, taking issue with Delbrück, Wundt maintained that it was more appropriate to speak of ‘attributive sentences’ rather than ‘verbless sentences’. The distinction between attributive and predicative sentences can be traced back to the fundamental opposition between ‘concepts of property’ and ‘concepts of state’ (Eigenschaftsvs. Zustandsbegriffen; cf. Wundt 1912[1900] II:245). The “simple attributive sentential form” would be “the starting points of all syntactic developments” (p.351). Such developments may be instantiated by the generalization of the predicative form (as occurs in Indo-European languages), or by the preservation of complex attributive forms to which a simple predicative form is added.

Wundt’s theory of the sentence gave rise to a variety of reactions. Paul strongly defended his definition of the sentence as a connection of representations. He maintained that Wundt’s definition could only account for the speaker’s point of view but not for the hearer’s one. According to Paul,
Wundt's definition suffered from a basic error: it assumed sentences which correspond to logical judgements (like, for example, 'The grass is green') as being typical instances of sentences. Paul stated that such sentences do not play any role in the real world. In many cases, he said, the sentence is not grasped as a “whole representation”; instead, the attention firstly moves towards a single representation, and later to another one. Finally, Paul deems Wundt's definition totally inadequate insofar as negative, imperative and interrogative sentences are concerned (Paul 1920:123).

Delbrück's position regarding the sentence appears closer to Wundt than to Paul. Delbrück (1901:137) contrasts his own definition with Paul's in order to stress that it is totally immaterial whether the structure concerned is bipartite or not. Furthermore, he too agrees on the fact that we cannot have representations which pre-exist the sentence in which they appear. Hence he agrees with Wundt's idea that the whole representation precedes the separate parts (p.138). As can readily be understood, Delbrück argues against Wundt's use of the term 'logical' within his definition of the sentence and against the importance which it gives to its 'voluntaristic' character. Nevertheless, he restates his agreement with the conception of the sentence as “the linguistic expression of a partitioned total representation” (p.140). Delbrück, however, does not agree with Wundt on the problem of one-member sentences: he maintains that they do exist, and that they cannot all be traced back to 'incomplete sentences' or to 'sentence equivalents'. At least vocatives and interjections are one-member sentences (pp.141-145). Delbrück holds a position about the analysis of the sentence not very different from Wundt's: it is evident that he sees Wundt's psychological approach as more modern than Paul's, which he sees as a reflection of the traditional associationistic theories. Therefore, in order to express his partial agreement with Wundt, Delbrück suggests the general term 'utterance' (Äusserung) as a portmanteau label both for one-member and bipartite sentential structures while he defines the sentence in the proper sense as “an utterance [...] which consists of at least two members” (p.145).

Delbrück returned to these problems (with no reference to Paul or Wundt) in one of his last works, a short sketch of German syntax for school teachers (Delbrück 1920). In it, the sentence is again defined as an “accomplished whole” (p.8), but it is no longer opposed to ‘utterance’: one-word (einwortig) sentences are again assumed as possible. Among these, Delbrück distinguishes those which “need a completion”, as, for example, an answer like ‘today’ to a question like ‘When will you leave?’, from those which do not need any such completion, such as imperatives (p.9). Indeed, he even tries to reconcile Paul's and Wundt's positions, since he suggests a distinction between the speaker's point of view and the hearer's (pp.10-11). From the speaker's point of view,
the “whole representation” precedes the separate parts; from the hearer’s point of view, the parts precede the whole.

Furthermore, the Wundtian scholar Dittrich stresses the need to distinguish between the speaker and the hearer in order to correctly understand the nature of the sentence. For Dittrich (1902:120), the hearer’s process of comprehension consists in putting two different contents in a relationship with each other. Hence, what is not a sentence for the speaker (e.g., a simple howl of pain), is always a sentence for the hearer, who brings about a “syntacticization” of two meaning contents: in the given example, the “pain feeling” and “the speaker’s representation” (pp.106; 121-122). The reshaping of the judgement model within a psychologistic framework appears still more complete than in Wundt. Furthermore, the two different aspects of the sentence are assigned to two different levels: the analytical aspect to the level of meaning, the holistic one to the level of sound (Lautung).

The judgment model lasted for such a long time that even a linguist like Noreen, who considered language as an essentially communicative phenomenon, resorted to it in order to define the entity which he named ‘enunciation’ (Ausspruch, Swedish mening). In Noreen’s framework, such an entity replaces the traditional notion of sentence. It is defined as follows: “an utterance whose meaning consists of a single thought, namely of a single judgement” (Noreen 1923:239). Hence Noreen equates ‘thought’ with ‘judgement’, taking a position which is very close, for example, to Becker’s (cf. above:113-114). At the same time, Noreen rejected grammatical models of the sentence, such as the one proposed by Kern (cf. above:120). As has been seen, such models considered the finite verb as the essential constituent of the sentence. Noreen also deemed Paul’s definition inadequate: according to this, even a string of words like ‘the killing of Caesar’ would be a sentence (as has already been noted by Kern 1888[1882]:31). Noreen’s employment of the judgement model is therefore a rather peculiar one: he resorts to it not to define the analytical aspect of the sentence, but rather the holistic one. We will return to the persistence of the judgement model in Noreen below (4.2.2).

1.5 Criticisms of Wundt’s conception of the sentence and new approaches to the problem

The majority of the researches we have analyzed in the preceding section, even though they are often representative of very distant points of view, show at least two important shared elements. The first is the identification of sentence structure with the process through which it is produced. The second is the linking of the sentence to a particular kind of representational structure. Let

13 Noreen’s reference to the judgement model astonished Seidel (1935:30).
us compare the positions of the two sharpest adversaries, namely Paul and Wundt: neither differentiates the concrete aspect of sentence production and comprehension from the abstract definition of sentence structure. This abstract structure is purely representational: Paul conceives of it in a synthetic way, i.e. as a ‘connection of representations’; Wundt in an analytical way, i.e. as a ‘partition of a total representation’. The reference to any external entity is apparently considered irrelevant.

With the rise of schools of psychology which are no longer based solely on the notion of representation, some attempts begin to give a definition of the sentence which also accounts for its function. Such a function can be viewed as a communicative one (as has been seen above: 4.1.3) or as a more semantic one. I will investigate, therefore, another group of sentence definitions some of which develop the communicative approach while others are the result of new psychological theories. Finally, some further definitions are based on the interaction of both of these currents. In the next section, I will deal with Ries’ theory of the sentence. It will be seen that he attempts to cover both the analytical and the holistic aspects of the sentence and that he tries to provide a precise definition of its characteristic linguistic structure. In section 4.1.7., I will analyze Jespersen’s solution to the problem of sentence definition. In the first decades of the 20th century, the need to go beyond the identification of the sentence formation process with the sentence structure contributed the distinction between langue and parole, with the sentence ascribed to the latter. This last topic will be dealt with in second part of this book (cf. below: 6.1.1).

The number of scholars who saw the specific features of the sentence in its completeness and autonomy gradually increased from the beginning of 20th century. Some of them, following in Delbrück, Wegener and Meyer-Lübke’s footsteps among others (cf. above: 120-121), located these features in the function of the sentence as a communicative unit, others in its capacity for expressing given ‘sense units’. In one of his later essays, Brugmann (1918) almost literally repeated Delbrück’s definition of the sentence. Delbrück, however, is not even quoted, possibly since such a definition is deemed “usual” (landläufig). For Brugmann (p.16), even expressions such as ‘what a pity’, or ‘good morning’, or ‘you!’ in a threatening tone are sentences. One sees once again that the immediate corollary of a holistic-communicative definition of the sentence involves a considerable widening of the extension of the concept. On the basis of such a communicative conception, Brugmann can devote himself to the investigation of the mismatches between the grammatical form of sentences and the “psychic content” they have to convey.

The communicative view of the sentence typically belongs to linguists whose research domain or background lies in the historical-comparative area: Brugmann therefore joins Delbrück and Meyer-Lübke. Shortly after Brug-
mann, analogous positions were held by Trombetti (1923) and Kalepky (cf. above:3.3.2). However, a similar view is typical also of scholars belonging to the philosophical and/or psychological camps. Such a position is especially exemplified by Marty, whose definition of the sentence clearly focuses on its holistic-communicative aspect (cf. above:4.1.2). Moreover Marty remarks that the grammatical form of the sentence does not match the communicative one in many cases. For example, a declarative sentence can actually contain an order (‘The passengers are kindly requested not to leave their seats until the plane has come to a complete stop’), or an interrogative sentence can express an assertion (‘Two and two make four, don’t they?’); cf. Marty (1950:27).

Bühler’s (1918) study of the sentence also centers on the holistic aspect. On the basis of his theory of the three linguistic functions (see above:2.5.4), he undertakes a critical revision of a variety of sentence definitions. He deems them “one-sided”, since they are relevant only to a specific function but not to all three in their interrelation. Marty’s definition, according to Bühler, is based only on the function of appeal. Husserl (1922) and Wundt’s definitions are confined to the function of representation and to the function of expression respectively (cf. Bühler 1918:8). Concerning the debate between Wundt and Paul, Bühler remarks (pp. 13-14) that “both are right and both are wrong”, since “in many cases” the sentence is first conceived as a whole and then it is partitioned but in other cases “parts come first”. Bühler’s conclusion is that “the processes of sentence formation are so manifold that it is impossible to find a satisfactory genetic definition of the sentence” (ibid.). Bühler very clearly sees the need to distinguish between the sentence as a psychic process and the sentence as a linguistic unit. His definition (p.18) only insists on the holistic aspect, and it does not attempt to cover the analytical one: “sentences are the simple, autonomous, functional units which are complete in themselves, or, to put it shortly, the sense units of the speech”. As can be seen, this definition is not so far from Delbrück or Meyer-Lübke’s, which are quoted by Bühler himself. However, it contains an important novelty: it singles out the ‘sense’ (Sinn) as the element which gives the sentence its property of completeness. Therefore, such an element is no longer the ‘thought’, as in the logic-based tradition, or the ‘representation’, as in Steinthal or Wundt’s psychologistic frameworks.

The sentence analysis sketched by C. and W. Stern in their book about child language (1922[1907]) also shows a clear breakthrough in respect of the psychologistic tradition. The Sterns (1922[1907]:164) write that “a word is the expression of a unitary content of consciousness, while the sentence is the expression of a unitary attitude (…) towards a content of consciousness”. The

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14 For expository convenience, I do not employ original Bühler (1918) terms, but, instead, those of Bühler (1934).
Sterns very explicitly oppose the spirit of their definition to the spirit of the preceding ones, whether synthetic (à la Paul) or ‘analytical’ (à la Wundt). The latter, they note, mark progress in respect of the former since they follow the general principle that the whole precedes the single parts. However, they suffer from an analogous defect since they confine themselves to the investigation of ‘representations’. As a consequence, they cannot capture the fact that sentences express an ‘attitude’, namely an acknowledgement or a denial, an agreement or a disagreement, and so on (cf. p.165fn.).

The Sterns’ overcoming representational psychology through their empirical inquiry about child language developed in parallel with the positions of phenomenology which can be traced back to Brentano’s intentionalistic psychology (cf. above;2.4.1). Both frameworks distinguish the sentence from its content, from its ‘intended object’, in an essential way. A fusion of both points of view underlies Nehring’s investigations of the sentence (1927; 1929) as well as Seidel’s (1935) book which has, however, a much more critical than constructive character.

Husserl never gave an explicit definition of the sentence (cf. Seidel 1935:54). One may resort, however, to the work of some scholars influenced by phenomenology, such as, Porzig (1924). In Porzig’s definition of the sentence, three elements come into play: the reference to entities external to the sentence (the ‘states of affairs’, Sachverhalte), their completeness, and the expression of such a completeness through ‘meaning building’ (Bedeutungsgefüge). Hence both the holistic and the analytical aspect of the sentence are taken into consideration. This attention to the analytical aspect leads Porzig not to consider as sentences one-member utterances, such as interjections, vocatives and the original forms of imperatives in Indo-European languages. All these forms are not ‘meaning building’, but ‘simple meanings’. Porzig is therefore led to view the Subject-Predicate structure as the sentential form par excellence (pp.140-142).

Nehring’s investigation starts with a critique of Porzig’s definition. Only an element of it is preserved: reference to ‘state of affairs’. For the rest, Nehring focuses attention on the holistic aspect of the sentence. Nehring merges the phenomenological framework with “postrepresentational” psychology and with the Saussurean opposition between langue and parole. For Nehring, the word belongs to langue and the sentence to parole. More specifically, the sentence is a ‘subjective arrangement’ of a state of affairs, which can also be exemplified by a ‘monorhematic utterance’. For example, a shout like ‘Help!’ may also have a sentential value. The difference between ‘help’ as a word and ‘Help!’ as a sentence lies in the fact that, in the former case, the ‘arrangement’ is given, while in the latter it is created (cf. pp.266-269). Hence ‘arrangement’ and ‘subjectivity’ are the specific features of the sentence, according to Nehring.
A comparison between Porzig’s and Nehring’s positions allows us to summarize what has been said so far about the definitions which, in turn, gave more importance to the holistic or to the analytical aspect of the sentence, respectively. The former are able to solve the problem of one-member utterances without difficulty: they are all defined as sentences on the basis of their (communicative and/or semantic) function. Such holistically-oriented definitions, however, do not give any indication about what the specific syntactic structure which characterizes the sentences might be. Analytically-oriented definitions offer a specific hypothesis about such a structure: this is identified with the Subject-Predicate relation even when it is not expressed by two separate words. However, they have to face the problem of what status to assign to interjections, vocatives, and so on; in short, to what Wundt called ‘sentence equivalents’. Even though the psychological approach to linguistic facts changed radically after Wundt, the problem represented by these expressions remained essentially unsolved. Seidel (1935) sought a way out in the “resolution” of the concept of sentence. This would contain all four aspects of language: logical, phonetic, psychological and grammatical (p.77). Actually, Seidel’s conclusions appear rather skeptical as far as the grammatical aspect of the sentence is concerned: an “objective formal feature” of the sentence definition cannot be captured by any grammar, and one must be satisfied by listing all word combinations that are recognized as sentences in a given language at a given time and at a given place (p.78). Concerning the psychological aspects, Seidel does not seem to differ too much from other holistic analyses: answers like ‘fine’, ‘downtown’, ‘since I was asleep’, ‘it is raining’, given to ‘how are you?’, ‘where are you going?’, ‘how was that possible?’ ‘what is the weather like?’, respectively, are all sentences, from the psychological aspect (pp.80-81). The phonetic aspect is not given any special attention by Seidel: he states, however, that an appropriate definition of the sentence cannot neglect it (p.110f.n.127). Finally, logic is quite unable to do proper justice both to the formal nature and to the content of the sentence (p.77). Seidel actually appears rather close to Bloomfield in his treatment of sentence definition as a pseudoproblem: it originates from the unwarranted identification of a naive term with a scientific concept (p.107fn.114). Bloomfield held a similar position in his review of Ries (1931). I will turn to it below, 6.1.1 and I deal with Ries’ book in the next section.

1.6 Ries’ theory of the sentence

Ries (1931:99) defines the sentence in the following way: “Ein Satz ist eine grammatisch geformte kleinste Redeinheit, die ihren Inhalt im Hinblick auf sein Verhältnis zur Wirklichkeit zum Ausdruck bringt [A sentence is a grammatically constructed smallest unit of speech which expresses its content with
Ries' definition aims at accounting both for the holistic and for the analytical aspect of the sentence: the former aspect is captured through the notions of 'speech' and 'relation to reality', the latter by stating that the sentence is 'grammatically formed'. Ries is first of all a pure grammarian. Hence his definition lies in the grammatical trend but it also takes advantage of the results obtained within other frameworks: the communicative, the psychological (post-Wundtian) and the phenomenological ones. Actually, he revisits them in part in order to adapt them to his own view.

The communicative approach plays an essential role in defining the concept of 'speech'. Ries, however, remarks that such a criterion is unable to provide an adequate definition of the sentence: if it is defined as a 'communication', as a 'functional unit', there is no way of distinguishing it from the speech (p.13). One must therefore trace the boundaries between sentence and speech, which is the genus proximum of the sentence. What, then, is its differentia specifica in comparison to other units of speech, such as words and word groups? It lies in its capacity to express the relationship between its content and external reality. Only the sentence has this capacity; the other units lack it (cf. pp.71-74). As Ries expressly states (p.77), such a solution is based on the theories of the sentence developed within the frameworks of phenomenology and, especially, of post-representational or post-Wundtian psychology.

The explication of exactly what 'grammatically formed' means, i.e., of the analytical aspect of the sentence, immediately raises the problem of one-member utterances and of verbless sentences. Ries expressly concedes that the finite verb is not the only feature of the sentence, even in languages which have it. He maintains that the predication relationship may be expressed through other means as well, such as word order (e.g., in Chinese) or the inflectional distinction between the predicative and attributive adjective (e.g., in Russian). Analogous means are the expression vs. non-expression of the definite article and/or the insertion of a personal pronoun with a copula-like function (e.g., in
Semitic languages; p.95). The sentence, however, has a particular grammatical form and this is its most essential feature: “the sentences of the different languages have different forms, but the form as such is common to all” (p.97).

To solve the problem of determining which structures are to be considered sentences and which are not to, Ries suggests starting from the instances which can be undoubtedly defined as sentences (p.57). They are the structures where a finite verb occurs, with or without a subject; hence also impersonal constructions are instances of a sentential structure (p.58). In other words, the presence of a finite verb is not a necessary condition of a sentence but it is nonetheless a sufficient one. Therefore the normal form of the sentence is Subject plus Predicate. Then Ries goes on to investigate the problematic cases: first of all, he opposes those which show a finite verb to those which do not. Within the latter group, three subgroups are distinguished: a) cases where the insertion of a finite verb is impossible; b) cases where it is possible; c) verbless sentences.

Let us begin with the first main group, namely the problematic structures containing a finite verb. The first instance is given by imperatives. Ries maintains that they are bipartite, from the “content point of view” (p.113). Interjections and vocatives are not sentences, “neither from the formal nor from the content point of view” (p.115). They can coordinate only with each other not with sentences of other kinds: this proves that they are not sentences from the formal point of view. They do not express any ‘relationship of their content with reality’; therefore, they are not sentences from the content point of view, either.

A more puzzling case is represented by particles like ‘yes’ and ‘no’: Ries maintains that they are not sentences, since the ‘relationship with reality’ they express is not their own but that of the question they answer. They are ‘sentence representatives’ (Satzvertreter).15 Neither are these particles sentences even from the formal point of view: they have no finite verb, nor can they permit one. Nor can they be inserted in any syntactic structure analogous to a normal sentence (pp.120–122).

Besides imperative sentences, other structures may also show a finite verb with no overt subject. Consider, for example, cases like ‘Bless you!’, ‘Damn her!’, etc. Ries groups such structures together with those formed by sole nouns or noun groups (e.g., ‘Thanks!’, ‘One cognac!’; ‘My hat!’): all such structures are labeled as ‘incomplete’ and ‘imperfect’ sentences. These two kinds of structures are not identical, according to Ries: ‘incomplete’ sentences can be explained as a result of ellipses or of other shortening processes; ‘imperfect’

15 Ries (p.121) notes that this notion is very close to the Wundtian one of ‘sentence equivalents’. They do not fully coincide, however; see below.
ones are not clearly reducible to such processes (pp.123-124). Such a distinction, Ries concedes, can more easily be traced theoretically than recognized in practice: it is difficult to ascertain in many cases if we have to do with an ‘incomplete’ or with an ‘imperfect’ sentence (p. 129). Some criteria, however, can be established: for example, if it is evident which element must be inserted to obtain a normal sentence, we have to do with an ‘incomplete’ sentence. This mostly happens when such an element is the copula: cf. cases like ‘[It’s] of no use’, ‘[Is there] anything of importance?’, etc. If, on the other hand, such an element cannot be specified, as, for example in ‘My regards’, or ‘With your permission’, or of the addresses written on a letter envelope, the sentence is ‘imperfect’ (p.133). Moreover some expressions which Wundt puts among ‘sentence equivalents’ belong to the category of ‘incomplete’ sentences: e.g., answers to questions, such as ‘(When did you arrive?) Some time ago’, or ‘(What are you looking for?) For my glasses’. These are not ‘sentence representatives’, as are ‘yes’ or ‘no’, but real sentences (p.132). Also, Wundt’s ‘attributive sentences’ are simply ‘incomplete’ sentences: speaking of attributive sentences is self-contradictory (p.138). ‘Incomplete’ and ‘imperfect’ sentences must be kept distinct from what Ries calls ‘free standing nominatives’, namely expressions like ‘No smoking’ in a train compartment, ‘Director’ on an office door, ‘The Lord of the flies’ on a book cover, etc. As a matter of fact, a finite verb can be inserted both in incomplete and imperfect sentences while such an insertion is impossible in free standing nominatives. Their function is not syntactic but denominative (p.146). Hence they are not parts of sentences, or abridged sentences, but ‘sentence words’ (Satzworte), that is to say words which can function as discourse units (p.147), only on the basis of situational factors (p.149).

Summarizing so far: Ries considers all structures where a finite verb occurs, or can be inserted as sentences which are more or less “complete” or “perfect”. On the other hand, he denies sentential status to those structures where a finite verb simply cannot occur. In this case too, however, he introduces a grading since he speaks of ‘sentence representatives’ and ‘sentence words’. Hence Ries essentially follows Kern’s lines. It is not surprising, therefore, that he deals at some length with the construction which appears to be the greatest counterexample to his analysis: the verbless (or nominal) sentence.

First of all, Ries maintains that verbless sentences must necessarily be bipartite. He then states that verbless sentences (in Indo-European languages at least) are a minor sentence type: they are not as important as sentences containing a finite verb. Furthermore, there is no evidence that verbless sentences actually represented the original Indo-European sentential structure (pp.162-163). “Real” verbless sentences must also be kept distinct from sentences where a simple ellipsis of the copula has occurred. In dealing with ‘incomplete’
and ‘imperfect’ sentences’, it has been already seen that such ellipses are not always easy to specify: in some cases, however, they are evident. Consider, for example, the structures where the subject and the copula have been omitted: ‘[He is] a wonderful man, your father’, ‘[It is] a most remarkable piece of evidence, that letter of his’, etc. That such constructions are different from verbless sentences can be proved in several ways. For example, consider that, in the latter kind of sentences, copula insertion is “possible from a conceptual point of view but extremely unusual”, while it is perfectly normal in “apparent” verbless sentences. Furthermore, intonation contours for the two constructions are different: in “real” verbless sentences, there is always a pause with a rising intonation after the first member be it the subject or the nominal predicate. In “apparent” ones, the pause follows the nominal predicate, and it shows the standard intonation contours of the different sentence kinds: falling in declarative sentences, rising in interrogative sentences and hanging in exclamatory sentences (pp.173-174). Finally, Ries maintains that gnomic expressions like ‘One man one vote’, ‘Small pains small gains’, which Paul (1920:125-126) considered typical instances of predicative structures without a finite verb, are not verbless sentences and not even sentences in any proper sense. As a matter of fact, they result from the amalgamation of two different structures: the structure of a simple verbless sentence formed by two groups containing a noun and an attributive adjective and that of two (real) verbless sentences each containing a predicative adjective. Ries, therefore, tends to solve the problem of verbless sentences by restricting the scope of the phenomenon and by lessening its importance. This approach is probably the weakest point in Ries’ theory of the sentence: it is not surprising, therefore, that the bulk of criticisms raised against him especially by Bloomfield (1931) and by Meillet (1932) concentrated on precisely that point.

1.7 Jespersen’s notion of ‘nexus’

According to Jespersen (1924:307), “A sentence is a (relatively) complete and independent human utterance—the completeness and independence being shown by its standing alone or its capability of standing alone, i.e. of being uttered by itself”. A few lines below he adds: “no particular grammatical form is required for a word or a group of words to be called a sentence” (p.308). Therefore, only the holistic aspect characterizes the sentence according to Jespersen (and contrary to Ries). It may be noticed that Jespersen’s approach to the problem sounds rather similar to Delbrück’s and Meyer-Lübke’s. The definition of the sentence given in Jespersen (1933:106) reveals a still greater similarity: “A sentence is a (relatively) complete and independent unit of communication”. The analytical aspect of the sentence, apparently, has no importance for Jespersen: it can be of whatever kind. In fact, he divides sentences
into three types which are formally very different from each other: (1) ‘inarticulate’ sentences (e.g., ‘Thanks’, ‘What?’); (2) ‘semi-articulate’ sentences (e.g., ‘Thank you’, ‘What to do?’); (3) ‘articulate’ sentences (‘I thank you’, ‘What am I to do?’); cf. Jespersen (1924:308).

Jespersen (ibid.) notes that dependent sentences do not meet the definition given above: hence he prefers to continue call them ‘clauses’ and to restrict the term ‘sentence’ to independent sentences only. Nevertheless, both sentences and clauses share a fundamental property: both can be ‘nexuses’, i.e. predicational structures. A very important step from the point of view of grammatical theory underlies Jespersen’s reflections: the sharp and explicit distinction between the notion of sentence and the notion of predicational relation (the ‘nexus’). The two entities are wholly independent of each other. Jespersen (1937:89) notes that “many sentences cannot be analyzed as containing a nexus” (e.g. interjections and expressions like ‘yes’ and ‘no’). On the other hand, not every nexus forms a sentence: “only an independent nexus forms a sentence” (Jespersen 1924:306).

Hence the nexus can be realized by a variety of structures: one has not to assume that it obligatorily demands a finite verb. First of all, one has to recognize infinitival nexuses, like, for example, the italicized strings in ‘I heard her sing’, ‘I made her sing’, ‘I caused her to sing’. The novelty of Jespersen’s treatment of such constructions stands out still more clearly if we compare it with Sweet’s. Sweet (1891-98 I:48) noticed the contrast between ‘I like quiet boys’ and ‘I like boys to be quiet’. He observed that the latter sentence, unlike the former, does not involve any liking for the boys. Sweet explained such a phenomenon by stating that, in the latter sentence, 1) the only word “grammatically governed” by ‘like’ is ‘boys’ and 2) ‘to be quiet’ is a “grammatical adjunct” to ‘boys’, while 3) ‘like’ is directly connected to ‘to be quiet’ from “a logical point of view”. For Jespersen (1924:117), the (grammatical) object of ‘like’ is the whole nexus formed by ‘boys’ and the infinitival expression, “exactly as it is the whole clause and not only the subject of it that would be the object, if we were to translate it into ‘I like that boys are quiet’”.

Jespersen further remarks that the unity formed by the infinitival nexus can appear also in a “split” form: if the object of a sentence like ‘he believes me to be guilty’ is formed by the words ‘me to be guilty’, then it is necessary to say that in the parallel passive sentence (‘I am believed to be guilty’) the notional subject is the whole nexus ‘I to be guilty’, whose form is indeed split. Also morphologically active constructions like ‘he seems to work hard’ or ‘he is likely to come’ are to be interpreted as split nexuses; cf. Jespersen (1909-49 V:4.61; 1924:119-120; 1933:107-108; 1937:56).

As it is not mandatory that a finite verb occur within the construction in order to form a nexus, so it is not necessary tout court that a verb occur. The
most clear instance of a verbless nexus is obviously represented by verbless sentences but there exist many others as well. Consider, for example, the object complement construction, named by Jespersen 'nexus-object': it is instantiated by the words ‘John president’ in a sentence like ‘They elected John president’. Likewise, a nexus can be the object of a preposition, such as ‘with’; ‘with the window open’ is different from ‘near the open window’. The different order of the adjective vs. the noun in the two constructions gives evidence for the predicative vs. attributive value.

The idea that the predicational relationship is independent of the sentence also allows Jespersen to treat the deverbal and deadjectival abstract nouns in a decidedly innovative way in comparison to earlier grammarians. Jespersen remarks that the relations expressed by sentences like ‘The doctor has arrived’ or ‘The doctor is clever’ are analogous to those expressed by the noun groups ‘the doctor’s arrival’, ‘the doctor’s cleverness’, and so on. He states that in these cases “we have to recognize a separate class of words which we shall term nexus-substantives and subdivide them into verbal nexus-words (arrival) and predicative nexus-words (cleverness)” (Jespersen 1924:136; cf. also pp.169-172 and 1937:67-69). We meet here a further generalization of the notion of the nexus: it ends up denoting not only the variety of realizations of the subject-predicate relation but also any type of argumental relationship. Through actually recognizing a relational structure even within some noun classes, Jespersen paves the way to the notion of ‘crosscategorial generalization’.18

16 Cf. Jespersen (1924:122): “A nexus-object is often found: ‘I found the cage empty’ which is easily distinguished from ‘I found the empty cage’ where empty is an adjunct. It is usual here to say that the cage is the object and that empty is used predicatively of, or with, the object, but it is more correct to look upon the whole combination the cage empty as the object’.

17 To be precise, Jespersen calls them ‘junctions’. I will deal with this notion below (4.2.3).

18 Jespersen’s analysis was somewhat anticipated by Svedelius (1897). We saw in 3.2.3 that Svedelius replaced the notion of ‘proposition’ with the one of ‘communication’ and that he further distinguished between between communications ‘of process’ and communications ‘of relation’. He also opposed ‘communication’ to ‘fact’ (Svedelius 1897:45-47). The category of ‘facts’, in its turn, is subdivided into ‘facts of relation’ and ‘facts of communication’. So, for example, ‘God is good’ is a ‘communication of relation’, ‘the good God’ a ‘fact of relation’; ‘God is good for us’ is a ‘communication of process’, ‘God’s goodness for us’ a ‘fact of process’. A treatment of such phenomena, which is similar to Jespersen’s in many respects (even though it does not use the notion of nexus) can be found in Brunot (1936[1922]). Jespersen (1937:159) expressly quotes Brunot but he does not quote Svedelius, whose work he is also familiar with (since it is quoted in Jespersen 1924:150, within the discussion on the notion ‘subject’). As a simple matter of curiosity, I note that Svedelius (1897: preface) acknowledges, among other people, a certain “Mr. Brunot”, for some bibliographical information. Was this Mr. Brunot the same person who wrote La pensée et la langue?
2. The nature and classification of word groups

2.1 Word groups vs. sentences

The opposition between sentence and word can be traced back to classical antiquity (lexis and logos in Dionysius Thrax). However, the existence of entities which are intermediate between word and sentence is clearly acknowledged only from the 18th century, even if there are some hints in preceding times (cf., e.g., Jellinek 1913-14 II:465). There is agreement between the historians of this topic that such entities are explicitly recognized and defined with a proper terminology no earlier than Girard (1747). I repeat here for convenience Girard’s list of the seven membres de phrase, which has already been quoted in 2.1.3: subjectif, attributif, objectif, terminatif, circonstanciel, conjonctif, adjonctif. Before Girard, such entities (if recognized at all) were dubbed either through the names of the parts of speech, or through the names of the inflectional elements (e.g., the subject word group was called the ‘nominative’; cf. Glinz 1947:25-26). Girard’s ideas were taken up by some German grammarians, the first of whom was probably J.J. Bodmer (cf. Jellinek 1913-14 II:468; 476). More influential than Bodmer was surely the great scholar K.P. Moritz (cf. Forsgren 1992:112), who was not only a grammarian, but also a philosopher and a psychologist. A system analogous to Girard’s was contemporarily developed by the other German grammarian J.W. Meiner (cf. Forsgren:ibid.). The problem of Satzglieder (the German equivalent of membres de phrase, ‘sentence members’) therefore became a central topic in German grammar from the second half of the 18th century. According to Glinz (1947:41), before Becker three fundamental Satzglieder were recognized, the Subject, Predicate and Copula, which form the ‘naked’ sentence. Further Satzglieder were the ‘Object’, ‘Terminative’, ‘Adjunct’ (Adjekt), ‘Adverb’, but they lay, so to speak, on a secondary level. The name of ‘Attribute’ wasn’t yet used to denote a particular Satzglied, but it had the value of a general philosophical expression. If it was used in a grammatical sense, it was synonymous with ‘Predicate’. However, Satzglieder had not yet reached a conceptual status equivalent to the one of word classes: they were still conceived of as secondary entities, arrived at by starting from the words.

Becker totally rebuilt the theory of Satzglieder by basing it on the so-called ‘sentential relationships’ (Satzverhältnisse). The first and fundamental of such relationships is the ‘predicative’ one, where the predicate is the ‘main concept’ and the subject is the ‘relational concept’. The predicative relationship is “repeated” within the subject as the ‘attributive’ relationship, namely that between the attribute and its relational word (the noun). Finally, the predicate itself develops into a relationship, namely that between an ‘activity’ (expressed by the verb) and a ‘being’ (expressed by the object); this third relationship is dubbed ‘objective’ (on Becker’s opposition between ‘activity’ and ‘being’ see
above:2.1.1). Any further development of the sentence is possible only through the repetition of such relationships. So, for example, the attributive relationship may again occur within the object: ‘The child cares for his sick mother’; or the objective relationship within the attributive one: ‘The child bit by the dog was crying’. In turn, the repetition of the predicative relationship within the attributive or the objective ones brings about subordinate clauses: ‘That he arrived (= his arrival) surprised me’, ‘I asked him to help me (= his help)’, ‘The child who was fearful (= the fearful child) shouted’ (cf. Becker 1841[1827]: 230). Becker therefore assumes a binary structure for each of the three Satzverhältnisse. This assumption is a consequence of his fundamental principle for the analysis of all linguistic facts: “Jede organische Zusammensetzung in der Sprache besteht aus nicht mehr als zwei Glieder [Every organic combination within language consists of no more than two members]” (p.469). It should be traced back to his general conception of reality viewed as a set of ‘polar oppositions’ (cf. above:18).

As stressed by Forsgren (1973:176), Becker’s sharp distinction between ‘attributive’ and ‘predicative’ is a very important achievement because it got rid of a terminological and conceptual confusion: before Becker, the two terms were often used to refer to the same linguistic phenomena (cf. also Naumann 1986:166). In Becker’s view, the attributive relationship is different from the predicative one: it is a judgement which has become a concept (cf. Becker 1841[1827]:106-107; 266; 269). The attributive and the objective relationships express the unity of a concept; the predicative relationship (which corresponds to the sentence; see above:4.1.1) expresses “the unity of thought”. Becker therefore relates the Port-Royal distinction between ‘conceiving’ and ‘judging’ to his own theory of Satzglieder. In such a way, a theory of syntactic structure was worked out which is among the sharpest deriving from the tradition of general grammar.

Becker also carefully examines the internal structure of each of the three relationships. It has been already seen that the predicative relationship is conceived of as strictly binary: this is not surprising, since we know that the copula has no particular role in Becker’s system (cf. above:3.1). As observed by Glinz (1947:52), this lessening of the copula role forces Becker to introduce a terminological innovation, i.e. to distinguish ‘predicate’ from ‘predicative’: a sentence like ‘The dog is black’ would be analyzed, according to the tripartite conception of the proposition, into subject, copula and predicate. Becker would instead distinguish a subject (‘the dog’) and a predicate (‘is black’), which in turn should be analyzed into copula (‘is’) and predicative (‘black’).

While the attributive relationship is analogous to the predicative one (with the exception, of course, of the opposition between ‘thought’ and ‘concept’), the objective relationship has to be interpreted in spatio-temporal terms, as a
The representation of the same thought (i.e. the objective relationship) can take different forms in different languages and moreover there exist several types of objective relationships (pp.312-313). Such types are subdivided by Becker into two main classes: ‘relational forms of species’ (Beziehungsformen der Art) and ‘relational forms of the individual’ (Beziehungsformen des Individuums). The first class is subdivided into ‘relational forms of completion’ (ergänzende Beziehungsformen; for example, ‘He is writing a letter’) and ‘relational forms of manner’ (Beziehungsformen der Weise; for example, ‘He writes a good hand’): the former ones are necessary, the latter not (cf. ibid.). The ‘relational forms of the individual’ are exemplified through expressions like ‘He is singing today’, ‘He is singing at home’. They differ from the other class of relational forms since they do not denote a particular kind of the activity, but only an individual of the kind (Becker 1841:324).

From the three relationships Becker draws the Satzglieder: Subject and Predicate are drawn from the predicative relationship, the Attribute from the attributive relationship, the Object from objective relationship. According to the two different ‘relational forms of the kind’, Becker can distinguish the ‘complement Object’ (ergänzendes Objekt) from the ‘determining Object’ (bestimmendes Objekt), which later will be called ‘Adverbial’. This theory of the Satzglieder was so successful, especially from the didactic point of view, that it became the basis for the teaching of syntax in the schools of German speaking countries for more than a century (cf. Glinz 1947:53-57).

In academic circles, however, the Beckerian theory experienced considerable opposition: as early as 1830 K. Hoffmeister criticized the use of the term ‘sentential relationship’, since only one of the three relationships described by Becker, i.e. the predicative one, had really to do with the sentence (cf. Glinz 1947:53; Forsgren 1973:176). In the following years, however, the Beckerian theory of sentential relationships not only was not replaced by any alternative theory, but it went on to be taken up by even by the strictest critics of Becker such as Steinthal himself (as already observed by Glinz 1947:65). Steinthal (1855), in the volume devoted to Becker’s confutation, analyzed the German sentence corresponding to ‘The loving father brings up his children strictly’ (Der liebevolle Vater erzieht seine Kinder mit Strenge) as consisting of three judgements. In this case, according to Steinthal, the attribute is the logical predicate of a judgement: ‘the father is loving’. ‘With severity’ is a predicate: it is the predicate of the judgement ‘His bringing up is strict’. One could then

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19 These observations seem close to the spirit of ‘valency theory’ (cf. below:7.2.1). Actually, they were rather widespread at Becker’s time. They can be traced back to Meiner (cf. Glinz 1947:50).
paraphrase the above mentioned sentence in the following way: ‘The father, who loves his children, gives them a bringing up which is strict’ (Steinthal 1855:197-198; cf. also Steinthal 1860a:100-101). In the same context, Steinthal also maintains that there are three ways of expressing a concept: the ‘predicative’ one (‘the tree is blooming’), the ‘attributive’ one (‘the blooming tree’) and the ‘objective’ one (‘wonderfully blooming’). He does not, however, ascribe these distinctions to Becker, but to Trendelenburg: but it has been already seen (cf. 2.1.1) how close the relationship was between these two scholars.

Why did Becker’s system hold up for such a long time? According to Glinz, the main reason lies in the fact that the model of scientific linguistics prevailing at the end of the 19th and the beginning of the 20th century, i.e. historical-comparative grammar, dealt almost exclusively with dead languages. Therefore, it was not capable of deepening the study of syntactic structures, since it restricted its investigations to sounds, single words and their ways of combination (cf. Glinz 1947:66). The inadequacy of the logic-based Beckerian system was generally acknowledged, but no alternative could be found to it. We can partially agree with Glinz’s explanation. In fact we saw (cf. 3.1) that logic-based syntax came to a crisis when historical-comparative grammar and Steinthal’s psychology met with success. The ‘scientific revolution’, however, was not complete: Delbrück himself still used, in 1900, “traditional grammatical categories borrowed from logic” (see above: 81). To this, we have to add that the theory of Satzglieder was one of the newest chapters of traditional grammar and that its treatment by Becker was a real example of clarity and organic arrangement. In conclusion, we should partially modify Glinz’s historiographic explanation by saying that the long success of Beckerian theory was due not only to lack of alternatives, but also to the solidity of its structure.

Actually, the Beckerian model is present, explicitly or, much more often, tacitly, in the treatment of word groups by almost all the grammarians of the 19th century. The concept of the word group begins to be viewed in a radically new light only in the first decades of the 20th century. For example, no less a scholar than Weil, who is a such a strong innovator and is so polemical with regard to the tradition of the grammaire générale, explicitly refers to Becker in his famous study about word order (see below:4.2.3).

In particular, the assumption of the derivation of the attributive relationship from the predicative one continued to prevail for many more decades. As is obvious, what was lying behind such an attitude was the persistence of the equation ‘sentence = judgement’. This also explains why the units that we would today call ‘constituents’ are named ‘sentential relationships’ by
Becker: the sentence, as the instantiation of the Subject-Predicate structure, was the keystone of every syntactic analysis. Becker represents the extreme as well as the fullest development of the kind of analysis whose origins lie in Port-Royal grammar and in its notion of 'complex proposition'. This analysis was still accepted by scholars like Paul and Noreen, among others, and it was abandoned only with Jespersen and Sechehaye (see below:4.2.2).

One of the first grammarians who investigated word groups apart from the sentence was probably Weil (1879[1844]). He examined Beauzée's example *parer le vice des dehors de la vertu* ('to decorate vice with the external of virtue'), where the order of the complements cannot be inverted. Weil's explanation of this impossibility is based on the observation that the string *des dehors de la vertu* is a complement not of the verb *parer* alone, but of the whole word group *parer le vice*. These last words form "one and the same idea" (p.79; 1887:90). In this passage, Weil speaks of 'blending of ideas', not expressly of 'word groups'. However, he makes essential use of such terminology elsewhere. Therefore, his analysis stands out as particularly interesting especially in comparison with Gabelentz's, who is yet so close to him in many respects (cf. above:3.2.1). Gabelentz still resorts to terms like 'sentence part' (*Satzteil*) or 'sentence member' (*Satzglied*); cf. Gabelentz (1869:379; 1874-75:150). Gabelentz (1901[1891]:90ff.; 101ff.) lists the 'sentence parts' as the fourth component of the 'analytical system' and as the first component of the 'synthetic system' of grammar. Paul also refers to word groups naming them *Satzglieder*. They are distinguished from sentences since they are differently partitioned: sentences are bipartite, 'sentence members' are monadic (cf. Paul 1920:132).

According to Kern (1888[1882]:133), the classification of the parts of speech can itself be developed on the basis of sentence analysis alone. His four fundamental word classes are defined according to their sentential definition: hence we have 'sentence forming' words (the finite verb and the particles 'yes' and 'no'), 'sentence connecting' words (the conjunctions), words 'lying outside of the sentence' (the interjections) and 'sentence determining' words. This last class is formed by the other traditional parts of speech minus the article and the pronoun, which are treated as 'features' shared by both adjectives and nouns. Therefore, word groups are named by Kern (p.175) 'sentential determinations'. They are classified on the basis of his theory of the finite verb as the "core of the sentence" (cf. above:4.1.3). Kern firstly distinguishes between 'finite verb

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20 Forsgren (1985:119) notes that Becker distinguished the word-group level from the sentence level in practice but not theoretically.

21 Gabelentz's 'analytical system' describes language from the point of view of the hearer, while his 'synthetic system' takes the point of view of the speaker; cf. Gabelentz (1901:85).
determinations’ and ‘noun determinations’. The first class is in its turn subdivided into ‘determinations of the verbal person’ and ‘determinations of the verbal content’. The former are instantiated by the ‘subject word’, the latter by the different complements with or without a preposition and by several kinds of adverbials. Noun determinations (also called ‘attributes’) may be adjectival, substantival and adverbial. The first group contains not only adjectives, but also participles, pronouns\(^\text{22}\) and numerals; the second group includes the genitive, the apposition and the noun introduced by a preposition. Adverbial determinations may stand alone (‘Only you’) or may appear together with a prepositions (‘News from there’); cf. p.176. In the chapter devoted to “practical proposals”, Kern also suggests making pupils solve some exercises where the sentence is represented through a scheme which closely resembles a tree diagram.\(^\text{23}\)

The term ‘word group’ explicitly occurs in Sweet (1891-98): it is a main heading of the book (vol. I:440-445). However, the extension Sweet assigns to it is somewhat greater than is standard today, since he also defines as word groups compound-like expressions like ‘son-in-law’, ‘man-of-war’, etc. Such expressions are dubbed by him ‘group-compounds’ to distinguish them from the ‘real’ compounds (like ‘blackbird’). Hence Sweet has to trace a boundary between group-compounds and ‘free’ word groups, the latter resembling “sentences in the freedom with which they allow one word to be substituted for another of like grammatical function, or a new word to be introduced” (Sweet 1891-98 I:153).

Since the definition of word groups is no longer based on the sentence, the problem emerges of distinguishing between the two entities. Sweet (p.155) only remarks that “word-groups often approach very nearly in grammatical function to sentences”. Sütterlin (1900) employs ‘word group’ as a general label; he opposes sentences, defined as ‘closed word groups’, to the other groups, which he names ‘open’. Hence the feature of ‘completeness’ is once more considered decisive for distinguishing the sentence from other syntactic categories (see the discussion in the first part of the present chapter).

The first really organic treatment of word groups is probably the one by Ries. First of all, he distinguishes between ‘word arrangements’ and ‘word

\(^{22}\) The definite article and the possessive adjective are also named ‘pronouns’ by Kern. For him, the article is an unnecessary category, since the indefinite article is a numeral and the definite article a demonstrative pronoun (cf. Kern 1888[1882]:100). Demonstrative pronouns are classed by Kern (p.139-140) as ‘adjectival pronouns’ together with possessive adjectives.

\(^{23}\) Such a proposal is not an absolute novelty: the use of trees to represent the syntactic structure of a sentence can be found, for example, in J. Billroth’s *Lateinische Syntax* (Leipzig: Weidmann, 1832); cf. Sandmann (1973:82).
groups': the first term refers to all syntactic structures, the second term only to the non-sentential ones (cf. Ries 1927[1894]:179). In this way, the analysis of word groups obtains its complete autonomy from the analysis of sentence. The constituency and type of word group are totally independent from their syntactic function, so that, for example, the subject of a sentence can be expressed by a single word or by a word group and the same word group can sometimes act as subject and sometimes as object (p.8). Ries also sharply distinguishes between the notions of sentence member and word group (p.53). In such a way, Ries gets rid of an ambiguity which can be traced back to Girard, whose names for sentence members clearly refer to their grammatical functions (see above:136). With Ries, the notion of the word group finally gains an independent status.

2.2 Attribution vs. predication

The idea that the attributive relationship is based on the predicative one, in a sense which is not always clear, was accepted by many linguists throughout the whole of the 19th century. Even those who most decidedly aimed at giving up the logic-based model of syntax espoused it.

For Gabelentz (1869:383), attributes are ‘secondary predicates’ (Nebenprädikate). The attribute, together with the noun which it is related to, forms a part of the sentence, while the (main) predicate forms a sentence (cf. Gabelentz 1874-75:337). The difference between attribute and predicate lies in the different relationship shown by them: the attribute always belong to a representation only, which can also be compound, but it is nonetheless single (cf. Gabelentz 1901[1891]:456-457). Gabelentz states, however, that the “simplest form of thought”, to which all others can be traced back, is the “predicative connection of two representations” (p.451). A few lines below (p.452), he adds that it makes no difference to say ‘the green leaf’ or ‘the leaf is green’. Gabelentz therefore does not seem to assume any clear boundary between predicative and attributive relationships: they are, rather, two different “means of expression”. He then distinguishes between ‘attributive’ and ‘predicative’ languages (these terms have a value rather different from what Wundt assigned to them some years later; cf. above:2.3.3). The difference between the two language types can be illustrated as follows: in a predicative language such as Malay, the sentence ‘The man is throwing the stone’ would be something like ‘the throwing of the man (is) the stone’; in an attributive language like Tibetan, it would be ‘man (active) stone (passive) throw = the throwing the stone originating from the man’ (p.454). Moreover, the formation of complex sentences connecting short simple sentences by means of conjunctions like ‘and’ is typical of predominantly predicative languages, such as the Semitic, Bantu or Malay ones. By contrast, the use of many gerundive and participial constructions is typical
of essentially attributive languages such as the Uralic and the Altaic ones (p.465).

According to Wegener and to Paul, the attributive relationship originates from the predicative one. Wegener (1885:91) states that a connection like 'the big city' originally had the meaning of a sentence where the adjective was the predicate and the substantive the subject. On the following page, we read that attribution is "the result of predication". Paul (1920:138) maintains that all syntactic relationships derive from the Subject-Predicate relationship, with the exception of coordination. Wegener and Paul also agree in describing the attributive relationship as a 'determination' of the noun by the attribute. Paul adds (pp.139-140) that the determining/determined relationship is analogous to the subject/predicate relationship. Such an analysis gained considerable success: it was abandoned only half a century later, by Trübeckoj (1939b); see below:7.1.2.

Therefore, the 'judgement model' lasted for a longer time within word group theory than within sentence theory even though in an under-the-surface and almost unconscious way. Hence it is not surprising to find that Noreen explicitly accepted it: it has been seen above (125) that Noreen named sentences 'enunciations' and considered them expressions of judgements. Noreen (1923:248) maintains that the enunciation 'The moon is rising' contains at least three enunciations: 1) 'This is called moon'; 2) 'This is called rising'; 3) 'The (so-called) moon (does the so-called) rising'. Following such assumptions, Noreen considers the predicative relationship as a necessary presupposition of the attributive relationship (pp.331-332).

Wundt's position concerning these topics is more shaded and complex. We have often hinted at his distinction between 'attributive' and 'predicative' sentences: these two kinds are considered expressions of two subsequent stages in the development of language. The distinction between attributive and predicative has a formal correlate in the opposition Wundt sees between 'open' and 'closed' word arrangements.24 Arrangements of the first kind are represented by attributive relationships in the strict sense (i.e., from the adjective-noun combinations), and by adverbial determinations of the verbal predicate as well. Those of the second kind are instantiated by Subject-Predicate linking and by the connection between the predicative verb and its object (cf. Wundt 1912[1900] II:320-323). Closed sentential connections are apperceptive connections, open sentential connections are associative connections: the opposition between the two is not absolute, however, since many intermediate degrees exist (p.327). Sentential forms consisting only of apperceptive or closed connections can be described as 'purely predicative'. Sentential forms where

24 Wundt uses these terms in a slightly different sense than Sütterlin's (cf. above:141).
associative connections prevail can be described as ‘attributive’ (p.328). In the purely predicative sentential type, predicative connections can also be expressed in a ‘condensed’ (verdichtet) way. For example, in a sentence like *Ein redlich denkender Mensch verschmäht die Täuschung* (‘A man who thinks honestly disdains deception’), the subject contains the utterance *ein Mensch denkt redlich* (‘a man thinks honestly’), and the predicate the utterance *die Täuschung wird verschmäht* (‘deception is disdained’). In other words, the predicative form of the sentence is generalized to its constituent parts both ‘formally’ (since each part undergoes a binary partition) and ‘materially’ (since the relationship between these second-level constituents is assimilated to the basic predicative relationship). Nevertheless, such partitions never take a real predicative form nor are they “thought predicatively” (pp.329-331).

Marty’s view of the relationship between attribution and predication is just as complex as Wundt’s. Marty’s treatment of the subject, however, follows very different lines, given the basic disagreement between the two scholars about the nature of language and language analysis. For Marty, the attributive relation presupposes the predicative one. Hence Wundt’s notion of the attributive sentence, conceived of as an “earlier step” to the predicative sentence, has to be rejected: what presupposes cannot precede what is presupposed (Marty 1950:36). Marty specifies that the meaning of attributive linking matches that of the “predicative connection of representation”. Such a connection, however, must be kept distinct from a “real predication”: only the latter is a judgement, while the former can only be “the matter” of such a judgement (Marty 1916-20 II, part 1:348). Hence Marty does not assume that a (more or less disguised) judgement underlies the attributive relationship even if he too considers such a relationship as derived from the predicative one. Furthermore, not all linguistic connections can be traced back to predicative connections according to Marty: indeed, ‘determinations’ (i.e., the attributive relations it has just been spoken about) are to be distinguished from ‘correlations’ and ‘modifications’. ‘Correlation’ cannot be reduced to a predication: it is an “indissoluble” relationship, while predication, usually, can be “dissoluble” (Marty 1950:41). ‘Modification’, originally, is the shaping of a ‘pseudocategorical’25 utterance like ‘A is purely represented’ (Marty 1940:160). Modifications often take the appearance of determinations, as for example in ‘painted horse’, ‘expected book’. Such expressions are indeed ambiguous: ‘expected book’ can mean a really existing book, which someone actually expects, and then it can be a real determination. Determinations are ‘logically based synsemantics’; modifications are ‘not logically based synsemantics’ (cf. above:2.4.2). The sameness of their form is caused by the need for “saving signs” (Marty 1940:210-211).

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25 Concerning Marty’s classification of utterances see above:3.2.4.
The first grammarian who decidedly rejects any kind of derivation between attributive and predicative connection even though he acknowledges the obvious analogies between them is Jespersen:

If we now compare the combination ‘a furiously barking dog’ (‘a dog barking furiously’), [...] with ‘the dog barks furiously’, it is evident that the same subordination obtains in the latter as in the former combination. Yet there is a fundamental difference between them, which calls for separate terms for the two kinds of combination: we shall call the former kind ‘junction’, and the latter ‘nexus’. (Jespersen 1924:97)

Jespersen notes the similarity which this distinction seems to show with Wundt’s and Sütterlin’s distinction between ‘open’ and ‘closed’ word connections but he also stresses that the extension of the concept ‘nexus’ is much wider than that of the ‘sentence’. Hence, the completeness criterion turns out not to be very useful (cf. Jespersen 1924:115). As often happens throughout his work, Jespersen is not able to give explicit and strict definitions of the theoretical notions he introduces. Rather, he only illustrates them through metaphors: he also adopts such a procedure for the notions of junction and nexus. However, he explicitly rejects the thesis that the attributive relationship is derived from the predicative one: on this topic, he argues against Paul’s position in particular. He also states that analyses like Sweet’s “lead nowhere”: Sweet (1891-98 I:16-17), in order to distinguish predication from ‘assumption’ (which corresponds to Jespersen’s ‘junction’), affirms that the latter is an “implied predication” while the former would be a “strengthened or developed assumption” (cf. Jespersen 1924:114-115). Jespersen’s conclusion is the following:

A junction is therefore a unit or a single idea, expressed more or less accidentally by means of two elements. A nexus, on the contrary, always contains two ideas which must necessarily remain separate: the secondary term adds something new to what has already been named. (p.116)

A conclusion wholly analogous to Jespersen’s was also reached by Sechehaye although within a rather different framework (see below:5.2.1).

2.3 The internal structure of word groups

The word group is a syntactic unit which is intermediate between word and sentence and, at the same time, is autonomous from both. The problem of working out an appropriate classification of word groups is therefore analogous to the problem of appropriately classifying sentences and words. Moreover, since word groups are not the smallest syntactic units, it is necessary to work out a theory of their internal structure. Finally, it is necessary to specify what
the relationships are between the word group and the sentence, on the one hand, and individual words on the other.

The first proposals for classification essentially divide word groups into two categories. Behaghel, as early as in his study of the syntax of Heliand (1897), opposes ‘determinative groups’ (Bestimmungsgruppen) to ‘enlarging groups’ (Erweiterungsgruppen). The former are those “where a member has the function of determining another”; the latter those “where the members are on a same plane” (Behaghel 1909-10:110; cf. Behaghel 1923-32 III:356). Determinative groups are formed for example by the noun and the attribute, or by the noun and the genitive. Enlarging groups are formed by several coordinate members, each of which can be formed by a determinative group. At about the same time as Behaghel, Sweet opposed ‘coordination’ to ‘subordination’: the latter term refers not only to relations between sentences but also between words. Within the subordination relation, the ‘adjunct-word’ (or ‘modifier’) is opposed to the ‘head-word’ (or ‘modified’); cf. Sweet (1891-98 I:16).

Behaghel’s classification was the starting point for many other linguists who modified it more or less extensively. Sütterlin (1900) names the enlarging groups ‘coordinating groups’ and the determinative groups ‘subordinating groups’. He further subdivides the latter into ‘substantival’, ‘verbal’, and ‘adjectival’ groups according to their respective ‘leading member’ (leitendes Glied); cf. Sütterlin (1900:252-303). The relationship between the leading (or ‘determined’) member and the ‘dependent’ (or ‘determining’) member can be expressed in two different ways: through external or internal means (p.235). External means are the use of cases or of prepositions, the position of the members and their intonation. Internal means are the ‘need for completion’ (Ergänzungsbedürftigkeit) which is shown by many concepts. Instances of such concepts are ‘partial concepts’ (such as ‘head’, ‘body’, etc.), ‘relational concepts’ (such as ‘brother’, ‘builder’, etc.), and ‘empty concepts’ (such as ‘to get’, ‘to behave’, etc.). Sütterlin further notes that there exist noun groups whose leading member does not need any completion at all. Hence it may be accompanied by determining members which express various kinds of relationship: for example, ownership (‘my neighbour’s horse’), origin (‘a Berlin newspaper’), a special property (‘a thoroughbred horse’), or ‘a still freer kind of relationship’ (‘Heaven’s gates’); cf. Sütterlin (1900:255-256; 273-274).

Noreen (1923) gathers all kinds of word groups under the general category of ‘nexus’: he therefore assigns a very different meaning from Jespersen to such a term. Nexuses are to be divided into ‘adnections’ and ‘connections’. Within the former, both members are “rather autonomous” with respect to each other, and at the same time they “share an identical dependency relationship to
a third entity” (p.309). Coordination is therefore a typical instance of ‘adnec­tion’. Both ‘glosses’ and ‘enunciations’ may enter into adnec­tion relationships. ‘Connection’, for its part, “consists in the reciprocal dependency of the members” (p.310). Hence Noreen’s classification is essentially analogous to Behaghel’s and Sütterlin’s. Within a connection relationship, one gloss is the ‘main’ one, while the other is the ‘additional’ one. This respective relationship is not determined by the meaning of the glosses in themselves: in ‘The child is crying’, ‘the child’ is the main gloss, and ‘is crying’ is the additional one. In ‘the child’s crying’, on the other hand, the main gloss is ‘crying’. In ‘the crying child’, the main gloss is ‘child’; in ‘the child’s crying’, the main gloss is ‘crying’ (p.311). The connection relationship may be attributive or predicative: it was seen in 4.2.2 above that Noreen assumes that the former kind of relationship is derived from the latter. Their difference is due to the way the relation of determination is expressed. The main gloss of the predicative connection (i.e. the subject) is firstly a ‘determinandum’, which becomes a ‘determined’ by means of the additional gloss (the predicate). The main gloss of the attributive connection on the other hand is already a ‘determined’ in itself (cf. p.319; 332).

The classification of word groups into only two kinds was deemed inadequate by Ries (1928). Such an inadequacy was shown by the analysis of appo­sitional structures: Sütterlin, like many others, considered them as a subclass of the noun group; in other words, of a determinative group. This classification is, however, inadequate since it is not legitimate to identify the relation of determination with ‘subordination’ or ‘dependency’ (Ries 1928:10-11). Apposition indeed determines the substantive which it refers to, but it is not subordinate to it nor is it dependent on it. Ries therefore distinguishes three types of word groups: ‘loose’ (lockere), ‘semi-tight’ (halbenge) and ‘tight’ (enge). The first type essentially corresponds to Behaghel’s ‘enlarging groups’; the second type to the groups formed by a noun together with its apposition; the third type to the adverb, adjective, noun and verb groups already recognized by Sütterlin (p.18).

Since the three kinds of groups are based on different syntactic patterns both in their internal structure and in their relationship with the sentence, Ries gives their members different labels. Sütterlin’s generic name of ‘leading member’ is only assigned to the first member of the loose groups. The autonomous element of semi-tight groups is called the ‘main member’ (Hauptglied), and that of tight groups is called the ‘nucleus’ (Kern; cf. Ries 1928:23-24).

Verb groups are a special problem for Ries’ system of syntax, which opposes the theory of the sentence to that of word groups, as being two mutually independent parts of syntax. There exist, however, two aspects of the verb

26 For the meaning of these terms, see above (3.2.3 and 4.1.4).
group which are typical subject matter of word group theory: the number and type of the elements governed by the verb (its ‘argument structure’, one would say today) and the positions of such elements with respect to the verb. Ries further notes that this second aspect pertains to word group theory only if the group nucleus is a non-finite verbal form: the position of the finite verb and of its complement belongs to the sentence theory (Ries 1928:19-20).

The three main kinds of word groups instantiate three different abstract relations (Ries 1928:13). Loose groups express ‘coordination’ (Beiordnung) or ‘juxtaposition’ (Nebenordnung); tight groups, ‘subordination’ (Unterordnung) and ‘integration’ (Einordnung); semi-tight groups, an intermediate relation which Ries calls ‘association’ (Zuordnung). Ries too still holds to the idea that the predicative relation is presupposed by the other syntactic relationships (cf. pp.14-15).

Ries (p.20) calls the relationship of the group members with the sentence which contains them the ‘syntactic function’ and their relationship with each other the ‘logico-syntactic relationship’. Syntactic function opposes loose groups to semi-tight and tight ones. It characterizes the group as a whole: the separate members either all have the same syntactic function, or their function is different. The first case is instantiated by the loose group, the second one by the semi-tight and tight groups. In the loose group, the syntactic function of all members is the same as for the group as a whole. In the other two kinds of group, only one member, their “essential” part, has an immediate relationship with the sentence, and its function is the same as the whole group (p.21). The logico-syntactic relationship opposes loose groups to semi-tight and tight groups: the members of the first kind of group are not only ‘homogeneous’, but also ‘equivalent’ (gleichwertig). Such equivalence is based on their autonomy: each of them is autonomous with respect to the others. In contrast, the members of the other kinds of group are not equivalent since they are not all independent. The apposition of semi-tight groups and the ‘adnex’ (Anglieder) of tight ones could not occur alone, since they have “no complete sense”; their presence is only due to the essential member of the group (p.22). There is, however, a basic difference between ‘non-autonomous’ (unselbständig) and ‘dependent’ (abhängig) elements: what is dependent is not autonomous, but the opposite is not true. Hence appositions are not autonomous, but they are independent. Within tight groups, only ‘subordinate’ members (i.e., governed members) are dependent, while only the ‘integrated’ ones are non-autonomous (pp.22-23; for the distinction between ‘integration’ and ‘subordination’, see above). These two different relations also have two different formal expressions: the dependent members have a different case from that of the nucleus (or they are connected to it by a preposition) while the non-autonomous members agree with the nucleus itself (p.28). In other words, Ries would distinguish
‘aggression by the enemy’ (instance of dependency) from ‘the enemy aggression’ (instance of non-autonomy).

The parts of speech which can be the members of the groups can therefore be specified on the basis of the structure of the groups themselves: the ‘leading member’ of all kinds of loose groups and the ‘nucleus’ of all kinds of tight groups may belong to any category (p.24). On the contrary, the ‘main member’ of semi-tight groups can only be a substantive (ibid.). This is a consequence of the fact that the apposition expresses a “condensed” predicative relation: hence the element to which it is connected has a subject-like nature and this excludes the possibility of its not being a substantive.

Members of the word group, Ries further remarks, are not necessarily single words: they can also be word groups in their turn, i.e. we may have “combined” groups (pp.36-44). These combinations may be of any kind: e.g., loose groups can function as subgroups within semi-tight and tight groups. Tight groups often form subgroups within the groups belonging to the two other kinds of groups, and within other tight groups as well; and so on. A combined group is not simply a multi-member group, since the two types are structurally different: multi-member groups extend “in width”, combined groups extend “in height”. All words and all word groups belonging to combined groups are gradually ordered one over the others within either member of the whole group. The end result is that the whole group is formed by no more than two members. On the other hand, multi-member groups are formed by three or more separate and juxtaposed members (p.41). For example, a combined loose group should be represented as (a,b),c, or as (a,b)+c, or even as (a+b), c; a multi-member group as a,b,c, or a+b+c, or a,b,...+c.27

Jespersen did not systematically deal with the concept of word group and the term itself barely occurs in his work. Nevertheless, his so-called ‘theory of the three ranks’ actually touches on many problems connected with the topic of word groups. The essentials of such a theory, worked out as early as in Jespersen (1913), lie in the assumption that

the ‘parts of speech’ classification and the ‘rank’ classification represent different angles from which the same word or form may be viewed, first as it is in

27 These pages by Ries may appear to be an almost literal anticipation of immediate constituent analysis. Such an opinion is supported also by other elements of Ries’ theory of word groups, as, for example, the concept of the ‘nucleus’, which almost exactly matches Bloomfield’s concept of the ‘head’ (even though the latter term derives from Sweet). There are, however, considerable differences between Bloomfield’s and Ries’ positions. For example, the reference to the syntactic function of the word group within the sentence is essential for Ries, and such functions are defined through the classical terminology of subject, predicate, etc. Bloomfield, however, defines heads in a purely distributional way (cf. below:5.2.3).
itself, and then as it is in combination with other words (Jespersen 1924:107; cf. Jespersen 1937:199-120).

Jespersen’s ‘ranks’ are three: ‘primary’, ‘secondary’ and ‘tertiary’. So, for example, a substantive is always a substantive although it can used as a ‘primary’ (namely, as a subject or as a direct or indirect object), as a ‘secondary’ (think of cases like ‘weather report’, where ‘weather’ is the ‘secondary’ and ‘report’ the ‘primary’) and, in some cases, even as a ‘tertiary’ (‘emotions, part religious, but part human’); cf. Jespersen (1924:99). In an analogous way, a word group like ‘Sunday afternoon’ can function as a ‘primary’ (‘Sunday afternoon was fine’), as a ‘secondary’ (‘a Sunday afternoon concert’) and as a ‘tertiary’ (‘he slept all Sunday afternoon’); cf. p.102.

In the same way, adjectives, pronouns, adverbs, infinitival verbs, and prepositions may occupy any one of the three ranks. The standard rank of the adjective is the secondary one, but in cases like ‘you had better bow to the impossible’, the italicized adjective is a primary (p.99). The adjective is a tertiary in a phrase like ‘a fast moving engine’ (ibid.). Personal pronouns are instances of primaries; pronouns as secondaries are instantiated by cases like ‘this hat’, ‘no hat’; Jespersen’s ‘pronominal adverbs’ (‘then’, ‘there’, ‘when’, ‘whence’, etc.) instantiate the use of pronouns as tertiaries (pp.84-85). Adverbs are normally used as tertiaries, but, in some cases, they can also be primaries (‘he did not stay for long’, ‘he is only just back from abroad’) or secondaries (e.g., ‘in after years’). Examples of infinitives as primaries are ‘to see is to believe’, ‘she wants to rest’, of infinitives as secondaries ‘in times to come’, ‘the correct thing to do’, of infinitives as tertiaries ‘he came here to see you’. Dependent clauses as primaries are objective clauses, subjective clauses and the clauses which would today be called ‘nominal’ (or ‘free’) relative clauses (‘What you say is quite true’, ‘I believe whatever he says’). Clauses as secondaries are typically exemplified by relative clauses; clauses as tertiaries by the various kinds of adverbial clauses (concessive, conditional, causal, temporal clauses, etc.); cf. pp.98-106.

The theory of the three ranks therefore plays a decisive role in the analysis of word groups: however, as we said above, it does not aim at being a theory of word groups, but of syntactic dependencies in general. Hence Jespersen analyzes not only the ‘junction’ (to whose domain the examples we have given were related), but also the ‘nexus’ in terms of the three ranks. The nexus ‘the dog is barking furiously’ corresponds to the junction ‘a furiously barking dog’ (however, the latter does not derive from the former; cf. the preceding section).

28 The parts of speech recognized by Jespersen are substantives, adjectives, pronouns (among which he classifies also determiners of any kind), verbs and particles (which contain adverbs, prepositions, conjunctions and interjections); cf. Jespersen (1924:58-92).
‘Dog’ and ‘furiously’ are, respectively, the primary and the tertiary in both word combinations. ‘Barking’ is the secondary in the junction (‘adjunct’), ‘is barking’ the secondary in the nexus (‘adnex’); cf. pp.96-97.29

Actually Jespersen appears to confuse two different problems: the singling out of the relational structures on the one hand, and the specification of the hierarchic structure of word groups and sentences on the other. In other words, the fact that the same relations can be expressed both within a nexus and within a junction (as especially happens with ‘nexus-substantives’; cf. above:135) does not imply that the constituent structure of non-predicative word groups is identical to that of predicative connections. The lack of distinction between these two aspects causes several problems for Jespersen’s analysis. First of all, the fact that finite verbs (unlike infinitives and participles) can never function as primaries or tertiaries but only as secondaries looks rather paradoxical. The origin of such a paradox lies in the fact that Jespersen, unlike Ries, does not clearly distinguish between the function of the finite verb within the sentence (i.e., as a predicate) and its function within the verb group (i.e., as the ‘nucleus’, or as the primary of such a word group). Further and unavoidable consequences of this missing distinction are: 1) the lack of a verb group in the model of sentence analysis proposed by Jespersen and 2) the equalization of subject and object in the transitive sentence, since both are labeled as primaries (cf. Jespersen 1924:157). This result plainly constrasts with the Aristotelian position elsewhere taken by Jespersen, namely with the assignment of a privileged role to the subject with respect to the other nominal elements (cf. above:3.2.4). While discussing Jespersen’s theory of the three ranks, Funke (1925-26:152) remarked that the essential opposition between subject and object could not be put in doubt by anyone. Funke stated that the root of Jespersen’s error lay in the fact that Jespersen had tried to apply the theory of the three ranks also to the sentence: its domain, however, was by necessity limited to word groups taken in isolation. Funke reworded Jespersen’s notions in the terms of Marty’s theory of language (cf. above:2.4.2) and defined the primary ‘autosemantic’ and the other two terms ‘synsemantic’. Since simple words, compound words and word groups are equivalent, within Marty’s system, a noun group like ‘a furiously barking dog’ is autosemantic in itself, as the sentence ‘the dog is barking furiously’ is autosemantic too. However, ‘the dog’ as

29 Sweet’s analysis was partly similar to Jespersen’s and partly different from it. “The distinction between adjunct-word and head-word is only a relative one: the same word may be a head-word in one sentence or context, and an adjunct-word in another, and the same word may even be a head-word and an adjunct-word at the same time. Thus in ‘he is very strong’, ‘strong’ is an adjunct-word to ‘he’, and at the same time it is the head-word to the adjunct-word ‘very’, which, again, may itself be a head-word, as in ‘he is not very strong’” (Sweet 1891-98 I:16).
a subject and ‘is barking’ as a predicate are synsemantic. Therefore, it is inappropriate to define ‘dog’ as a primary in either case.

Jespersen probably became aware of these difficulties. In his last theoretical essay (1937), he partly (and implicitly) retreated from his original assertion of a full equivalence between junction and nexus. He stated that the phrase used in Jespersen (1924:96) to explain the concept of rank (“different ranks of words according to their mutual relation as defining or defined”) was “better than that used immediately before”, namely “there is one word (should be word or part of a word or group of words) of supreme importance to which the others are joined as subordinate” (cf. Jespersen 1937:121). He went on by saying:

It is not intrinsic importance that is decisive, but only grammatical importance, and, as further elaborated in The Philosophy of Grammar, this depends in junction chiefly on the interrelation as specialized and specializing: a secondary specifies (specializes) its primary, and a tertiary specifies the secondary, (or the primary as specified by the secondary). (ibid.)

One can see that the key criterion assumed in this passage for the specification of the ranks is the ‘specialization’ relation: hence Jespersen takes a position analogous to Behaghel’s and Sütterlin’s. This criterion, however, is applied (twice and expressly) to the junction only, while the nexus is not even mentioned. The criterion of ‘importance’, which could fit both relations, is abandoned.\(^{30}\) Moreover, the whole chapter of Jespersen (1937) dealing with the rank (pp.119-127) almost exclusively investigates junction phenomena.

2.4 Word order inside word groups

The notions of ‘determined’ and ‘determining’ can be traced back at least to 18th century discussions about word order.\(^{31}\) These same notions are the cornerstone of Humboldt’s analysis of Chinese word order. Humboldt (1827a:19-20) states that in Chinese ‘determining’ words precede the words they determine, while words expressing “the object towards which an action is directed” follow the word expressing such an action. As a consequence, Chinese nouns are preceded by their determiners (déterminatifs), while verbs (‘determined’) are followed by their object(s) (‘determining’).\(^{32}\) One may notice that Hum-

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\(^{30}\) To be exact, this criterion is again resorted to in a section (pp.132-133) of the chapter about nexus, where Jespersen still argues for the analogy between nexus and junction.

\(^{31}\) For a discussion of word order theory in Du Marsais, Fulda and Adelung see Scaglione (1981:80-96). On determinans and determinatum in some medieval grammarians, see Kneepkens (1978).

\(^{32}\) Humboldt’s original text says that the determining precedes the determined also in the latter case, but I think that this is clearly a misprint, as can be seen from comparing the relevant pas-
boldt here seems to confuse the notion of 'determining' with that of 'determiner': this allows him to say that the determining elements precede the determined nouns; the verb is said to be determined by the elements which it governs. In some cases, however (cf. p. 31), it is the subject which is called the 'determining' function of the verb. This notion of 'determination' seems however to offer two different meanings: on the one hand, "the restriction of the extension of an idea"; on the other, "the direction of an idea towards the other". The two "great laws" of the Chinese word order (namely, the determiner/noun and verb/object orders) would correspond to such two different meanings of 'determination' (pp.41-42).

These observations are clarified and deepened in Humboldt (1836). In his last work, Humboldt still maintains that Chinese word order is governed by two different laws: he specifies, however, that the one of them concerns "the main partition of the sentence", the other "its subordinate parts" (p.ccclxxix; 1988:255). In other words, the first law concerns the verb position, "since the verb is the governing factor in a sense far more important than that of any other word in the sentence"; the second law concerns the position of the adjective with respect to the noun, of the adverb with respect to the verb, etc. The joint effect of the two laws is that the verb is put between the subject and the object, hence Chinese is SVO, but the adjective precedes the noun, the adverb precedes the verb, the genitive precedes the nominative. All these properties are typical of OV languages.

At about the same time, Becker resorted to his notion of 'logical form' (cf. above:19) to explain word order. He especially dealt with the problem of Adjective-Noun order, namely with word order in the 'attributive relationship' (see above:4.2.1). In this case, the word order laws would be the following: if the attribute or the attributive genitive are attributes of an individual, they precede the noun and have secondary stress, but if they are attributes of the species, they follow the noun and have primary stress (Becker 1841[1827]:291). Some Italian examples by Becker himself may clarify the issue: in la bella Laura ("beautiful Laura"), l'infelice Saffo ("unhappy Sappho"), etc. the attribute of the individual precedes the noun; in aquila nera ("black eagle"), lingua tedesca ("German language"), the attribute of the species follows the noun. It is evident that such a law is not always obeyed, as typically happens in German or in English. Becker maintains that the reason is the fact that logical form and grammatical form are sometimes "reversed" in the attributive relationship (p.304).

sage with its translation by Pott (1880a:ccxlv-v). Pott, in fact, interchanges the positions of the words 'determining' and 'determined' with respect to the original.
Becker applies this kind of analysis to all types of ‘sentential relationships’ and he finally formulates the following ‘general rule’: “in the word order, the main word of the sentential relationship bears the main stress and follows the subordinate word” (p.588). For Becker, the “main word” is the one which expresses the notion of species. The exceptions to such a rule (such as those just mentioned) can be traced back to a different interpretation of the words expressing the notion of species, as well as to rhythmical reasons (pp.588-591). As can be clearly seen, Becker is still faithful to the doctrine of ordre naturel, which is instantiated at best by what we would call today ‘consistent SVO languages’; given Becker’s assumptions, however, such an order would be actually instantiated also in languages, like German, which at first sight are highly inconsistent. The special positions which the German verb can occupy are explained by Becker through the opposition of ‘grammatical stress’ and ‘logical stress’ (or ‘discourse stress’): the latter emphasizes ‘the opposition to be overcome’ (aufhebende). The joint effect of the laws governing grammatical stress and logical stress explains the apparently deviant orders. Discourse stress tends to put the main (i.e., the emphasized) element after the other ones (p.594). However, since the predicate follows the subject according to the grammatical order, it is necessary to put it at the beginning of the sentence if one wants to emphasize it: in such a way, it is possible to account for orders like Sterben müssen alle (lit. ‘die must all’; p.595).

The different trends of word order analysis which had developed in France and in Germany are amalgamated in the work of Weil, a French citizen although German by birth. We have already hinted (see above:3.2.1) at his (explicit as well as implicit) links with French linguistics of the Enlightenment age. As far as his relationships with the German grammatical tradition are concerned, we may recall that he defined Herling and Becker as the authors of “the first really philosophical grammars of the German language” (Weil 1879[1844]:8; 1887:16). We have already quoted (85) Weil’s basic assumption that “the syntactic march is not the march of ideas”, the immediate consequence of which is the partition of the sentence into ‘initial notion’ and ‘goal’. This partition is valid both for ancient and for modern languages, as well as for ‘analogical’ and ‘transpositive’ languages. The explication of this “general principle” is the core of the first chapter of Weil’s book. Its second chapter is devoted to the analysis of the difference between the syntactic organization of the various languages, that is to say of ‘construction’ in the proper sense (cf. p.41; 1887:52). In this regard, Weil replaces the distinction between analogical and transpositive languages with one between ‘fixed construction languages’ and ‘free construction languages’. This replacement is not a purely nominal one since free construction languages only form one class of transpositive languages namely the ones which Beauzée called ‘freely transpositive’ (espe-
cially, Latin and Greek). Languages like German were labeled by Beauzée as 'uniformly transpositive' since they are not SVO and therefore they do not represent the order of thought but at the same time they show a fixed word order. Weil puts these last languages among the fixed construction languages, together with French and other Romance languages (pp. 41-43; 1887: 53-55). Fixed construction, in its turn, consists of two different types: the 'ascending construction' type, where the determining (or 'qualifying word') precedes the determined (or 'qualified word'), and the 'descending construction' type, where this order is reversed (p. 51; 1887: 60). The former type "connects ideas" in a more unitary way, the second in a more analytical way. This difference is illustrated, for example, by the French liaison phenomenon: it occurs when the adjective precedes the substantive, but it does not occur when the order is reversed (i.e., descending; cf. p. 54; 1887: 62-63).

Weil's work differs from earlier studies of word order in several important respects. From his perspective, both ascending and descending constructions are treated as syntactic phenomena (i.e., neither of them is considered a stylistic variant of the other) and are assigned equal dignity. Hence the fact that the ascending type prevails in French and in other Romance languages is not a reason to deem the other type as foolish. Moreover, Weil does not identify either type of construction with a given language or language group: on the contrary, he notes that both types can combine within the same language, bringing about different systems. Between the two opposed poles, represented by French and Turkish for the descending and the ascending type respectively, there exist intermediate cases as German, English and Chinese: English puts the complements after the verb like French but the adjective before the noun like German; Chinese puts subject, predicate, direct complement and indirect complement in this order, but it puts the qualifying adjective before the noun (pp. 43-47; 1887: 54-57).

Another important feature of Weil's approach is the explicit adoption of two different 'points of view' for the analysis of fixed construction languages: the first is represented by an investigation of the verb position, the other by an investigation of the internal structure of word groups. These two different points of view had already been distinguished by Humboldt (1836), as we have seen at the beginning of the present section: Weil, however, does not refer to him in this connection. Whatever the relations between the two scholars may be, such a duality of points of view plays an essential role in Weil's framework,

33 Weil (p. 52; 1887: 80 fn. 10) explicitly quotes Humboldt (1827a) while discussing the 'descending' and the 'ascending' constructions. The Humboldt passage referred to by Weil is the one about the two ways of interpreting 'determination' in Chinese, which we discussed above (152).
which sharply distinguishes between word order within the sentence and word order within non-sentential word groups. This distinction allows Weil to adequately tackle the problems of German word order. As a matter of fact, German word groups follow a principle opposite from the French one, since the ascending construction prevails within them (p.55; 1887:63). On the other hand, “in German the nature of the proposition decides the place of the verb: the principal sentence corresponds to the French system, the subordinate sentence to the Latin or even the Turkish system” (p.48; 1887:57).

For Weil, this difference between the main and subordinate clause derives from their different nature: while the former connects two ideas, the latter takes such a connection as given. The verb expresses the establishing of such connection: hence the verb is a “sign of affirmation” and it lies in the middle of the sentence “in order to separate it and to bind together at the same time its two principal parts” (p.49; 1887:58). When the verb appears in a complex form (i.e., auxiliary plus participle, or modal plus infinitive), “it is not the attributive but the abstract part which contains the affirmation” (ibid.). Hence, in German, only the finite verb is put immediately after the subject while non-finite forms remain at the end of the sentence. In secondary clauses, the finite verb leaves the position it occupies in the main clause to show that secondary clauses do not express a judgement at the moment of its utterance but an already uttered judgement. Weil (ibid.) therefore concludes that

Wherever the verb occupies the middle place it is for the purpose of indicating that the whole thought contained in the entire proposition has been separated into two ideas, expressed by two groups of words, confusion between which is prevented by the interposed verb, and which are declared equal by an act of our judgement. Languages which put back the verb to the end of the sentence do not bring out so prominently the dichotomy and affirmative character of the proposition; the Romance languages impress this character upon all kinds of propositions; the German obliterates it in subordinate propositions.

Weil states that his analyses are corroborated by the opposition between word order in declarative sentences and in interrogative sentences (SVO vs. VSO): the latter order is due to the fact that the interrogative sentence is not a judgement, but only “the half of a judgement”, whose completion is given by the answer.

As we said in 3.2.1, Weil deemed Gabelentz’s investigations into word order as essentially identical to his own. In the same place (Weil 1879:viii; 1887:9), he also referred to Bergaigne’s (1878) work which he qualified as the expression of a “wholly different” point of view. We have already seen that Gabelentz’s distinction between ‘psychological’ subject and predicate is indeed very close to Weil’s between ‘initial notion’ and ‘goal of the sentence’. Moreover, just as Weil added to this general principle the investigation of the
different construction types (free vs. fixed, ascending vs. descending) in various languages, so Gabelentz (cf., e.g., 1869:379; 1874-75:336) posits the opposition of the psychological, universal ‘law’ and the ‘grammatical’ rule, “originating from linguistic usage”. Let us now firstly examine to what extent Gabelentz’s analyses overlap with Weil’s and to what extent they contain new elements, if any. Later we will present the essentials of Bergaigne’s research.

Gabelentz notes that, in many languages, word order is rigid, or ‘customary’. Hence it is not easy, in such languages, to put any expression at the beginning of the sentence as its ‘psychological subject’, while this operation is very common in classical languages. However, the customary order of rigid languages can be “fiddled with” through inversion processes. For example, languages like French, German, or English, which do not allow the initial position of the verb in the declarative sentence, “help themselves with surrogates”, by putting an impersonal pronoun or an adverb before the verb (German es, French il, Italian ci, English there); cf. Gabelentz (1869:381).

Gabelentz obviously devotes special attention to the peculiarities of German word order. He attempts to explain the contrast between the structures of the declarative main clause, of the dependent clause and of the ‘yes/no’ question. Gabelentz (1874-75:146) compares the German sentence to a “three partition wardrobe”. The first partition may be occupied by many categories: the grammatical subject (Ich sah ihn gestern Abend ‘I saw him yesterday night’), the direct or indirect object (Mich hast du gewiss nicht gesehen lit. ‘me have you surely not seen’), several kinds of adverbs and prepositional phrases (als Schriftsteller wird er sehr geschätzt lit. ‘as a writer is he highly appreciated’), or the nominal predicate (dumm er ist nicht, aber faul lit. ‘stupid he is not, but lazy’). The second, narrower, partition contains the finite verb. The third partition is “the widest” and contains “everything that did not find place in the other two”. If all other sentence members have the function of a psychological predicate of the finite verb, the first partition may remain empty: however, a kind of horror vacui forces it to be filled with meaningless elements, as we have just seen. The order of the three partitions, indicated by $a$, $b$ and $c$ (cf. Gabelentz 1874-75:154-115) is instantiated by the declarative sentence (named by Gabelentz ‘communicative’, mittelend). It becomes $a$ $c$ $b$ within dependent clauses, and $b$ $a$ $c$ in ‘yes/no’ questions.

According to Gabelentz, the different word order of the two last sentence types as compared to declarative sentence is due to the fact that they are not whole communicative units. Therefore, they do not have that “caesura” between psychological subject and psychological predicate which is typical of such units and which is realized, in German, by the ‘verb-second’ law (p.145). The dependent clause therefore behaves as a sentence member, i.e. as a word group. This explains why it presents, between the subject and the complex
verb, the same elements which occur between the subject and the participle in the main clause: *Er hat lange nicht gegessen* (lit. ‘he has long not eaten’) vs. *Er er lange nicht gegessen hat* (lit. ‘since he long not eaten has’). Gabelentz calls this phenomenon “syntactic infixing”. He further notes that this occurs not only within verb groups, but also within those noun groups where adjectives, participles, etc., lie between the article and the noun; cf. Gabelentz (1901[1891]:468). The ‘yes/no’ question too is an incomplete sentence since it requires an answer to complete it: the question and answer are related to each other just as the psychological subject and psychological predicate (cf. Gabelentz 1874-75:156). This explains why the verb does not occupy the second position in German ‘yes/no’ questions. However, ‘wh’-questions are whole communicative units and they show the same word order as declarative sentences (Gabelentz 1901[1891]:468).

Gabelentz’s analyses are undoubtedly very close to Weil’s, both in letter and in spirit. Nevertheless, it must be observed that Gabelentz introduces (although not explicitly) an important innovation concerning the analysis of German word order: the ‘partition’ analysis does not assign any privileged position to the subject, but only to the verb. The first partition can contain, as we have seen, several kinds of elements and the verb function is no longer to connect the two parts of the judgement but the psychological subject and its predicate. Hence Gabelentz especially develops the former of the two ‘points of view’ singled out by Weil for an investigation of word order: namely, the one which deals with the whole sentence. Unlike Weil, however, Gabelentz is totally free from the judgement model. Gabelentz also investigates languages where the finite verb occurs at the end of the sentence (the so-called SOV languages), especially Latin, Turkish and Japanese (cf. Gabelentz 1874-75:311-319). The final position of the Latin verb is, according to him, “the most widespread” in classical prose and it “seems to have been the regular, almost exclusive one” in the archaic stages of the language. Latin therefore opposes the law of final position to the verb-second law of German: “in German, the finite verb is a sign of partition, in Latin a sign of the sentence boundary” (p.313).

Gabelentz also investigates word order under the second of Weil’s points of view, namely the arrangement of elements within each group. Just like Weil, he contrasts the determining-determined and the determined-determining order (cf. Gabelentz 1869:382-383; 1874-75:337) and he deems the first order type more unitary, the second more analytical. Concerning the possibility of a dual order (pre- vs. postnominal) for the Romance adjective, Gabelentz (1874-75:164) notes that the sequence adjective-noun expresses a concept, the sequence noun-adjective two concepts. However, while the opposition between ascending and descending constructions is a basic principle of Weil’s analysis,
Gabelentz does not show the same theoretical clarity here: his remarks, although sharp, seem more dispersed and casual.

Contrary to Gabelentz, Bergaigne (1878) explicitly takes Weil’s works as his starting point. Bergaigne also assumes Weil’s distinction between the general principle of word order and the several types of construction in specific languages; he calls the first type of order ‘logical’ and the second one ‘grammatical’ (p.2). Unlike Weil, however, Bergaigne denies the existence of ‘free construction’ languages, or, in his own terms, those without grammatical order. Ancient languages too, as a matter of fact, show such an order (p.4). That Latin shows a great freedom of construction does not mean that it did not also have some principles of grammatical order, but only that it had the means to make itself free from them, namely its great inflectional wealth. The almost total loss of inflection in the passage from Latin to Romance languages strongly limited the possibility for the latter to deviate from the principles of grammatical order. It would be an oversimplification, however, to assume that these same principles did not exist before and that they emerged only because of the loss of case endings (pp.6-8). Hence there is much evidence for the analysis of Latin as a verb final language. A similar grammatical principle also dominates Greek, Sanskrit and the Germanic languages so that the hypothesis that all these languages derive from a common type which is characterized by the final position of the verb becomes unavoidable. This common type is not necessarily to be identified, however, with the original type (pp.8-10); the importance of this distinction will be appreciated later.

According to Bergaigne, there are two basic types of syntactic relations (cf. p.12): the ‘predicative’ relation and the ‘dependency’ relation. The traditional distinction between ‘syntax of agreement’ and ‘syntax of dependency’ is an acknowledgement of this. The first kind of relation takes place between subject and predicate, the second between the predicate and members of the sentence other than the subject. Both relations are reproduced in units smaller than the single sentence, called the ‘complex terms’. For example, the predicative relation is reproduced by the relation between the qualifying and the qualified ele-

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34 This terminology may sound rather strange: Weil’s goal, as we have seen, was to free word order analysis from the traditional logic-based framework. It should be remembered, moreover, that the use of the term ‘logical’ in a sense more or less equivalent to ‘psychological’ was rather widespread in the age we are dealing with (cf. above:3.2.2).

35 Wundt also (1912[1900] II:377) held such a position a quarter of century after Bergaigne. He noted that, if word order could become fixed because of the loss of inflectional morphology, this would imply that it is a process which the speech community uses in a conscious and purposive way. To assume such an explanation would be analogous to maintaining that sound changes take place to avoid the excessive clustering of certain sounds.
ment. The dependency relation is reproduced between any qualifying element and the words depending on it (p.17).

On the basis of these assumptions, Bergaigne investigates grammatical order in Latin, Greek, Sanskrit and in the Germanic languages. He reaches the conclusion that the original Indo-European order put the predicate before the subject (predicative relation) and the governed term before the governing term (dependency relation). Therefore Bergaigne considers Indo-European as uniformly characterized by the ‘ascending construction’.

Such a thesis is supported by many arguments. The first of them is through an analysis of compounds, which are classified into two main groups, again on the basis of the opposition between the predicative relation and the dependency relation. The first group contains the compounds formed by a noun and its determiner: Bergaigne calls them ‘qualifying’ compounds. The second group contains the compounds formed by a predicate (an adjective or a participle) and the element governed by it: they are named ‘dependency’ compounds. In the qualifying compounds, the qualifying term precedes the qualified one; in the dependency compounds, the governed term precedes the governing one (pp.23-24). These conclusions are based on the analysis of both kinds of compounds in Sanskrit, Greek, Latin and in the ancient Germanic languages.

All these languages show, according to Bergaigne, an ascending construction: this is manifested not only by their principles of compound formation (which Bergaigne calls “internal syntax”), but by the arrangement of elements within word groups as well. It is possible to prove that such a construction was felt as the regular one in Sanskrit, Greek and Latin (even if, of course, it was violable and it was indeed infringed upon several times; cf. pp.27-37). In Germanic languages, as is well known, the qualifying-qualified order is still the prevailing one (p.41). The inversion of this order seen in Romance languages, which put the genitive and the adjective after the noun, as well as the general tendency of modern Indo-European languages to put the governed element after its governing verb, still lack an explanation.

Bergaigne’s explanation of the origin of noun-adjective order in Romance languages is essentially similar to Gabelentz’s. The post-nominal position helps to stress the proper function of the adjective more strongly, namely that of being the determining element: the marker of the *differentia specifica*. Bergaigne (p.78fn.) explicitly admits the similarity of his analyses with Gabelentz’s, but he criticizes the German scholar for his lack of historical perspective: Gabelentz did not notice that the Adjective-Noun construction represented the older type. This criticism does not appear to be well grounded since Gabelentz expressly adopts the point of view of general syntax (cf. above:2.3.1). The post-nominal genitive construction would be explained through the gradual overcoming of the casual form by the prepositional one. A preposition desig-
nates a relationship between two terms: hence it is natural that it ends up by taking its position between them and by automatically putting the genitive after the governing noun (p.40).

The rise of Verb-Object order in modern Indo-European languages is considered by Bergaigne as the last stage of the gradual change in sentence construction. As we have said, Bergaigne assumes that Predicate-Subject was the original order within Indo-European sentences (p.133). Such a hypothesis is grounded on the analysis of the personal verb-forms into root (which expresses the predicate) and ending (a pronominal theme expressing the subject; p.131). Bergaigne therefore appears to use Bopp’s ‘agglutinative hypothesis’ to suit his own ends (cf. above:3.1.) as Wegener also did shortly after him (cf. above:3.2.2). However, to avoid the main objections raised against this hypothesis, he notes that assigning a pronominal nature to verbal endings does not necessarily mean interpreting them as personal pronouns (Bergaigne 1878:132).

The agglutinative hypothesis, of course, only concerns the simplest type of sentence, namely that formed by subject and predicate within which only two orders are possible. When a third term occurs - the element governed by the predicate - the possible orders become six (p.135). As we have seen, compounds offer evidence of a governed-governing order. Now, since the complement should originally precede the predicate and the predicate should precede the subject, the original order of the three-member Indo-European sentence would have been OVS (p.138). However, such an order could not have been the common one, as attested by the most ancient Indo-European languages, which put the verb at the end of the sentence.

The latter order type was reached, according to Bergaigne, through a series of successive stages. First of all, an inversion of the predicate took place when was put in the end position to better distinguish it from a qualifying element. The connection between the predicate and the elements governed by it, which was originally felt to be narrower than the connection between such elements and the subject, later called for a ‘subject - governed element – predicate’ (SOV) order. After a while, the organization of discourse brought about the possibility that sentences could start not only with the subject, but with an element governed by the predicate as well, in accordance with “the needs of the logical association of ideas”. The predicate in turn still held the end position especially in sentences without an explicit realization of the subject. All that resulted in an order where the subject and the governed element may change place with each other, and the sentence ends with the predicate: ‘subject or governed elements - governed elements or subject – predicate’. It was such a rule which presided over Sanskrit prose and the most ancient Latin prose, and which is still applied in subordinate clauses of German and Dutch (p.140).
The end position of the predicate, Bergaigne remarks, must not be interpreted as absolute, or, as we would say today, ‘rigid’. Indeed, there is no lack of exceptions. Moreover, circumstantial complements, whose scope is not limited to the predicate but involves the whole clause, show a very free order, and may even appear in postverbal position (pp.141-142).\textsuperscript{36} In modern Indo-European languages, the predicate realized through a finite verb tends to occupy the position between the subject and the governed elements. That explains why Romance languages and modern Germanic languages put the object after the verb (cf. pp.41, 50, 175; Bergaigne postpones a more detailed treatment of the topic for a later section which never appeared, however). This process has not been completed in German and in Dutch, where word order in dependent clauses still represents the oldest stage (p.20).

Bergaigne’s essay is probably the first attempt to work out a theory of word order which no longer derives from the framework of general grammar (as Weil still calls it)\textsuperscript{37} or of ‘comparative syntax’ (to use Gabelentz’s terms) but is based on historical-comparative grammar. After Bergaigne, many works adopted this perspective, such as the famous essay by Wackernagel (1892). For a detailed survey of such works, see Scaglione (1972:349-397) concerning classical languages, Romance languages and English, and Scaglione (1981:96-126) concerning German.

Subsequently, the topic of word order begins to dissolve in the problems related to the history of individual languages. Within this perspective, however, Behaghel (1923-32 IV) works out some general rules for word order, as well as resuming and summarizing earlier research. Behaghel maintains that word order can be ‘handed down’ (überliefert) or determined by the needs of the speech situation. In the former case, it is fixed or half-fixed (as in German erst jetzt - jetzt erst); in the second case it is fixed: words assume ‘compelled positions’ (Bedarfsstellungen). These are determined by the feelings of the moment, which tend to put the most important element at the beginning of the sentence, if the rules of the handed down order do not forbid that. So, the initial position of the most important elements belongs to the ‘compelled’ domain, whereas end positions to that of the handed down domain (cf. Behaghel 1923-32 IV:8). Behaghel’s distinction sounds rather close to Weil’s one between ‘construction’ and ‘movement of ideas’.

Behaghel also works out some laws concerning the handed down order. Three of them are based on the content of words; two on “physical facts” (p.5). The “most general” law belonging to the first group states “what is strictly

\textsuperscript{36} The infinitive too, according to Bergaigne (pp.142-154), was originally a circumstantial complement. This explains many word order phenomena within infinitival constructions.

\textsuperscript{37} Remember that the sub-title of Weil (1879) is Question de grammaire générale.
connected from the point of view of the mind is also strictly grouped together”, as is shown by the combinations of noun and genitive, noun and adjective, adjective and adverb (p.4). The second law states that the more important element follows the less important one: e.g., the substantive follows the article. The third laws states that the ‘differentiating member’ precedes the ‘differentiated’ one: e.g., the non-partitive genitive precedes its governing noun, the adjective (in general) the noun, the adverb the adjective or another adverb (p.5). From among the “physical laws”, the first is that of ‘increasing members’, which is still well-known today. According to it, the shorter sentence member always tends to precede the longer one (p.6). Behaghel maintains that he himself had discovered such a law: and yet this discovery had been made by Beauzée 150 years earlier (cf. Beauzée 1767 II:65 and Scaglione 1981:199fn.14). The second of Behaghel’s physical laws of word order is the so-called ‘Wackernagel’s law’ (i.e., the putting of clitics in the second position within the sentence; cf. p.7).

After the crisis of psychologistic syntax, word order was less and less considered as a linguistic phenomenon to be accounted for and more and more as a fact which accounts for other facts. Sapir’s attitude is typical: he lists word order among ‘grammatical processes’, namely among the formal means which a language has at its disposal to express its own concepts (cf. Sapir 1921:62-64). Trubeckoj’s (1939b) essay also essentially resorts to word order to explain the difference between the ‘determinative relationship’ and the ‘attributive relationship’ (cf. below:7.1.2). However, Trubeckoj is not interested in specifying the principle according to which, for example, the determining element always precedes the determined one within every kind of word group in Altaic languages. He only remarks that, in such languages, the subject-predicate order is the opposite of the determining-determined order. Interest in word order principles has re-surfaced only in recent times after the appearance of Greenberg’s (1966[1963]) essay; see below:8.3.2.

38 Beauzée explained the order of elements in the sentence parer le vice des dehors de la vertu on the basis of such a law. See above (140]) for Weil’s different analysis of the same sentence.
39 Some exceptions to such an attitude have to be mentioned, however. They are represented by the chapter devoted to syntax by Schmidt (1926:380-496) and by some sections of Tesnière (1966[1959]). Schmidt’s explanations are based on some rather unsupported anthropological assumptions: e.g., the original position of the genitive would have been the prenominal one in every language; later on, migrations of peoples due to various economic and social changes would have brought about the post-nominal position in some languages. On the other hand, Tesnière’s explanations are strictly linguistic: they will be presented in 5.2.6, below.
PART II

THE AGE OF STRUCTURAL LINGUISTICS
0. Introduction

The birth of structural linguistics is commonly assumed to coincide with Saussure’s *Cours de linguistique générale* (Saussure 1922[1916]): I will not depart from this assumption and I will therefore label any syntactic work ‘structural’ which explicitly refers to Saussure’s book even if in a critical way. In this sense, Bloomfield himself was not extraneous to Saussure’s influence: we may recall his (1923) review of Saussure (1922[1916]), where the American linguist criticized him for basing his analysis on the word and not on the sentence. Section 5.1.1 of the present chapter will therefore sketch those of Saussure’s views about syntax which had the greatest impact on subsequent research, such as the notion of ‘syntagm’ and the assumption that the distinction between syntax and morphology is ungrounded. Section 5.2.2 will survey some of the ties that still link the early phase of structuralist syntax with that of the preceding age.

The general features of the syntactic systems worked out by several trends of structural linguistics both in Europe and in the United States will be presented in sections 2 and 3 of the present chapter. Section 2 deals with the early formulations of such systems, which date, approximately, to the period between the world wars. Section 3 investigates their further developments which run (again approximately) from the end of second world war until the late sixties.

It will be seen throughout the chapter that structuralist syntax almost fully avoids any reference to psychological matters and concentrates on the definition of syntactic units and relationships. This is a common feature both of European and American structuralist linguists. Differences between them mainly lie in the kinds of units and relationships assumed. Among European

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1 On these matters, see also Thümmel (1993a, b).
structuralists, the linguists of the Geneva school base their syntactic model on the elaboration of the Saussurean notion of syntagm and on the notion of ‘transposition’ (cf. 5.2.1; 5.3.1). Those belonging to the Prague school insist on the opposition between ‘actual’ and ‘grammatical’ analysis of the sentence and eventually come to a ‘multi-level’ model of syntax (cf. 5.2.2; 5.3.2). Hjelmslev and other glossematicians concentrate on the definition of the various kinds of linguistic dependencies, which they name ‘functions’ (cf. 5.2.4). The analysis and the classification of syntactic dependencies also characterizes Martinet’s syntax, which was systematically elaborated only in recent years (cf. 5.3.3). A special position among structuralist linguists is held by Benveniste, who, despite his explicit statement of lying within a Saussurean framework, develops rather a personal line of research which is based to a considerable extent on his experience in the field of historical-comparative grammar.

The scholars quoted so far belong to the mainstream of European structuralism, which takes Saussure’s work as its fundamental inspiration. Some very interesting insights about syntax are however found also in the work of scholars lying in some sense outside this mainstream. One case in point is Brøndal: he was in close contact with Hjelmslev but his views on syntax and linguistics in general show explicit connections with the tradition of general grammar, revisited in an original way (cf. 5.2.4). The most organic system of structuralist syntax is however that worked out by Tesnière, which gained little success at the time of its elaboration and became influential only after the 1960s (cf. 5.2.6). Like other structuralist approaches, it is based on a notion of the mutual relationship between elements: that of ‘connection’. One of the specific features of Tesnière’s approach is the view of connection as an essentially hierarchic rather than a linear phenomenon.

While European structuralist scholars essentially start from the notions of syntagm and dependency, the American ones focus their interest on those of ‘constituent’ and ‘construction’. They were first investigated by Bloomfield (cf. 5.2.3), who also initiated the ‘distributional’ approach to language (although this label was not coined by him). The syntactic research of post-Bloomfieldian linguists aimed to work out explicit criteria for better defining constructions and better delimiting constructions, consistently following the distributional method (cf. 5.3.5). Some of them, however, did not limit themselves to a refinement of Bloomfield’ ideas. In particular, Harris elaborated formally a notion which had already been hinted at earlier, but only in an intuitive way: that of ‘transformation’. Harris’ transformational theory (cf. 5.3.6) represents the closest antecedent of the syntactic model which drastically changed syntactic research in the second half of 20th century and which will be dealt with in the third part of the present volume: generative grammar.
1. New insights and ties with the past
1.1 Saussure’s dichotomies and their impact on syntactic research

The birth of structural linguistics is commonly assumed to coincide with Saussure’s *Cours de linguistique générale* (Saussure 1922[1916]): I will not depart from this assumption and I will therefore label any syntactic work ‘structural’ which explicitly refers to Saussure’s book even if in a critical way. In this sense, Bloomfield himself was not extraneous to Saussure’s influence: we may recall his (1923) review of Saussure (1922[1916]), where the American linguist criticized him for basing his analysis on the word and not on the sentence. It scarcely needs restating that the published version of Saussure’s *Cours* represents the ideas of the Geneva linguist only to a limited extent, and it is, in part, a misrepresentation. This has been clearly shown by De Mauro in his monumental commentary (1972) on Saussure’s work, which on many points resorts to the handwritten sources of the *Cours* first investigated by R. Godel (1957) and subsequently edited by R. Engler (1967-74). Nevertheless, it was the published version of the *Cours* which molded the age of structural linguistics: therefore, I will refer to this version in what follows.

In Saussure (1922[1916]), little space is devoted to syntax; nevertheless, many of its assumptions exerted a considerable impact on subsequent syntactic research. It is convenient to investigate the basic lines of Saussure’s linguistic thought by taking his ‘dichotomies’ (to use Lepschy’s terminology 1982[1970]:ch.2) as the thread: that is to say, the oppositions synchrony vs. diachrony, paradigmatics vs. syntagmatics, *langue* vs. *parole*, and *signifiant* vs. *signifié*. The historical roots and the subsequent development of these dichotomies are examined in detail by Koerner (1973).

The most important corollary of the synchrony/diachrony dichotomy is the assertion that the two kinds of linguistics (i.e., synchronic vs. diachronic) “contrast in every way” (Saussure 1922[1916]:127[1983:89]). As an immediate consequence, it becomes impossible to explain a systematic (i.e., synchronic) fact by means of linguistic history: Bally and Sechehaye (1929:37-38) deemed any such explanation as “plainly absurd”.

The opposition between syntagmatics and paradigmatics (or, more exactly, between ‘syntagmatic’ vs. ‘associative’ relationships) is, according to Saussure, the only ‘rational division’ of grammar (cf. Saussure 1922[1916]:187[1983:135]). By contrast, the traditional boundary between morphology and syntax does not actually exist (cf. p.186[133]). Syntax is therefore part of syntagmatics, according to Saussure: not all syntagmatic facts are syntactic facts, but all syntactic facts belong to the domain of syntagmatics (p.188[135]). This position was not wholly new: for instance, it had been held by Brugmann (1904:281-282). Besides, many of Saussure’s views on syntax were close to those of his near contemporaries. An instance of this is offered by his naming
of words like *oui* and *non* as ‘sentence equivalents’ (cf. Saussure 1922[1916]:177[1983:127]), which immediately reminds one of Wundt (cf. above:4.1.4). Nevertheless, Saussure’s influence on this point was surely much greater than Brugmann’s. This may have been due to the fact that the Brugmann observation was interspersed with many others (it was motivated by the difficulty of clearly defining the notion ‘word’) whereas Saussure’s statement had a very prominent position within the published edition of *Cours*. The question of the existence vs. non-existence of a rational boundary between morphology and syntax therefore became a much debated topic of structuralist syntax.

What are ‘syntactic facts’ in Saussure’s sense? The answer to this question is necessarily connected with the *langue* vs. *parole* dichotomy. Saussure (1922[1916]:173[1983:122]) states that all kinds of syntagms‘formed on regular patterns’ must be ascribed to *langue*, not to *parole*. By contrast, the sentence is said by Saussure to belong to *parole*, not to *langue*. De Mauro (1972:fn.251) clearly shows that Saussure’s views concerning this topic were wavering. De Mauro (1972:468) concludes that sentences and syntagms belong to *parole* only insofar as they are dependent upon the individual’s will; therefore, they do not exclusively belong to *parole*.

De Mauro’s reading is almost surely correct insofar as it regards Saussure’s *real* thought, but it is undeniable that post-Saussurean linguists kept to the letter of the published text. Hence, they considered the sentence almost exclusively as a phenomenon of *parole*. Meillet (1932:18), for example, stated that the sentence is not an essential element of *langue*, but only a ‘transitory’ phenomenon, belonging to *parole*. Possibly, Meillet’s position was not only due to a partially wrong interpretation of Saussure’s thought but also to the strong theoretical difficulty of appropriately fitting the ‘sentence’ into the framework of *langue*: sentence shows an enormous variety of different patterns, which is difficult to reconcile with the rather restricted inventory of elements, i.e. the ‘code’ constituting *langue*. Hence it was easier to ascribe the sentence to the activity of the individual, i.e., to *parole*. It was seen in 2.5.2, above that Meillet was not inclined to take into account the problem of syntactic creativity; hence, he was not interested in the definition of the sentence as a particular kind of linguistic structure. In a section which follows (6.1.1), we will also see that Meillet worked out a distributional definition of the sentence, to which Bloomfield himself was to refer.

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2 I translate the French word *syntagme* with ‘syntagm’, and not with ‘phrase’, since the former rendering is closer to the original Saussurean meaning: *syntagme* does not denote only phrases, but also any kind of morphological combination. This terminological choice is not new at all: Wells (1947b:9) also renders Saussure’s *syntagme* with ‘syntagm’.
The dichotomy *signifiant/signifié* (the ‘two faces of the linguistic sign’) is not directly connected to syntactic topics. Nevertheless, linguists eager to follow Saussure’s thought strictly could not avoid the problem of the proper place of syntax: do syntactic phenomena concern *signifiant*, or *signifié*, or both? And, if the answer is ‘both’, must the *signifié* side of syntax be exactly matched by the *signifiant* side, or can there be some mismatch between the two? These problems were discussed especially by Hjelmslev and by the other glossematicians (see below:5.2.5). Before entering into the questions on syntax around which the interest of structuralist linguists centered, however, it is interesting to stress some of the ties that still link the early phase of structuralist syntax with that of the preceding age: this will be the subject of the next section.

1.2 ‘Language’, ‘speech’ and thought: Gardiner and Sandmann

Both Gardiner (1951[1932]) and Sandmann (1954) deal with the problem of the relationships between thought and language and confront the views of Paul, Wegener, Wundt and other major linguists of the ‘psychologistic’ age; Gardiner’s book is dedicated to the memory of Wegener, “a pioneer of linguistic theory”. Gardiner and Sandmann’s works, however, cannot be considered to be simply works which were out of date: they take into account the most recent developments in linguistic theory, and also the general failure of psychologism. For example Gardiner states (p.7) that “the science to which linguistic theory thus ultimately owes allegiance is neither logic or psychology, but sociology”; and (what is most important) the Saussurean notions of ‘language’ (*langue*) and ‘speech’ (*parole*) are cornerstones of his theory even if his view of these notions appears to be slightly different from Saussure’s. Does syntax belong to language or speech? To answer this question, it is necessary to distinguish ‘form’ from ‘function’. ‘Syntactic form’, namely the rules for the combination of words into phrases, “like all linguistic form is a fact of language” (p. 159). Form is for language what function is for speech. In some cases, function is congruent with form, but in others not. A phrase like ‘the good king’ is congruent while ‘the boy king’ is incongruent: a word like ‘boy’, which is a noun from the point of view of language, functions as an adjective in this instance of ‘speech’ (pp.141-142). In such cases of incongruency, syntax is said to prevail over form (p.161). It is therefore plain that, in this connection, syntax is assumed to belong to speech: ‘syntactic function’, i.e. the actual combination of words, and not ‘syntactic form’, is referred to. ‘Congruence’ and ‘incongruence’ are key concepts in Gardiner’s theory: it will be seen (6.2.1) that even his distinction between ‘logical’ and ‘grammatical’ categories of subject and predicate is based on them.

The word is the unit of language, while the sentence is the unit of speech (p.63; cf. pp.87-88). Words belong to the memory of both the speaker and the
listener, and therefore they have a ‘diachronic’ character; sentences are uttered at a particular moment, and therefore their nature is ‘synchronic’ (p.90). Rules of syntactic combination, since they belong to language, are based on the generalization of past experience (p.93). This coupling of language with ‘diachronic’ and of speech with ‘synchronic’ is a good example of how Gardiner reshapes Saussurean concepts in his own framework. In particular, the more ‘accidental’ nature of Saussurean parole with respect to language (cf. Saussure 1922[1916]:30[1983:14]) does not fit into such a framework, for speech lies at the center of Gardiner’s interests. He states that the conception of speech as the expression of thought is “futile” (p.20) and depicts speech as “a set of reactions” to external stimuli in order to obtain cooperation from other people (ibid.). Given such assumptions, it comes as no surprise that Gardiner’s conception of the sentence is explicitly linked to those we have dubbed ‘holistic’ (see above:4.1.1). We will return to it in a following section (6.1.1); in 6.2.1, we will also investigate Gardiner’s resorting to another feature of the psychologistic age of syntax: the opposition of ‘logical’ categories of subject and predicate to ‘grammatical’ ones.

Exactly like Gardiner, Sandmann also pleads for a sociological conception of language, credit for which he attributes to “the so-called French school (Saussure, Meillet)” (Sandmann 1954:31). Nevertheless, he stresses that language and thought are “entangled” with each other (cf., e.g., p.77). The relationship between them is therefore conceived by Sandmann as a “relationship between two kinds of symbolism: a socially conditioned one, viz. ‘language’, and an ideal cognitional one, viz. ‘thought’” (p.72). Moreover, Sandmann maintains that ‘thought’ is a generic label referring to two different levels:

- a higher type of cognition, or ‘thought’ proper, and a lower type of cognition, or ‘representation’, which furnishes ‘thought’ with its material content. (...) In representation the objective world is given to us in two extensive forms: ‘space’ and ‘time’, and in one extensive form: ‘quality’. (...) In thought this representational material is broken up into entities of a certain fixed objective range (analysis, yielding concepts) and re-united into units of a higher order (synthesis, yielding judgments). (p.70)

A different kind of grammar corresponds to each of these levels: (1) ‘representational’ grammar accounts for the fact that a sentence like ‘The king arrives in London’ shows an ‘actor-action-place’ structure: (2) ‘cognitional’ grammar accounts for the groupings of the words of that sentence as ‘the king’, ‘arrives’, and ‘in London’; (3) ‘formulational’ grammar accounts “for all those accidents (...) which cannot be justified by the other two grammars”, such as word-order phenomena, etc. (pp. 143-144). It was the assumption of such a relationship between different but ‘integrated’ (p.145) levels that led Sandmann to preserve the distinction, typical of the psychologistic age, between different
kinds of subject and predicate, i.e. ‘psychological’ vs. ‘grammatical’ ones. Such topics will be resumed in a later section (6.2.1).

2. Syntax in the early phase of European and American structuralism

2.1 The syntax of the Geneva school: the birth of ‘syntagmatics’

The present section focuses on Bally and Sechehaye’s approach to syntactic matters, and especially on their treatment of the notions ‘syntagm’ and ‘transposition’, which were to become central in European structuralist syntax. Furthermore, the syntactic topics investigated by Frei in his first book (1929) will be dealt with.

Sechehaye’s most important contributions to syntax are Sechehaye (1926a, b); some important remarks may also be found in several articles, such as Sechehaye (1914, 1916, 1934). Sechehaye (1926a) states his dependence from Saussure especially as far as the oppositions langue vs. parole and ‘associative’ vs. ‘syntagmatic’ are concerned: his work claims to belong to ‘syntagmatic grammar’ (p.4). However, Schuchardt’s influence (cf. Schuchardt 1928:268ff.) is also strongly felt especially as far as the problems of language origin and of ‘monorhemic’ vs. ‘dirhemic’ utterances are concerned (see below). Jespersen’s analyses are also often quoted and accepted (especially those concerning clauses ‘with an implicit logic’; cf. Sechehaye 1926a:ch.7 and above:4.1.7).

Bally’s early scientific work was mainly centered on stylistics (cf. Bally 1909, 1936[1913]). Several important remarks about syntax can be found in Bally (1914, 1933, 1936[1913]), but the first treatise which systematically deals with linguistic theory is Bally (1965): the first edition dates back to 1932, and a largely revised version appeared in 1944. A joint work by Bally and Sechehaye which also deals with several problems of syntactic analysis is their contribution to the 1928 International Congress of Linguists (Bally and Sechehaye 1929). Hence, many of Bally’s analyses are of a later date than Sechehaye’s and even than Frei’s (who was one of Bally’s graduate students). However, Bally seems to be more influenced by Saussure than by either Sechehaye or Frei. On the other hand, Bally’s interpretation of Saussure’s thought is rather particular: one of the features that differentiate his thought from Saussure’s is the much more essential role that Bally assigns to parole. For Bally, langue pre-exists parole from a static point of view: it supplies parole with ‘actualizers’. This relationship, however, is reversed from the genetic point of view, since parole preceded langue in the genesis of language (Bally

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3 This volume had two later editions after Bally’s death, in 1950 and in 1965. The former one is just a reprint of the 1944 edition; the latter, by S. Heinimann, corrects some misprints of the 1944 edition. Below, references will be made to 1965 edition. I will quote section numbers rather than page numbers, since sections are shorter and therefore more easy to find.
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1965[1932]:§120). Hence, the use of signs within sentences (‘actual’ use) pre­ceded their establishment as ‘virtual signs’: *canis meus* originally means ‘the dog is mine’, and *canis* is an actual sign. If, however, *canis meus!* and *latrat!* (‘is barking’) are contracted into a ‘dirheme’, *canis meus* ends by meaning ‘my dog’, where *canis* is a “virtual sign, actualized by the possessive” (§151). With respect to Frei, Bally himself noted his differences by stating that the innovating factors of the linguistic system should not be attributed only to the ‘needs’ (*besoins*) of assimilation, differentiation, shortness, invariability, and expressiveness (see below), but also to certain tendencies which lie within the system itself.

Sechehaye (1926a:ch.1) starts from the investigation of the communicative act. At the beginning, it is purely monorhemic: the subject is represented by the circumstances, while the predicate is represented by the linguistic sign (p.17). The ‘basic relationships’ are ‘dirhemes’ which derive from the juxtaposition of two monorhemes. They are of three kinds: 1) the ‘coordinative’ dirheme, which is the first to appear in child language: some remnants of it are utter­ances like ‘It is raining, I stay’. 2) The relationship ‘chief-complement’ (*Principal-Complément*) and 3) the relationship subject-predicate. Relationships 2) and 3) are both “diverging modifications” of 1): one cannot speak, therefore, of an anteriority of either relationship with respect to the other. On this matter, Sechehaye’s position is very clear and explicitly opposed to the one held by many other linguists such as Noreen or Schuchardt (cf. Sechehaye 1926c:236 and above:4.2.2).

By contrast, predication is assumed by Bally to be the source of any other syntactic relation. He defines the ‘syntagm’ as any group of signs which can be traced back to the form of a sentence (Bally 1965[1932]:§155). Every sentence is partitioned into a ‘theme’ (the subject, “in a broad sense”) and a ‘goal’ (the predicate, “in a broad sense”; cf. §154 and below:6.2.1). Hence every ‘reduced’ (i.e., not explicitly sentential) syntagm also contains a theme and a goal, which it is standard to call ‘determined’ and ‘determining’, respectively. Every syntagm therefore has a binary structure, represented as *tt’* or *t’t*, where *t* is the determined and *t’* the determining member (ibid.). A binary structure can be detected also within complex syntagms, i.e. syntagms constituted by several units which, however, are always grouped into binomials: e.g., German *Dorf:schul-lehrer* (‘teacher who teaches in a country school’) vs. *Dorf­s­chul:lehrer* (‘school-teacher who teaches in the country’); cf. §156. ‘Paul’s brother is a friend of mine’ would be analyzed as follows (cf. §161; the original French example would receive a partially different analysis, of course): ‘Paul’s brother’ = ‘complex subject’; ‘is a friend of mine’ = ‘complex predicate’. ‘Paul’s brother’ is analyzed into ‘brother’ (‘determined’) and ‘Paul’s’ (‘determining’); ‘is a friend of mine’ into ‘copula’ (‘is’) and ‘predicate’ (‘a friend of
mine’); and so on. Every lexical sign within a syntagm is interchangeable with other signs of the same category with no change in the grammaticality status of the construction (as one would say today): for example, ‘round table’ can be replaced with ‘square table’, or even with ‘soft table’, which, although it is absurd from a logical point of view, nevertheless is fully correct from a grammatical one (cf. §160).

In the analysis of syntactic structures worked out by the Geneva linguists, an important role is played by the concepts ‘inherence’ and ‘relation’. Sandmann (1973:71ff.; 82; see also Lepschy 1992) relates this opposition to the one between syntaxe de convenance and syntaxe de régime, introduced in part II, ch. 24, of Port-Royal Grammaire (Arnauld & Lancelot 1676[1660]). One can also mention the distinction, sketched out in part I, ch. 2, of Port-Royal Logique (Arnauld & Nicole 1683[1662]) between predicates which are ‘internal’ vs. ‘external’ in respect of ‘substance’: the former ones are those like ‘round’, ‘square’, etc.; the latter, those like ‘beloved’, ‘seen’, ‘desired’, etc.

Bally’s definitions of inherence and relation are those based on the Port-Royal opposition between external and internal: ‘inherence’ is defined by him as “an intimate interpenetration” of subject and predicate (for example, ‘the earth is round’, or ‘the earth turns’; cf. Bally 1965[1932]:§§164-165). On the other hand, ‘relation’ is said to be “a relation between two objects exterior to each other” (for example, ‘the book is on the shelf’; cf. §166). As can easily be seen, Bally’s statements once more give evidence of the persisting influence of the General Grammar tradition (on this topic, cf. also Sandmann 1973:65-80).

According to Bally, inherence is marked by agreement (concord), relation by government (rection). In some cases, however, agreement may also express relationships which are not, strictly speaking, those of agreement (as, for example, ‘relative attraction’). In other cases, it may express real relations: in this case, Bally speaks of a “transition from a government syntax to an agreement syntax” (cf. Bally 1965[1932]:§§172-173). Adjectives of relation are typical instances of this transition: e.g., ‘French translation’ instead of ‘translation into French’, Latin bellum Punicum (‘Punic war’) instead of bellum contra Poenos (‘war against Punes’).

Sechehaye opposes ‘intrinsic’ complements to ‘extrinsic’ or ‘relation’ ones. For instance, the intrinsic complement of a substantive is the adjective; that of a verb is the adverb; of an adjective or an adverb, other adverbs (cf. Sechehaye 1926a:61-66). Extrinsic complements (cf. pp.66-80) are exemplified by such word arrangements as ‘helpful to men’, ‘to work for the poor’. Also the notion of transitivity lies in the framework of inherence and relation phenomena. This is defined by Sechehaye (p.81) as “incompleteness of the chief idea”. This definition, therefore, does not apply only to the traditional transitive verbs but also to verbs like ‘belong to’, ‘go to’, to verbs which are obligatorily followed
by an infinitive, and so on. There exist, however, not only transitive verbs, but also transitive adjectives (‘good to eat’, etc.). Moreover, all functional words, prefixes, suffixes, endings, etc. are also transitive: “all such entities are therefore transitive because they are incomplete in themselves” (ibid.). ‘Inherent transitivity’ (‘my interlocutor seemed dull’) and ‘relation transitivity’ (‘this girl works for the poor’) are analogous to intrinsic and to extrinsic complements respectively. The most suitable grammatical process to express the extrinsic relation is government (p.90). Government brings about a ‘synthesis’ between the governing and the governed elements. Such a government synthesis must not be confused with ‘lexicological synthesis’, namely with the synthesis brought about where the autonomous value of the single elements has been lost (e.g., ‘with regard to’, ‘by means of’, etc.).

Let’s now turn to another key notion of the Geneva school, namely that of ‘transposition’. It is discussed at some length by Sechehaye (1926a); its scope is widened by Bally (1965[1932]), who makes it a cornerstone of his system of syntax. Sechehaye (1926a:46) defines the substantive as the ‘primary representative’ of the subject since it represents the ‘entity’. The primary representative of the predicate is the verb (pp.48ff.), whose essential feature is its being the expression of a ‘process’ (on this point Sechehaye refers to Meillet). These functions of primary representatives may change if there are transpositions from one category to another. An instance of transposition is the expression of adjectives, verbs and adverbs by means of a substantival form (p. 102). Another instance is the expression of an ‘idea of relation’ by means of an adjective: cf., e.g., cases such as ‘the Allies’ response’, or ‘the Romans’ victory’ (p.107). The last case of transposition concerns the expression of an ‘idea of quality’ by means of a ‘category of process’, i.e. the verbal expression of adjectival meanings: for example, the Latin verbs valere (‘to be healthy’), rubere (‘to be red’), virere (‘to be green’), pallere (‘to be pale’), etc. (p.110).

The transposition phenomena described by Sechehaye are said by Bally (1965[1932]:116fn.) to be instances of ‘semantic’ transposition. Another type of transposition is ‘functional’ transposition, which is defined as the process through which a linguistic sign may change its grammatical value, while preserving its semantic value, by taking the function of a lexical category to which it does not belong (Bally 1965[1932]:§179). The main types of functional transposition are the following ones: 1) a change of lexical category by means of derivational morphological processes (we can obtain a phrase like chaleur solaire from chaleur du soleil, ‘sun heat’). 2) A function change of several syntagmatic types, such as sentences which become sentence members (e.g., ‘I know that you are lying’), or nouns which take functions different from that of the subject, which is the “predestined” function of nouns (§190). 3) The expression of sentences through nouns: ‘The doctor has arrived’: (‘I inform you)
that the doctor has arrived': ‘(I inform you) of the arrival of the doctor’ (§188; §§194-195).

The role which transposition fulfills in Bally’s system is therefore that of resolving the contradiction which often occurs between the category of the different words and syntagms, on the one hand, and their syntactic function, on the other. A rather different solution is that adopted by Sechehaye, namely what he called the ‘constructional method’ (méthode constructive), initially sketched in Sechehaye (1916) and especially applied in Sechehaye (1926b), a short book planned for the teaching of French in the Zurich canton. Its subject matter is not organized according to the traditional partition into parts of speech, but it starts by first describing the ‘substantive group’ and then the ‘verb group’. So, for example, the volume deals with the ‘inheritence’ relationship both in the part concerning the substantive group and in the one concerning the verb group. In general, the different parts of speech are defined according the function they have within the whole sentence.4

One can see that, given such a ‘constructional method’, the notion of ‘functional transposition’ is not strictly necessary: there is no ‘predestined’ status for any part of speech, since each of them is defined not by itself, but according to its function in the whole syntactic pattern. This would explain why in Sechehaye’s works transposition is not assigned such an essential role as in Bally’s. At the time of their intervention at the First International Congress of Linguists, however, the two scholars seemed to hold the same view of syntactic functions and categories (cf. Bally & Sechehaye 1929:52). Whatever the ‘authentic’ position of each of the linguists may have been, it was Bally’s ideas of ‘transposition’ which, under somewhat different names, gained more success with the European structuralists (see below:5.2.6; 5.3.4; 7.2.1). Sechehaye’s ‘constructional method’, by contrast, apparently shows more similarities with the approach to the parts of speech analysis adopted by American structuralists (see below:7.3.1).

We now turn to Frei’s (1929) book. It aims at being an instance of ‘functional linguistics’, which is defined as the “science of the relationships between linguistic needs and linguistic processes” (p.301). Its goal is to show that the phenomena which prescriptive grammar labels as errors are actually due to the action (which are sometimes connected, and sometimes conflicting) of ‘needs’ (besoins): the need for ‘assimilation’, for ‘differentiation’, for ‘brevity’, for ‘invariability’, and for ‘expressiveness’. The work explicitly follows Saussure, but especially also Bally (1936[1913]), which Frei quotes from the second

4 It is also interesting to remark that Sechehaye (1926b) does not employ the terms attribut and épithète, but replaces them with adjectif prédicatif and adjectif attribut, respectively. In this, he therefore departs from the French grammatical tradition.
(1926) edition. Among Saussurean notions, the one most employed is the di­
chotomy between ‘syntagmatic’ and ‘associative’ relationships, which Frei re­
names as rapports discursifs (‘speech relationships’) and rapports mémoriels
(‘memory relationships’), respectively. Hence ‘syntagm’ assumes the meaning
of the ‘linking of two or more signs’ (p.311, s.v.) and is opposed to ‘lexical
signs’. ‘Syntagmatics’ is the ‘theory of syntagms’; it can be ‘free’ syntagmatics
(i.e., syntax) or ‘condensed’ syntagmatics (morphology); cf. pp.166-167.

Syntactic topics are dealt with throughout the whole book. In chapter 1, it is
stated that phenomena such as agreement, the sequence of tenses, or modal at­
traction have to be traced back to the ‘need for assimilation’. Pronominaliza-
tion and ellipsis facts are traced back to the ‘need for brevity’. The bulk of
Frei’s (1929) ideas about syntax can however be found in chapter 4 (Le besoin
d’invariabilité, pp.131-232), in the section entitled Transposition syntag-
matique. This notion which is as central for Frei as for the other Geneva linguists
is defined as “the transformation of one syntagmatic category into another. For
example that of a predicate into a determiner: la maison est à moi (‘the house is
mine’) > ma maison (‘my house’)” (p.139). Frei lists three kinds of ‘syntag-
matic transposition’: 1) ‘predication’; 2) ‘condensation’; and 3) ‘linear transpo-
sition’. Predication is the basic syntagmatic relation: the other syntagmatic re-
lations derive from it, both from the synchronic and the diachronic point of
view (p.161). This derivation is brought about through a condensation process,
which transposes a sentence into a word group: ‘the rose is red’ > ‘the red rose’
(pp.175-176). Since every syntagm is formed by a condensation of a sub-
ject/predicate structure, it has by necessity a binary structure. Frei’s conception
of syntagms seems therefore very close to Bally’s, while it differs from that of
Sechehaye (cf. above:174). Examples of linear transposition are the transfor-
mation of an intransitive verb into a transitive one (‘corn grows’ > ‘he grows
corn’), or, vice versa, of a transitive verb into an intransitive one: (‘he drinks
wine’ > ‘he drinks’); cf.p.214. Another kind of linear transposition is ‘conver-
sion’. An instance of it is the passive construction, which, according to Frei, is
not a semantic category, since its only function is to transpose the object into a
subject without changing the meaning of the sentence (cf. p.221).

Frei’s later works developed a theory of syntagmatics and some techniques
of syntagmatic analysis which deepen Bally’s insights and are often presented
as an alternative to the distributional analyses of post-Bloomfieldian linguists.
Such works will be dealt with below (5.3.1; 7.3.4).

2.2 The syntax of Prague school

The topic of this section is the ‘classical’ period of the Prague school, ac-
cording to Vachek’s (1964) definition, viz. that between the years 1928 and
1948. More recent developments of Prague school syntax will be investigated
in a later section (5.3.2). Classical Prague school achievements in the domain of phonology have somewhat overshadowed its contributions to syntax and even in this latter field the most quoted works are those of scholars mainly known as phonologists: Jakobson (1966a[1936]) and Trubekoj (1939b). Actually, Jakobson’s essay has not very much to do with syntax: it essentially attempts to explain the morphological case system of Russian by means of a network of semantic oppositions. Trubeckoj’s article will be dealt with in a later section (7.1.2): it is a masterpiece of syntactic research but it is certainly not the only Prague contribution to syntax.

The Prague linguists who investigated syntactic topics were numerous: one could cite Serge Karcevskij, Vladimir Skalicka, Friedrich Slotty, Bohumil Trnka, and especially the president and founder of the Prague linguistic circle, Vilém Mathesius.\(^5\) Karcevskij was professor in Geneva but he was in close contact with the Prague circle: the first formulation of the ‘Prague theses’ was worked out jointly by himself, by Jakobson, and by Trubekoj on the occasion of the First International Congress of Linguists (The Hague 1928). It is not surprising, therefore, that his ideas about syntax take a somewhat intermediate position between the two schools. Karcevskij borrows from the Geneva school, and especially from Bally, the notion of the syntagm as a binary structure constituted by a determining (t’) and a determined (t) (cf. Karcevskij 1964a[1931]:207; 1964b[1936]:360-362). However, Karcevskij’s views about the distinction between syntax and morphology are closer to those of the Prague linguists (see below). As will be remembered, Saussure’s assumption (see above:5.1.1) was that a precise boundary between these two linguistic levels does not exist. Such a view was to be shared by many structuralists after Saussure (such as Hjelmslev) and decidedly rejected by others (such as Brøndal); cf. below:5.2.4-5.2.5. Karcevskij, for his part, preserves a distinction between syntax and morphology even if he labels it differently and assigns a different meaning to ‘morphology’. Karcevskij (1929) maintains that each language contains two ‘conceptual planes’ (plans conceptuels), namely lexicologie and syntagmatie, and two ‘phonic planes’ (plans phoniques), namely morphologie and phonologie. Within syntagmatie (which plainly recalls Saussure’s syntagmatique), he further distinguishes syntagmatie externe from syntagmatie interne: the former corresponds to syntax, the latter to derivation. Hence the distinction between morphology and syntax, based on the trespassing vs. non-

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\(^5\) See, e.g., Karcevskij (1929, 1937, 1964a,b), Skalická (1936), Slotty (1936), Trnka (1930), Mathesius (1924, 1939, 1941-42, 1964b, 1975). The last quoted of Mathesius’ works is the English translation of a Czech typescript dating back to the thirties and formed by notes from class-lectures given by Mathesius. This typescript was edited by Vachek in 1961, with the addition of many footnotes. Mathesius’ Czech writings (1924, 1939, 1941-42) were made accessible to me by the Italian translation in Sornicola and Svoboda, eds. (1991).
trespassing of the word boundary, is restated by Karcevskij as the opposition between *syntagmatie externe* vs. *syntagmatie interne*. Morphology is defined by him as “distribution of the semiotic facts on the speech line” (p.55).

Many of the other points of contact, as well as differences, between Saussure’s linguistic thought and that of the Prague school are well known, such as that both share the structural, i.e. systemic, approach to language analysis, but that the Prague linguists, unlike the Geneva ones, maintain that “no insurmountable barriers” can be put between the synchronic and the diachronic method (cf. Thèses 1929:34). It is also well known that Prague school linguists take a functionalist view of language as their starting point: “language is a system of expressive means appropriate to a goal” (id.:33). It is perhaps more interesting to note that a couple of terms closely resembling the synchronic/diachronic distinction had been resorted to by Mathesius as early as in 1911, namely that between the ‘static’ and ‘dynamic’ manner of analyzing language (cf. Mathesius 1964a[1911]:22). On the opposition ‘static’ vs. ‘dynamic’, Mathesius (p.32fn.7) referred to the work of the Czech philosopher T.G. Masaryk (cf. also Koerner 1973:270). Even the “potentiality” alluded to in the title of Mathesius’ article is somewhat close to Saussure’s notion of *langue*: the conception of *langue* as a system which exists *in potentia* was to become another typical feature of the Prague school view of language (cf. Artymovyc 1964[1935]). One of the consequences of this conception was the revision of Saussure’s (1922[1916]) statement that the sentence belongs to *parole*, not to *langue*. Skalińska (1964[1948]:387) maintains that “*langue* in a sentence is much weaker than in a word. But on the other hand the *parole* of the sentence is stronger than *parole* of the word”. Other Prague linguists (cf., e.g., Artymovyc 1964[1935]:77; Mathesius 1964c:316) state that the sentence belongs to *langue* as a “potential” (Artymovyc) or “abstract” (Mathesius) entity, while it belongs to *parole* as a realized or concrete one.

The conclusions arrived at by the Prague linguists on the one hand and by those of Geneva on the other therefore seem more due to parallel development than to the influence of the latter school on the former one. Hence the fact that they sometimes differ comes as no surprise. The relationship between morphology and syntax is a case in point: Prague linguists do not follow Saussure in deeming this distinction an “irrational” one, but rather they reformulate it. The 1929 theses stress that “the autonomous existence of the word is a wholly evident thing” (Vachek 1964:38). This point had already been strongly argued for by Mathesius (1964a[1911]). Since the word is an autonomous entity, a special discipline devoted to it is also needed: it is named ‘functional onomatology’ by Mathesius. Functional onomatology deals with the system of names and its application within concrete speech act (names are to be intended for “the broadest sense of the word”, i.e. for any categories of full words; cf.
Mathesius (1964c[1936]:309). “The ways and means of organizing these names as applied to an actual situation, into sentences” are the object of functional syntax (p.308). Morphology, in the Prague school sense, cuts across the distinction between functional onomatology and functional syntax since it can fulfill both onomatological and syntactic functions (p.309: cf. also Thèses 1929:40). For example, it can distinguish subclasses of nouns; and it can also express the syntactic phenomenon of agreement.

A typical onomatological problem is the analysis of words and of word classes. Words (‘naming units’, in Mathesius’ terms) are divided into ‘simple’ and ‘descriptive’: the latter, but not the former, can “be dissociated into semantic components” (Mathesius 1975:24). Instances of simple naming units are words like ‘desk’; descriptive naming units are words like Czech vplatné (a kind of tax), that is analyzable into a suffix -né, which usually denote charges, a stem plat-, which indicates a charge connected with payment, and a prefix v-, which means that the payment must be made in a certain manner (p.23). This analysis is possible since we can compare the word vplatné (1) with the set of words containing the suffix -né; (2) with the set of words containing the stem plat-; and (3) with the set of words containing the prefix v- (ibid.). Mathesius’ ‘associative’ analysis closely resembles Saussure’s but his opposition of simple vs. descriptive naming units, on the other hand, shows a close similarity to Bloomfield’s opposition between ‘simple’ and ‘complex’ form (see below:5.2.3).

Word class analysis does not stop with the definition and the delimitation of each class: it “continues within the word classes themselves” (Mathesius 1964c[1936]:311). Such sub-classification can proceed at two different levels: ‘aspect modifications’ and ‘categorical differences’. ‘Aspect modifications’ are, for example, number differences (plural vs. singular), or degrees of definiteness (‘men’, ‘a man’, ‘the man’): in these cases, “the outward aspect only of the respective meanings changes, the basis of them remaining untouched” (ibid.). By contrast, ‘categorical differences’ originate when “the difference between two classes is such as radically to affect the whole meaning of the word” (ibid.): the opposition of transitive vs. intransitive verbs is an instance of a categorical difference (pp.314-315).

The most successful contribution of the Prague school to syntactic theory and practice is undoubtedly functional syntax. This obviously derives from the functional view of language which is the “trademark” of the school, but its connections with the research tradition, which ultimately derives from Gabelentz and Weil also, should not be overlooked (cf. Mathesius 1975:81). In his contribution to the First International Congress of Linguists, Mathesius (1964b[1929]) introduced the distinction between ‘grammatical subject’ and ‘theme’ on the one hand, and ‘grammatical predicate’ and ‘enunciation’ on the
other, and in a footnote (p.67) he added: “By the terms ‘theme’ and ‘enunciation’ I mean what it is usually called the psychological subject and psychological predicate respectively” (on these topics, cf. also below:6.2.1). This is perhaps the first formulation of what Mathesius labeled the ‘actual partition of the sentence’ and which later Firbas labeled the ‘Functional Sentence Perspective’. In subsequent years, the term ‘enunciation’ was firstly replaced by ‘nucleus’ (cf., e.g., Mathesius 1939; 1975:81) and finally by ‘rheme’ (since Firbas 1957). However, Mathesius’ remarks about syntax did not receive any particular attention; and even Functional Sentence Perspective became really popular only some decades later (cf. below:9.3.1).

2.3 Syntactic concepts in Bloomfield and Sapir

Bloomfield’s first works were explicitly written under Wundt’s influence (see e.g. Bloomfield 1914).6 His “conversion” to behaviorism and distributionalism7 dates from the early twenties. It is more adequate, however, to speak of an increasing distrust towards any psychologically based linguistic theory. In his review of Saussure (1922[1916]), Bloomfield (1970[1923]:107) maintains that “psychology and phonetics do not matter at all and are, in principle, irrelevant to the study of language”. This position was restated a decade later, in the preface to Language (Bloomfield 1933:xv). The distributional approach to syntax is already outlined in Bloomfield (1926), which anticipates many points which were later resumed and deepened in Language (Bloomfield 1933).

One has to note that Bloomfield’s break with the tradition of psychologistic syntax (whatever form it may have taken) is explicit and fully conscious: Bloomfield has a deep knowledge of this tradition (he is not an exclusive follower of Wundt, in other words) and recognizes its weaknesses as well as its still valuable aspects. Another, often neglected, concern which Bloomfield shares with many syntacticians of the psychologistic age is his insistence on the creative aspect of language: speaking of ‘regular speech-forms’, i.e. of those which are produced on the basis of regular patterns, he says that “the observer cannot hope to list them, since the possibilities of combination are practically infinite” (Bloomfield 1933:275). This creativity is ascribed by Bloomfield to the action of analogical mechanisms (cf. ibid.). Bloomfield, therefore, is very close to Paul on this subject (cf. above:49-50).

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6 I would not overestimate, however, Wundt’s influence on the mature phase of Bloomfield’s linguistic thought, contrary to what is assumed by Thümmel (1993b:281-282). See also below concerning the origins of immediate constituent analysis.

7 It must be remarked, following Diderichsen (1976[1957]:188-189), that Bloomfield, just like Boas and Sapir before him, does not use ‘distribution’ in a technical sense. Such a technical use possibly occurs for the first time in Swadesh’s (1934) essay about the phonemic principle.
Contrary to Saussure and other European linguists, Bloomfield still preserves the distinction between syntax and morphology. Such a distinction is based on the opposition between 'bound' and 'free' forms:

A linguistic form which is never spoken alone is a 'bound' form; all others (...) are 'free' forms. (Bloomfield 1933:160)

'Syntactic' constructions, then, are constructions in which none of the immediate constituents is a bound form. (p.184)

By the 'morphology' of a language we mean the constructions in which bound forms appear among the constituents (p.207).

In some cases, however, syntax and morphology overlap: think, for example, of Bloomfield's distinction between 'syntactic' compounds (such as 'blackbird' or 'whitecap') and 'asyntactic' compounds (such as 'door-knob'): the former cases parallel a construction like 'black bird' or 'white cap', while, in the latter case, there is no corresponding phrase '*door knob'. Furthermore, the techniques of analysis proposed by Bloomfield are essentially the same for both levels, as will be seen in a moment. Syntax and morphology together form what Bloomfield calls 'grammar' (cf. Bloomfield 1933:183). 'Grammar' will preserve this meaning more or less for all American structuralists and will be opposed to 'phonology'. With Chomsky's work, it was assigned the wider meaning of 'theory of language', including all linguistic levels (cf. below:8.4.2): besides morphology and syntax, even phonology and (sometimes) semantics.

The opposition between lexicon and grammar is still more important, in Bloomfield's system, than that between syntax and morphology. It roughly corresponds to Mathesius' distinction between 'functional onomatology' and 'functional syntax' (even if it is not couched in 'functional' terms). "The total
stock of morphemes in a language is its lexicon [...] The meaningful arrange­ments of forms in a language constitute its grammar” (Bloomfield 1933:162-163). No linguistic form, however, can be conceived from a purely lexical point of view, i.e. in total isolation from other elements: “a linguistic form, as actually uttered, always contains a grammatical form” (p.168). The grammatical arrangement of lexical forms is realized by means of four kinds of ‘taxe­mes’: (1) taxemes of ‘order’; (2) taxemes of ‘modulation’; (3) taxemes of ‘phonetic modification’; (4) taxemes of ‘selection’. An example of a taxeme of order is the placement of the ‘nominative expression’ before the ‘finite verb expression’ in English declarative sentences: ‘John ran’, but not ‘*ran John’. Further taxemes of order determine word order in other sentence types, such as interrogative sentences. Taxemes of modulation appear “only in special cases”, e.g. “when the nominative expression is unstressed, as in ‘I know’ [aj ‘now]” (p.167). Taxemes of phonetic modification also appear only in certain special cases, such as ‘John’s here’, with [z] for ‘is’, or ‘I’d go’, with [d] for ‘would”’ (ibid.). Taxemes of selection, e.g., require a nominative expression to combine with a finite verb expression: ‘John ran’; ‘poor John ran away’; ‘the boys are here’; ‘I know’ are actor-action sentences; ‘never stumbled’ and ‘John Brown’ are not (cf. ibid. and Bloch & Trager 1942:72).

The several types of taxemes allow ‘form classes’ to be built: for example, in a sentence like ‘John ran’, there are taxemes of selection (a nominative expression and a finite verb expression) and taxemes of order (the nominative expression precedes the finite verb expression). “The positions in which a form can appear are its ‘functions’ or, collectively, its ‘function’. All the forms which can fill a given position thereby constitute a ‘form-class’” (p.185). The notion of form class has a key role in Bloomfield’s system of syntax: being arrived at through essentially formal (distributional) means, its task is to replace the traditional ‘parts of speech’, whose definition is based too much on vague meaning considerations to attain real scientific value (p.266).

Bloomfield maintains (p.196) that “it is impossible to set up a fully consist­ent scheme of parts of speech, because the word-classes overlap and cross each other”. Bloomfield’s goal does not seem to be to abandon the system of parts of speech, but rather to replace the meaning criteria traditionally used to define them with formal criteria. Parts of speech, of course, do not exhaust lin­guistic categories: inflectional categories (number, gender, case, tense, aspect, mode) are also listed and discussed by Bloomfield. “A task for linguists of the future will be to compare the categories of different languages and see what features are universal or at least widespread” (p.270).

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9 The passage of Bloch & Trager (1942) referred to, as the majority of the part of the book de­voted to syntax, was “written in first draft by Professor Leonard Bloomfield” (id.:4).
As is well known, the most significant of Bloomfield legacies to syntactic theory and practice were the so-called ‘immediate constituent analysis’ and the classification of construction types. Percival (1976[1967]; this analysis is also endorsed by Seuren 1998:219-227) states that the origins of immediate constituent analysis can be traced back to Wundt, from whom Bloomfield would have simply borrowed it. To support his assumption, Percival refers to Wundt’s analysis of the sentence *Ein redlich denkender Mensch verschmäht die Täuschung* (cf. above:4.2.2). In his view, Wundt’s statement that such a sentence must be analyzed into a subject and a predicate, and that both parts can in their turn be analyzed in a similar way, clearly anticipates the immediate constituent analysis. It is easy to show that Wundt’s analysis was in itself nothing new: indeed, it mirrors Becker’s analysis of *Satzglieder* (cf. above:136-137).

Both Wundt and Becker’s analyses (like many others as well) focus on the notion of the word group, but to stress that a sentence is made up of word groups does not necessarily imply an immediate constituent analysis in Bloomfield’s sense. Wundt and Becker’s procedures are essentially based on the notion of predicative relationship; but predication is not a pervasive notion in Bloomfield’s system since it denotes only one type of common sentence form (namely, the bipartite one; cf. below:6.1.3). Bloomfield’s doctrine of immediate constituents is based on quite different assumptions which are purely distributional in nature and the Wundtian analysis of a sentence into word groups carried out by Bloomfield (1914:60-61) has little to do with this. It is also important to notice that no mention of immediate constituent analysis can be found in Bloomfield (1926): this is another proof of the novelty represented by its treatment in Bloomfield (1933). (For more on these topics, see Graffi 1990).

The purely distributional nature of immediate constituent analysis can be seen from the fact that it is based on the ‘resemblance’ of forms:

A linguistic form which bears a partial phonetic-semantic resemblance to some other linguistic form, is a ‘complex form’. The common part of any (two or more) complex forms is a linguistic form; it is a ‘constituent’ (or ‘component’) of these complex forms. The constituent is said to be ‘contained in’ (or to be ‘included in’ or to ‘enter into’) the complex forms. (Bloomfield 1933:160-161)

No special technique of analysis is suggested by Bloomfield in order to single out constituents. For the most part, intuition is appealed to: “any English speaking person who concerns himself with this matter, is sure to tell us that the ‘immediate constituents’ of ‘Poor John ran away’ are the two forms ‘poor John’ and ‘ran away’” (Bloomfield 1933:161). Surely, the possibility of substitution through an equivalent form is implicitly given as a criterion to single out immediate constituents: a few lines earlier, Bloomfield (p.160) compares several ‘complex forms’, and the first examples he gives are ‘John ran’, ‘John fell’, ‘Bill ran’, ‘Bill fell’.
In the classical example ‘Poor John ran away’, the immediate constituents are, therefore, ‘Poor John’ and ‘ran away’. This does not mean, however, that the subject-predicate structure is generalized to any other word group contained in the sentence: the analysis goes on by partitioning ‘poor John’ into ‘poor’ and ‘John’, and ‘ran away’ into ‘ran’ and ‘away’, with no mention of any subject-predicate dichotomy. Furthermore, ‘away’ is also analyzed into ‘a-’ and ‘way’: the principle of immediate constituent analysis applies to morphology exactly in the same way as to syntax. And, as a matter of fact, all the arguments put forward by Bloomfield (1933) to show the necessity for the immediate constituent analysis are of a morphological kind.

The classification of construction types is strictly connected to immediate constituent analysis. The opposition between ‘endocentric’ and ‘exocentric’ was introduced as early as Bloomfield (1933). Its definition runs as follows:

Every syntactic construction shows us two (or sometimes more) free forms combined in a phrase, which we may call the ‘resultant’ phrase. The resultant phrase may belong to a form class other than that of any constituent. For instance, ‘John ran’ is neither a nominative expression (like ‘John’) nor a finite verb expression (like ‘ran’). Therefore we say that the English actor-action construction is ‘exocentric’: the resultant phrase belongs to the form class of no immediate constituent. On the other hand, the resultant phrase may belong to the same form-class as one (or more) of the constituents. For example, ‘poor John’ is a proper noun expression, and so is the constituent ‘John’; the forms ‘John’ and ‘poor John’ have, on the whole, the same functions. Accordingly, we say that the English character-substance construction (as in ‘poor John’, ‘fresh milk’, and the like) is an ‘endocentric’ construction. (p.194)

Let’s now see which constructions are labeled exocentric and which ones endocentric by Bloomfield. Besides the actor-action sentence type, the other instances of exocentric constructions are: the preposition plus noun phrase construction (‘relation-axis’ construction, in his terms); the ‘subordination’ construction, further distinguished as ‘clause-subordination’ (any dependent clause) and ‘phrase-subordination’ (constructions like ‘bigger than John’).

Endocentric constructions can be ‘subordinative’ (also called ‘attributive’), or ‘coordinative’. A typical subordinative construction is the ‘character-substance’ construction, as ‘Poor John’, ‘Fresh milk’. The constituent of a subordinative construction which belongs to the same form-class of the whole construction is named its ‘head’: in other words, the head of a construction is that constituent which can substitute it (e.g., ‘John’ in ‘poor John’: ‘poor John ran away’ is equivalent to ‘John ran away’); the other element is called the ‘attribute’ (p.195). The whole topic of the typology of syntactic constructions, together with that of immediate constituent analysis, was to become the central
one of the syntactic debate in the United States for more than two decades, and it was also tackled by European structural linguists (see below:7.1.1; 7.1.2).

Let’s now turn to another father of American structuralism, namely Edward Sapir. It has long been the standard practice to oppose Sapir and Bloomfield as leaders of the ‘mentalistic’ and the ‘behavioristic’ trends in linguistics, respectively. This opposition, however justified in part, seems somewhat exaggerated, since it could lead to the belief that the two scholars were implacable adversaries: in fact, the main differences between them lay in their theoretical statements (which, in any case, do not contain any explicit mutual polemics), while their linguistic analyses show several points of contact (for a similar judgment, see Fought 1996). This topic surely deserves fuller treatment: for now, suffice it to say that the approach to language creativity of the ‘mentalist’ Sapir does not look very different from that of the ‘behaviorist’ Bloomfield. Both indeed resort to the notion of ‘analogy’:

"These fixed types or actual sentence-groundworks may be freely overlaid by such additional matter as the speaker or writer cares to put on, but they are themselves as rigidly “given” by tradition as are the radical and grammatical elements abstracted from the finished words. New words may be consciously created from these fundamental elements on the analogy of old ones, but hardly new types of words. In the same way new sentences are being constantly created, but always on strictly traditional lines. (Sapir 1921:37)"

Sapir’s work does not appear to be especially engaged with syntactic problems: certainly, much less than Bloomfield’s. No essay contained in Sapir (1951) is primarily devoted to syntactic questions, nor are explicit references to such questions offered by any of the titles in his whole bibliography (Sapir 1951:601-619). His classical book Language (Sapir 1921) contains two chapters devoted to phonological and morphological topics as can be seen from their headings (ch. 3 and 4, respectively), but no chapter expressly dealing with syntactic matters. Moreover, only one of the six ‘grammatical processes’ listed in ch. 4 is of a wholly syntactic nature, namely word order; the other ones are morphological (composition, affixation), morpho-phonological (internal vocalic or consonantal change, reduplication) and phonological (accent variation). Nevertheless, it should not be overlooked that Sapir’s classification of ‘fundamental types’ of languages (cf. Sapir 1921:136-138) largely rests on semantico-syntactic considerations, since such types are defined on the basis of the nature of the ‘grammatical concepts’ which they express.

‘Grammatical concepts’ are classified by Sapir into two main groups “as regards their concreteness or their power to express syntactic relations” (Sapir 1921:102). The first group of concepts is further partitioned into ‘basic’ and ‘derivational’ concepts; the second one into ‘concrete relational’ and ‘pure relational’ concepts (p.101). Basic concepts are ‘objects’, ‘actions’, ‘qualities’,
Derivational concepts “give a radical element a particular increment of significance” (ibid.): e.g., the ‘-er’ suffix of ‘farmer’ expresses a derivational concept which is added to the basic concept expressed by the root ‘farm’. These first two groups of concepts are therefore mainly semantically (or ontologically) based. The other two groups of concepts are defined by Sapir himself as syntactic, as has been just seen. The difference between ‘concrete’ and ‘pure’ relational concepts lies in the fact that the former, but not the latter, have a residue of “material content”: e.g., gender and number belong to concrete relational concepts, while grammatical relations (subject, object, attribute, etc.) belong to pure relational concepts. In principle, only basic and pure relational concepts must be expressed: one could say that Sapir assumes that a sentence may simply be formed by the denotation of the basic entities and by a pattern which shows their respective relationships. One consequence of this view is the well-known statement that only basic and pure relational concepts are expressed in every language. The other two types can occur, singly or together, but they need not. The possible combinations of the four groups of concepts brings about Sapir’s classification of languages into four ‘conceptual types’. (A): ‘Simple Pure-relational’ languages; (B): ‘Complex Pure-relational’ languages; (C):‘Simple Mixed-relational’ languages; (D): ‘Complex Mixed-relational’ languages. Type (A) languages only contain basic and pure relational concepts; those of type (B), basic, derivational, and pure relational concepts; those of type (C), basic, concrete relational and pure relational concepts; those of type (D), all four kinds of concepts. Within Sapir’s ‘multi-dimensional’ typology, classification of languages is reached by combining the ‘conceptual type’ with the two further dimensions (of essentially morphological nature) labeled by him ‘technique’ (‘isolating’, ‘agglutinative’, ‘fusional’, ‘symbolic’) and ‘degree of synthesis’ (‘analytic’, ‘synthetic’, ‘polysynthetic’): cf. Sapir (1921:142-143).

In general, Sapir’s syntactic views look however rather traditional. Notions such as ‘subject’, ‘object’, etc., are assumed with no definitions, nor does he try to discuss their status. On the other hand, he stresses that a partition of the sentence into subject and predicate cannot lack in any language. He sees as a consequence of this the fact that no language can fully obliterate the distinction between noun and verb: “no language wholly fails to distinguish noun and verb, though in particular cases the nature of the distinction may be an elusive one” (p.119). Subject and predicate are the only necessary elements of the clause, which can also contain some ‘contributory ideas’, such as indications of place, time, etc. (p.36).

Bloomfield’s influence on the subsequent American structural linguistics was surely largely greater than Sapir’s. This is noted, e.g., by Robins (1997[1967]:237), who credits this fact to the textbook status of Bloomfield
(1933) and to Bloomfield’s “deliberate concentration on methodology”. Other (not necessarily incompatible) explanations may be found, but the facts seem indisputable. With the rise of generative grammar and the ensuing fall of Bloomfieldian and post-Bloomfieldian approach to language analysis, Sapir’s work (or, perhaps more exactly, Sapir’s name) seems to have gained renewed attention.

2.4 The Copenhagen school: Brøndal

The label ‘Copenhagen school’ is normally used to refer both to Brøndal, on the one hand, and to Hjelmslev and the other ‘glossematicians’,\(^\text{10}\) on the other. There are undoubtedly some sound reasons for this joint label: for example, the structuralist point of view and the Saussurean heritage are both vigorously maintained both by Brøndal and by Hjelmslev. Their agreement on many shared attitudes is also proved by the fact that they jointly founded the journal *Acta Linguistica* in 1939. Nevertheless, their approach to language in general and to syntax in particular shows many differences, in particular insofar as the relationship between language and logic is concerned. While Brøndal considers *language* to be based on logic, so renewing a tradition which had declined since Steinthal (see above:2.2.2), Hjelmslev’s program is to give *linguistics* a logical basis, in the sense of the ‘logic of science’ which was being developed in the thirties by the neo-positivistic philosophers. Moreover, as Lepschy (1982[1970]:67) notes, Brøndal’s thought apparently did not exert much influence, while glossematic notions were deeply discussed not only by his followers and by other European structuralists, but also within American linguistic circles (see, e.g., below:7.1.2).

Brøndal can rightly be considered a herald of the structuralist approach to language. In his opening article of *Acta Linguistica* (Brøndal 1939), he stresses the main differences between 19th century comparative grammar and 20th century structural linguistics. The former is ‘historical’ and ‘positivistic’: it is mainly interested in “les petits faits vrais” (‘the small true facts’), and even its pretended ‘laws’ (i.e., sound laws) are exceedingly particular and complicated

\(^{10}\) In a strict sense, ‘glossematics’ would apply only to Hjelmslev and Uldall’s theory of language: for many linguists directly inspired by Hjelmslev sometimes oppose their views to Hjelmslev’s by naming the latter ‘glossematic’ (cf. e.g. Togeby 1965[1951]:67). Furthermore, ‘glossematics’ does not refer to the whole of Hjelmslev’s scientific work, but only to the post-1935 period (essentially, since the start of his collaboration with Uldall): hence it would not be quite appropriate to name the views expressed in Hjelmslev (1928) as ‘glossematic’. However, as will be seen, such views were not totally abandoned in Hjelmslev’s subsequent works. Lacking a better term, I will therefore resort to ‘glossematics’ and ‘glossematic’ throughout this book, following Spang-Hannsen’s (1961) usage.
by the addition of a variety of special conditions. Structural linguistics, on the other hand, aims at determining what is general and abstract.

Brøndal’s structuralistic attitude is also reflected by his systemic approach to language analysis. He extends the scope of the Prague school notion of ‘opposition’. Three kinds of oppositions are ‘universal and necessary’, according to Brøndal. They are: a) the sound/meaning opposition; b) the opposition between ‘empty’ and ‘full’, according to Chinese grammatical terminology, and c) the opposition between the terms of a pair. Nevertheless, Brøndal’s view of language differs from that of the majority of structuralists in a number of respects. Two of them seem especially important: the assumption of a universalistic perspective and the attempt at reconciling the linguistic and logical approaches to language. In respect of the former, one has to consider the very particular way in which Brøndal resumes the Saussurean opposition between langue and parole, which he renames as the opposition between ‘system’ and ‘speech’ (discours). For Brøndal, system is language-specific, while speech is universal, a “common shape” which is needed for the functioning of any language (Brøndal 1943[1937]:56). Syntactic relations are speech relations, and they are therefore universal. Speech is the expression of linguistic ‘rhythm’. The linguistic system opposes a given language to any other language, while the linguistic rhythm is common to all languages (p.140).

Given such universalistic assumptions, it is not surprising that Brøndal strives to reconcile logic and language. Dealing with such a topic, he refers to a variety of linguists and logicians, contemporary or not: but his most important source of inspiration is Leibniz. Brøndal (1943[1937]:58-65) carries on a detailed investigation of the possible points of view from which logic can be considered. 1) ‘Normative’ logic is opposed to a ‘general’ logic: the former dictates standards for correct reasoning, the latter describes ‘the march of thought’ (le cheminement de la pensée; p.58). Brøndal (ibid.) concedes that it is not easy to distinguish this ‘general logic’ from psychology. 2) ‘Descriptive’ logic is opposed to ‘relational’ logic (i.e., logic of classes vs. logic of relations). 3) ‘Extensional’ logic is opposed to ‘comprehensional’ logic. The logic of language is essentially 1) general, 2) relational and 3) comprehensional. For example, many syntactic concepts are relational: that of ‘grammatical object’ is a case in point. A purely descriptive approach (i.e., the object refers to a given class or to a given individual) would be simply inadequate.

The structural-systemic approach and the logically-based approach are combined in Brøndal’s system of linguistic categories. For him, the main opposition between linguistic categories is that between ‘genera’ and ‘relations’: instances of genera are word classes, sentence members, etc.; instances of relations the different tenses, moods, etc. (cf. Brøndal 1943[1938]:42-43). One concrete effect of Brøndal’s general ideas about language is his conception of
the morphology/syntax relationship, which is diametrically opposed to that held by the majority of European structural linguists: for him, morphology and syntax are quite distinct domains. The former is the theory ‘of forms and of their sense’; the latter, ‘of the sentence and its parts’ (cf. Brøndal 1943[1933]:8); also the study of word order is said by Brøndal (1943[1930]:6) to be part of syntax. The unit of morphology is the word, the unit of syntax is the sentence member (membre de phrase; cf. Brøndal 1943:117-118). The study of derived words belongs to morphology, that of compound words to syntax (p.138).

This conception that a sharp borderline exists between morphology and syntax pervades Brøndal’s work and the Danish scholar investigates its consequences in detail, as can be seen especially in his treatment of parts of speech. Brøndal clearly opposes parts of speech on the one hand and syntactic functions on the other: the adjective (Greek epitheton) is by no means an epithet in itself, despite its etymology; nor is a substantive a subject-word in itself. The system of parts of speech may differ greatly across languages (some languages may even lack the noun/verb distinction): by contrast, “the system of syntactic functions is always invariable. Subject and object, predicate and attribute, etc., are singled out in Chinese or in Basque exactly as in French” (Brøndal 1943[1933]:10). Therefore, syntactic relations may be realized by words belonging to different classes, both across languages and within the same language (p.12). Inside each sentence member, a further syntactic relation exists, namely that between the primary member (or ‘syntactic theme’) and the secondary member: the former is the element “which plays a direct and independent role within the sentence”, the latter the element “which only plays an indirect and secondary role, within and through a primary member” (ibid.). Both members may belong to a variety of word classes. In an attributive relation, it is not necessary at all that the syntactic theme be a noun, nor that the epithet be an adjective (pp.12-13).

One can therefore easily see that Brøndal’s syntactic analyses, even though rather sketchy and expressed a very particular theoretical framework, arrive at about the same results as other structural linguists. In particular, the distinction between primary and secondary member closely resembles Bloomfield’s between ‘head’ and ‘attribute’. Brøndal therefore appears, on several points, much less tradition-bound than it is commonly assumed.

2.5 The Copenhagen school: ‘function’ and ‘government’ in glossematics

I now turn to the syntactic conceptions of Hjelmslev and of other glossematicians. Despite his later criticisms (see especially Hjelmslev 1973[1945]: 48) of Jespersen, many of Hjelmslev’s basic views about syntax are essentially inspired by those of the author of The philosophy of grammar. The distinction
between ‘nexus’ and ‘junction’ is the basis for Hjelmslev’s classification of morphemes (Hjelmslev 1938). Hjelmslev maintains that his concepts of ‘junction’ and ‘nexus’ only approximately correspond to Jespersen’s, since the former are “defined from the point of view of the form, not from that of substance”. Nevertheless, the opposition between the two fundamental types of syntactic relations is assumed without further discussion. As is easy to understand, Jespersen’s influence is more deeply felt in Hjelmslev’s first book (1928). In this work, Hjelmslev explicitly borrows from Jespersen not only the opposition junction vs. nexus, but also what he calls the ‘subordination’ theory, namely the ‘doctrine of the three ranks’ (see above:4.2.3). Hjelmslev tries to derive such a theory from purely linguistic principles: Jespersen’s procedure seems to him to be still too closely linked to logical considerations (pp.131-132). To reach this goal, Hjelmslev resorts to the notion of ‘government’ (rection), a traditional notion which he however reshapes in a very personal way. The “essential characteristic” of government is ‘dependency’ (p.138). Two types of government have to be distinguished: ‘pure’ government (also called ‘concord’, concordance) and ‘complex’ government (pp.140-141). As can be seen, Hjelmslev collects under the same heading two notions which were sharply distinguished in traditional syntax, namely government and concord (or ‘agreement’), since both government and concord express a dependency. The difference lies in the fact that ‘complex government’ does not only express dependency, but also reveals the nature of the dependency involved (e.g. the fact that a governed noun is direct or indirect object of a given verb), while ‘pure government’ just expresses dependency (e.g., a given adjective is connected to the substantive with which it agrees; cf. pp.139-140). ‘Concord’ is further divided into ‘pure’ concord and ‘complex’ concord (about this distinction, see below).

Hjelmslev later reshaped his early system by putting it in a decidedly structuralistic perspective, mainly inspired by Saussurean insights. His essays from the late thirties onwards and his most important book (Hjelmslev 1961[1943]) state that the proper task of structural linguistics is to investigate dependencies between the different parts of a system. Hjelmslev (1961[1943]:§11) lists three kinds of dependencies, which are assigned by him the more technical term of ‘functions’: ‘determination’, ‘interdependence’ and ‘constellation’. The first dependency is instantiated by an entity whose presence necessarily requires the presence of another entity; the second one by two entities which require each other; the third one by two entities neither of which necessarily requires the other. The three kinds of dependency are given different names according to their position on the syntagmatic vs. the paradigmatic dimension: syntagmatic determination is named ‘selection’, paradigmatic determination ‘specification’; syntagmatic interdependence ‘solidarity’, paradigmatic interdependence ‘com-
plementarity'; syntagmatic constellation 'combination', and paradigmatic con-
stellation 'autonomy'. Hjelmslev assumes that such functions uniformly de-
scribe all linguistic phenomena, both on the 'content plane' and on the 'expres-
sion plane'. This means that phonological, morphological and syntactic rela-
tions all have to be reduced to the three kinds of dependency relations just de-
scribed.

The relation between expression and content is a solidarity function (cf.
Hjelmslev 1961[1943]:§13): expression and content presuppose each other.
This means that an element can be said to belong to the expression plane of a
given language if and only if it has a content, and an element can be said to
belong to the content plane of a given language if and only if it has an expres-
sion. The sign is a solidarity of content and expression: but the appropriate lin-
guistic analysis must proceed separately on the content plane and on the ex-
pression plane. As a consequence of this neat separation of expression and
content, syntax in the glossematic sense ('functional syntax') only belongs to
the content plane, and facts of expression do not concern it. Togeby
(1965[1951]) therefore opposes 'functional syntax' to 'sign syntax', i.e. a kind
of syntax which does not separate content from expression: American struc-
turalist syntax would be a typical example of sign syntax (cf. Togeby
1965[1951]:8-9). On the other hand, functional syntax is also opposed to 'se-
matic syntax', i.e. syntax based on logical and/or psychological considera-
tions, such as the one carried on by Brøndal or Bally. One consequence of To-
geby's position is the assumption that word order is not relevant to syntax,
since it belongs to expression (cf. p.66). For further consequences, especially
as far as 'immediate constituent' analysis is concerned, see below (7.3.3).

Hjelmslev, fully in line with Saussure's suggestions (see above:169), since
his first treatise (1928) argues against the tracing of a border between morphol-
ogy and syntax; cf., e.g., p. 94. Such a position was held by him throughout all
his subsequent works. His attention was always directed to the 'morphemes'
and to the 'morphological structure': under such headings he described some
phenomena that traditionally belong to syntax, such as the structure of clauses
and word groups. Togeby (1965[1951]:100) states that the word is the minimal
syntagm. Hence Hjelmslev's attention was mainly directed towards the analy-
sis and definition of morphosyntactic categories. Such morphosyntactic catego-
ries are dubbed by him 'morphemes' (see Hjelmslev 1938).

To classify the different kinds of morphemes Hjelmslev once more borrows
some concepts from Jespersen's system of syntax: he opposes 'homosexual' to
'heterosexual' categories. Case, person, and diathesis are homonexual catego-
ries; comparison and emphasis, heteronexual categories. Gender/number and
aspect are categories which are both homonexual and heteronexual at the same
time. Finally, the article and mood morphemes are alternatively homonexual or
heteronexual, but not at the same time. A further distinction, which crosses that of homonexual vs. heteronexual morphemes, is that between ‘extense’ and ‘intense’ morphemes: extense morphemes are, roughly, the verbal morphemes, intense morphemes the nominal ones. It will be seen in one of the following chapters (6.2.3) that ‘verbal’ morphemes are assumed by Hjelmslev to belong not the verb but to the sentence. He is therefore led to reject the traditional definitions of the verb and to propose a new one. He quotes two traditional definitions, both of which are drawn from Meillet (1926[1920]). The first one states that the verb “expresses the process” (Meillet 1926[1920]:175): Hjelmslev qualifies such a definition as ‘universal’. The second one defines the verb as “a conjugated or conjugable word” (p.176): 11 this definition is, in Hjelmslev’s terms, ‘general’, since it implies that a language without conjugation will not have verbs (cf. Hjelmslev 1959[1948]:167-168). Hjelmslev argues that the ‘universal’ definition is clearly unsatisfactory, both because the notion of process remains vague, and because it is not able to appropriately distinguish verbs from nouns: words such as ‘flight’, ‘conversation’, ‘thought’, designate processes, and nevertheless they are nouns. On the other hand, the fact that conjugation morphemes (aspect, tense and mood) do not belong to the verb but to the sentence, proves the untenability of the ‘general’ definition. Therefore Hjelmslev proposes a new definition of the verb: “est verbe une conjonction de proposition [verb is a clausal conjunction]” (Hjelmslev 1959[1948]:190). The verb connects the subject and the predicate, exactly as a conjunction like Latin sed (‘but’) connects two clauses.

Togeby followed Hjelmslev’s path in not considering the word as a boundary between two different disciplines, morphology and syntax, but he also tried to redefine their respective domains. In Togeby (1965[1951]), syntax is equated with ‘syntagmatics’ and morphology with ‘systematics’, hence they are two different moments of the descriptive procedure: the former moment (i.e., syntagmatics) divides the text into its minimal units, while the second moment (systematics) orders such units in classes, according to their mutual functions within syntagmatic units (p.6). The two disciplines should therefore do the same task, syntax from the top down and morphology from the bottom up: in reality, the syntactic part of Togeby (1965[1951]) is mainly a discussion of the structure of the sentence and of the word groups, and the morphological

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11 This definition does not occur as such in the place quoted. Meillet only says that verb ‘conjugation’ is opposed to noun ‘declension’, and that some languages may lack the former, or the latter, or both. Meillet adds that the distinction between noun and verb remains even without conjugation, “expressed through linguistic means”. Hjelmslev remarks that the definition of verbs as Zeitworte (‘words with tense’) is typical of the whole traditional grammar, and this is surely true.
part a classification of the different kinds of morphemes (subdivided into ‘in­
flexional’, ‘root’, ‘derivational’ and ‘particles’).

Let us now return to Hjelmslev’s notion of ‘government’. It has been seen
that Hjelmslev defines government as a kind of hyper-category which sub­
sumes both government in the traditional sense and concord (or agreement). It
has also been seen that Hjelmslev distinguishes between ‘pure’ and ‘complex’
concord. Gender agreement is an instance of pure concord; instances of com­
plex concord are 1) agreement in case, person and number, 2) ‘objective conju­
gation’ in languages such as Basque, and 3) ‘construct state’ in Semitic lan­
guages (cf. Hjelmslev 1928:144-147). The most interesting result of such an
interpretation of agreement facts is that, in complex concord, the ‘primary’
term (in Jespersen’s sense) can be the governed term, and the secondary term
the governing one: this is what happens in construct state. In a later paper
(Hjelmslev 1939), Hjelmslev generalized the idea that government implies a
sharing of features by the governing and the governed term: in other words, he
assumes that ‘complex government’ and ‘complex concord’ are analogous
phenomena.

It seems that not even glossematic linguists followed Hjelmslev on this path,
where equating government and concord. Diderichsen (1949), in what is
perhaps the best systematization and application of Hjelmslev’s theory of mor­
phemes and government, comes back to a more traditional treatment, but he
nevertheless acknowledges (p.152) that the interpretation of government as an
instance of a dependency is “the germ of glossematics”. And in fact, as has
been said above, the proper task of structural linguistics is seen by Hjelmslev
as the investigation of the dependencies between the different parts of a sys­
tem. In section 7.1.2, a comparison between Hjelmslevian functions (especially
that of ‘determination’) and other ways of describing syntactic functions, pro­
posed by other linguists, will be sketched.

2.6 Tesnière: syntax as ‘connection’

The posthumous work Éléments de syntaxe structurale by the French Slavist
Lucien Tesnière (Tesnière 1966[1959]), whose composition dates back to the
thirties and the forties, develops a model of syntactic analysis which is some­
what removed from the European structuralistic mainstream. Saussure’s in­
fluence especially seems very limited: the problems arising from the classical di­
chotomies of the Geneva master find very scarce space, if any, throughout Tes­
nière’s work. The only European linguist who noticeably influenced Tesnière
was Bally, with his notion of ‘transposition’ (see above:176-177). Tesnière was
also a member of the Prague linguistic circle: Hajičova (1996:266) ascribes to
the Prague influence Tesnière’s idea of considering the verb to be the center of
the sentence. Possibly, some similarities may also be observed between Tes­
nière and Bloomfield, as far the idea of a 'structural order' opposed to a 'linear order' is concerned: but such similarities are most probably due to parallel elaborations than to real contacts between the two scholars. Besides, one has to note that Bloomfield mainly insists on the analysis of the spoken chain and of its constituting elements, from the largest constituents to the minimal ones. By contrast, Tesnière’s interest centers around the discovery of abstract syntactic connections.

In fact, 'connection' is the key notion, a primitive term, in Tesnière’s theory of syntax. Syntax exists only by virtue of connection. Connection never has an explicit, morphological expression: Tesnière’s work is pervaded by a continual polemic against an approach which subordinates syntax to morphology, and which, according to him, was typical of 19th century linguistics. Connections are “seen by the mind” (cf. Tesnière 1966[1959]:ch.1, §3). So, for example, a sentence like *Alfred parle* (‘Alfred is speaking’) is not composed by two elements, but by three: *Alfred, parle* and the connection which binds them; without this connection there would be no sentence at all (ch.1, §5).

Connection is an intrinsically hierarchic fact: a relationship of dependency holds between the connected elements. In the simplest case, when the elements are only two, one of them is the ‘governing’ element, the other one the ‘subordinate’. An important achievement of Tesnière’s is to have devised a graphic representation of the syntactic connection. So the connective hierarchy of a sentence like *Alfred parle* will have the following representation (cf. Tesnière 1966[1959]:ch.2, §7):

(1)  
```
parle
   |
Alfred
```

The higher element is the governing one, the lower one is the subordinate. The governing element and all elements subordinate to it form what Tesnière calls a ‘node’. Every subordinate element can govern other elements in its turn; the several nodes will appear according to a hierarchy which reflects the hierarchy of the connections. A sentence like *Mon vieil ami chante cette jolie chanson* (‘My old friend is singing this lovely song’) will have the following representation (cf. Tesnière 1966[1959]:ch.3, §4):

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12 Each chapter of Tesnière (1966[1951]) is divided into numbered sections, which are in general rather short. Since Tesnière himself refers to other places of the book by quoting chapter and section, I adopt the same system here.
THE ROLE OF SYNTAX IN THE STRUCTURALIST SYSTEMS

(2)

chante

ami

mon chanson

vieil
cette

jolie

Graphs such (1) and (2) are named ‘stemmas’ by Tesnière. The highest node of the stemma is the ‘central node’. As can be seen, the central node of the sentence is the verb. Tesnière, however, does not assume that any sentence obligatorily needs a verb. For more on this subject, see below:6.2.2.

The stemmas express the ‘structural order’ of the sentence, which must be kept distinct from its ‘linear order’. There is an antinomy between these two orders: while structural order allows several lower connections (every node can dominate other nodes), linear order allows only two connections (to the right or to the left). This antinomy is “the squaring of the circle” in language (Tesnière 1966[1959]:ch.7, §3). The relationship between these two kinds of order also lies at the heart of the Chomskian approach to syntax, which will be investigated in the third part of the present volume (see especially ch.10). Hence Tesnière’s ‘stemmas’ such as (2) look very close to tree diagrams of generative syntax (see below:8.4.2). Also the term ‘node’ is a basic one within both theories (on ‘node’ in generative syntax, cf. below:8.4.2; 10.2.1). Of course, stemmas are not quite identical to generative tree diagrams: for example, the latter never take the verb as the highest node. Moreover, node labels are words in Tesnière’s trees, while they are category symbols (NP = ‘Noun Phrase’, VP = ‘Verb Phrase’) in generative grammar trees. In its most recent versions (see Chomsky:1995a; 1995b), however, category symbols have been abandoned and replaced by words as node labels (see below:10.4.2).

Let’s come back to Tesnière’s analysis of the linear order of words. This forms the basis for a typological classification of languages (cf. Tesnière 1966[1959]:chs.8-9). According to Tesnière, such a classification is possible according to the way languages realize structural order as linear order. There are two types of linear order: ‘descending’ (or ‘centrifugal’) and ‘ascending’ (or ‘centripetal’); note, by the way, the identity with Weil’s terminology (cf. above:4.2.4). In the centrifugal order, the structurally governing element precedes the subordinate one (French cheval blanc); in the centripetal order, the governing element follows the subordinate one (English ‘white horse’). A language can show these orders in a ‘strict’ (accusé) or in a ‘lax’ (mitigé) way: for example, French is lax, because it shows both ascending and descending order. Languages are therefore classified by Tesnière into centrifugal and centripetal,
and each of these two groups is in its turn subdivided into strict and lax languages. Here is an example for each combination. 1) Strict centrifugal languages: Hebrew; 2) lax centrifugal languages: French; 3) lax centripetal languages: German; 4) strict centripetal languages: Japanese. This classification clearly anticipates much of what one reads in Greenberg (1966[1963]): this essay, however, never quotes Tesnière.

Tesnière sharply opposes syntax not only to morphology but also to semantics. The ‘structure’ of the sentence must be kept distinct from its ‘sense’. That syntax and semantics are independent from each other is also shown by the fact that some sentences are perfect from the structural point of view and nevertheless are meaningless: for example, *le silence vertébral indispose la voie licite* (‘vertebral silence bothers the legitimate way’) is meaningless, but its structural pattern is wholly correct and is identical to that of *le signal vert indique la voie libre* (‘green signal means free way’; cf. Tesnière 1966[1959]:ch.20, §17). Within this perspective, syntax is independent both from logic and from psychology: therefore structural syntax differs both from the Port-Royal tradition of general grammar and from psychologistic systems, such as Wundt’s (cf. ch.20, §§18-21). Grammatical categories and logico-psychological categories often match each other, but they are nevertheless essentially different. So grammatical categories can vary considerably from one language to another: for example gender, which in French opposes masculine and feminine, in German masculine, feminine and neuter, in Slavic animate and inanimate, in Swedish common and neuter, etc. (cf. ch.24, §§5-8).

Given its marginal position within the mainstream of structuralism (and also as it was mainly published posthumously), Tesnière’s model of syntax failed to gain much attention at the time of its appearance. Nonetheless, it was to become a starting point of several theories of the second half of the twentieth century, such as the ‘second Prague school’ syntax, word grammar, and so on. Hence I will come back to its basic notions in the third part of the present volume (see especially 9.1.3 and 9.3.1).

### 3. Later developments of structuralist syntax

#### 3.1 Frei and Mikus’ syntagmatics

In the first two parts of the present chapter, the investigation has been centered around syntactic theories of structuralistic schools in their formative period, viz. that lying (more or less) between the two World Wars. In the subsequent decades, such theories were further developed and partly reshaped. Some leading ideas were deepened, some technical concepts were better defined, and in several cases some formal and explicit representations of syntactic structures were worked out. European and American structural linguists continued to follow largely independent lines, but some members of both schools began to
compare their respective views: this happened, mostly, towards the end of the structuralist period, as the case of Frei shows. In the third part of the chapter, I will therefore deal with these new developments of the structuralist syntax, beginning with the linguists connected, directly or indirectly, to the two great schools of European structuralism: Geneva and Prague.

As will be remembered, Frei’s (1929) treatment of syntactic matters was mainly linked to Bally’s conception of the syntagm, and especially to the view that predication is the basis of syntagmatics (cf. above:174). This conception gradually disappears from Frei’s later works (although it is not explicitly rejected), which aim more at building a typology of syntagmatic structures than at describing their supposed origin. Pursuing these goals, Frei revisits Saussure’s ideas on syntagmatic and paradigmatic relationships, on the one hand, while on the other hand he confronts other descriptions of syntactic structure, mainly those of Bloomfield and of the American structuralist school.

Frei (1929) had renamed Saussure’s rapports syntagmatiques and rapports associatifs as rapports discursifs and rapports mémoriels, respectively (cf. above:178). In his later works, they are named ‘tactic’ and ‘non-tactic’ relationships (cf., e.g., Frei 1968:59-61). The former ones are included in the latter, or, in other words, presuppose them: for example, in a syntagm such as le directeur de la banque (‘the bank’s director’), the dependency relation between de la banque and le directeur (‘core-satellite’ relationship, see below) would not be possible if le directeur de la banque were not included in le directeur.

Frei’s conception of syntagms also refers to Saussure’s conception of the linguistic sign. Frei repeatedly maintains (cf., e.g., 1962:128; 1968:41-42) that syntags are signs, i.e. that they encompass both a signifiant and a signifié. A purely formal approach to syntagmatic analysis is therefore impossible, according to him. That syntagms are chains is shown by the fact that they are substitutable with monemes, i.e. with the smallest significant units (cf. Frei 1941:51). For example, in a sentence like Ça m’a coûté dix-neuf francs (‘that cost me nineteen francs’), the syntagms a coûté and dix-neuf can be replaced by the monemes coûte (‘costs’) and vingt (‘twenty’), respectively. In the same way, also dix-neuf francs can be replaced by the moneme cher (‘dear’) and the whole sentence as well can be replaced by a moneme, the pronoun le (‘it’): Ça m’a coûté dix-neuf francs, tu le sais (‘that cost me nineteen francs, you know it’; cf. Frei 1962:129-130).

Syntagms, however, are not mere strings of signs. If one were to be satisfied with such a definition, a variety of phenomena would fail to be taken into account (cf. Frei 1962:131-133). These difficulties are solved if we bear in mind that the syntagm is something more than the mere sum of its parts: it contains not only a sequence of elements, but also a factor ‘x’, which is the combination of the different signs, which is itself a sign, and which is dubbed the ‘chain’
(catène) by Frei. The chain, being a sign, has two faces, which Frei respectively names the catenant (lit. ‘chaining’) and the caténé (lit. ‘chained’; Frei 1962:133). The caténé corresponds to the ‘syntagmatic relation’, which can be morphological or syntactic; cf. Frei (1968:42; this passage slightly reformulates Frei 1962:133, which identifies caténé with ‘syntactic relation’). Frei likes to stress that caténé must not be confused with the ‘meaning’ of the syntagm: it is rather the pattern according to which signs are combined. The catenant is said to have with the caténé the same relationship as syntactic processes to syntactic relations. As the caténé is not the signifié of the syntagm, so the catenant is not its signifiant (cf. Frei 1962:135; 1968:43). The catenant has the following properties: 1) it is a supra-segmental element (whereby Frei means that it presupposes the existence of segments, although it cannot be analyzed into consonants and vowels). 2) It is based on the succession of at least two signs; these signs can in their turn be analyzed into further signs, but the end result must always be a sequence of monemes. 3) Its limits are the limits of the syntagm. 4) It always implies tactic relationships (cf. Frei 1962:135-137; 1968:43).

The two major types of syntagms are ‘uniform’ and ‘hierarchic’ (syntagmes uniformes vs. syntagmes hiérarchiques). Uniform syntagms consist of units which are all on the same level, namely they do not contain any sub-syntagm: for instance, French bleu-blanc-rouge. Hierarchic syntagms are constituted by two or more syntagms. Frei does not consider coordinate structures as uniform syntagms, but as hierarchic syntagms; see below (7.3.4). The major divisions of a hierarchic syntagm are his ‘architerms’, a notion which Frei (1966:41) explicitly equates with ‘immediate constituents’. The two constituents of a hierarchic syntagm are dubbed by Frei (1968:48) ‘core’ (noyau) and ‘satellite’: these terms are borrowed from Seiler (1960) and correspond to the ‘head’ and the ‘attribute’ (or ‘modifier’) of American structural linguistics, respectively.

Frei himself compares his conception of syntactic structure with that of Tesnière (Frei 1962:134-135) and with the Immediate Constituents (IC) analysis of American structuralism (p.139). Frei stresses the similarity of his views about syntagmatic relationship with Tesnière’s notion of ‘connection’: nevertheless, he rejects Tesnière’s statement that “nothing indicates connection”. Such a position, Frei maintains, violates the Saussurean postulate according to which any signifié must correspond to a signifiant: hence connections have to be indicated, or they would lie in the domain of pure thought, outside of the system of language. The immediate constituents of a syntagm, in turn, are simply segments. But they do not define the syntagm by themselves: the syntagm is formed by the segmental signs plus the chain that connects them. Frei’s position could be rephrased by saying that he criticizes Tesnière on the one hand for being exclusively ‘meaning-oriented’, and IC-analysts on the other for being exclusively ‘form-oriented’.
Syntagms are productive patterns (Frei 1954:137). Indeed, the productive power of language lies precisely in this (ibid.). Frei maintains that the linguist’s goal is not the study of a corpus, but that of the system through the corpus. He is therefore satisfied with Harris’ hints at the possibility of enlarging the corpus by the technique of elicitation (see below:214).

An interesting development of some ideas stemming from the Geneva school syntax can be found in the work of the Slovenian scholar R.F. Mikus (see, e.g., Mikus 1952; 1955-56; 1972). His starting points are three: Rozwadowski (1904), Saussure (1916[1922]), and especially Bally (1909; 1965[1932]). Mikus’ theory of ‘syntagmatic’ (syntagmatique) aims at dealing both with syntactic and with morphological facts. The syntagm is for Mikus “the basic structure of language”, exactly as the cell is the basic structure of the biological world (cf. Mikus 1952:431). Fully in line with Bally’s views, Mikus assumes that all syntagms are originally predicative (cf. Mikus 1952:445). The syntagm is a ‘meaningful structure’ (structure significative), which can be analyzed into smaller meaningful units, named ‘terms’ (termes) (cf. Mikus 1972:17). Syntagm and term are therefore the key concepts of Mikus’ syntagmatics.

Syntagms are subdivided into ‘speech’ syntagms (syntagmes discursifs) and ‘fixed’ (automatisés) or ‘lexical’ syntagms (cf. Mikus 1972:18). The first kind of syntagm is a product of parole: ‘syntagmatics’ is explicitly conceived by Mikus as a part of the linguistics of parole (p.21). Mikus (p.32) defines the syntagm as “any linguistic structure consisting of two functionally complementary elements, the one of which performs $F_i$, and the other $F_d$, of the syntagmatic meaning”. The symbols $F_i$ and $F_d$ mean fonction d’identification (‘identifying function’) and fonction de différenciation (‘distinguishing function’), respectively. In turn, these two functions are realized by the terme d’identification ($T_i$, ‘identifying term’) and by the terme de différenciation ($T_d$, ‘distinguishing term’). This terminological pair replaces the traditional one (also adopted by Bally) of déterminé and déterminant and refers, in Mikus’ view, to the ‘semiotic function’ of the syntagm (for Mikus, ‘semiotics’ actually means ‘semantics’): the distinguishing term opposes the identifying term to any other possible occurrence of the latter with a different distinguishing term. It is just this semiotic function that, according to Mikus, brings about the necessarily binary structure of the syntagm (cf. Mikus 1972:22). This view also implies that coordinate structures are not syntagms, since they do not realize any opposition between the identifying function and the distinguishing function: they are rather to be treated as “a way of conjoining homofunctional syntagmatic terms” (p.26). Mikus explicitly acknowledges that not every aspect of language can be traced back to a syntagmatic analysis: many utterances are one-member, and therefore they do not respect the binary principle. Nevertheless, the laws of
'axiomatic syntagmatics' allow us to compare such 'antisyntagmatic' facts with the standard cases, exactly as natural crystals, which are often imperfect, have to be compared with the perfect ones artificially produced in the laboratory, in order to be studied with a really scientific method (p.56).

3.2 The syntax of the post-war Prague school: 'syntactic levels' and 'communicative dynamism'

The 'actual partition of the sentence' sketched by Mathesius (see above:5.2.2) formed the starting point of Daneš' 'three-level approach to syntax' and of Firbas' 'Functional Sentence Perspective'. Both conceptions first saw the light in the late 50s and the early 60s (see, e.g., Daneš 1964; Firbas 1957, 1964), and were refined in the subsequent decades (see, e.g. Daneš 1987; Firbas 1987a, b).

Mathesius opposed 'functional' to 'formal' syntax): the categories of 'theme' and 'enunciation' (or 'nucleus') would belong to the former, those of subject and predicate to the latter. According to his 'linguistic characterology', the relative weight of function and form varied between languages: one difference between English and Czech would lie in the fact that English, contrary to Czech, often tends to overlook the needs of the 'actual partition of the sentence' (cf. Mathesius 1941-42). Daneš (1964) revisits Mathesius' views by assuming that the actual partition of the sentence is just one of the three levels of syntax, namely that of the 'organization of the utterance'; the other two levels are the 'grammatical level' and the 'semantic structure' (cf. pp.226-227).

'Semantic structure' in Daneš' sense is formed by relations such as 'actor', 'action', 'possessor', 'time', 'place', etc.; the relations pertaining to the level of 'grammatical structure' are subject, object, etc. The two types of relationships must be kept clearly distinct: while semantic categories, being based on extralinguistic reality, are universal or nearly so, grammatical categories differ across languages (cf. Daneš 1964:227). The basis of the syntactic structure is formed by the hierarchy of parts of speech (ibid.). The nuclear grammatical relation is 'dependency'. The key notion of the grammatical level is the 'sentence pattern' (cf. pp.230ff.): this is an abstract sentence scheme on which several sequences of particular words forming particular utterances may be based (on Daneš' distinction of 'sentence' vs. 'utterance' see below:232). For example, Czech utterances (3)-(5) are all instances of the single sentence pattern (6); cf. Daneš (1964:231):

(3) Stary ucitel pisze u stolu dopis synovi
old-teacher-writes-at-table-letter (ACC.)-son (DAT.)
'An old teacher is writing a letter to his son at the table'
(4) U stolu pisze stary ucitel synovi
at-table-writes-letter (ACC.)-old-teacher-son (DAT.)
(5) U stolu piše dopis synovi starý učitel  
    at-table-writes- letter (ACC.)-son (DAT.)-old-teacher  
(6) \( (\text{PRO}^p_1 \rightarrow) \text{VF} (\rightarrow S_4) \)

\( \text{PRO}^p_1 \) means ‘first person singular personal pronoun’; \( \text{VF} \) ‘finite verb’; \( S_4 \) ‘substantive’. The arrows indicate the dependency relation and they are directed towards the dependent member (hence the predicative verb is assumed to depend on the subject, and the direct object to depend on the verb). The concrete forms of the three utterances are arrived at by means of given ‘rules’, which are added to the pattern (6). One of these rules asserts the equivalence of the personal pronoun with a substantive:

(7) \( \text{PRO}^p_1 = S \)

The other rule asserts the equivalence between the substantive and the group substantive + adjective:

(8) \( S = S \rightarrow A \)

Then utterances (3)-(5) and the utterance

(9) On piše dopis
    ‘He is writing a letter’

are all instances of sentence pattern (6). Their equivalence is effected by rules (7) and (8). Note that rules such as (8) do not specify the linear order of words, but only the equivalence between a given word class and a given word group.

The level of the communicative organization of the utterance is the central topic of Firbas’ analysis. Firbas (1964) argues that it is incorrect to say (as Mathesius does) that English “is indifferent to the needs of functional syntax, to a large extent”; rather, the communicative structure of its sentences differs from that of Czech. Hence the ‘actual partition of the sentence’ is no longer treated as a feature whose importance differs between languages, but as a syntactic level shared by all languages, although it may be organized according to different principles. Firbas’ attention therefore focuses around the structure of the sentence in its communicative function: he also replaces Mathesius’ label the ‘actual partition of the sentence’ with ‘Functional Sentence Perspective’. The two labels are often treated as synonymous (e.g., by Vachek in his edition of Mathesius 1975): in my view, they have to be kept distinct, since they are connected to two partly different conceptions of functional syntax. Two further differences between Mathesius’ and Firbas’ conceptions concern the classification of sentence elements into thematic vs. rhematic ones and the role of the linear sequence of elements. About the former topic, one may remark that Mathesius’ ‘actual partition’ is essentially dichotomic: ‘theme’ is opposed to ‘enunciation’ (called ‘rHEME’ by Firbas). By contrast, Firbas orders the sentence elements along a scale of ‘communicative dynamism’ which contains
more than two degrees. Communicative dynamism is defined by Firbas (e.g., 1987b:27) as "the relative extent to which the element contributes towards the development of the communication within the sentence". The elements which have the lowest degree of communicative dynamism are thematic; those with the highest degree, rhematic: some other elements may rank between the two and are therefore called 'transitional'. The most strictly context dependent elements are thematic: personal pronouns are a case in point. On the other hand, substantives (especially in object function) are mainly rhematic; transitional elements are typically verbs (cf. Firbas 1964:112-114). Hence the meaning of 'thematic', for Firbas, is essentially that of 'given', and the meaning of 'rhematic', that of 'new'.

According to Mathesius, theme always precedes enunciation in the 'objective' order (cf., e.g., Mathesius 1941-42): hence the actual partition of the sentence is essentially based on linear ordering facts. Firbas' position is more complex: he maintains (1964:115) that the order 'theme - transitional elements - rheme' represents the 'basic distribution' of communicative dynamism, but he adds that languages may deviate from this basic distribution. It is interesting to note that Firbas assumes that such an ordering is in agreement with the nature of human thought: he therefore aims at discovering a 'natural order'. The difference with respect to the traditional efforts towards this end (see above:2.1.1; 4.2.4) is only that the natural order would be no longer reflected by the grammatical, but by the communicative one. One means for deviating from the elementary distribution is provided by the context; another, by the semantic structure in Danes' sense (cf. Firbas 1964:116-117). The context may 'thematize' any element: hence an element which has been already mentioned is thematic even if it occurs at the end of the sentence. So, for example, if an utterance such as 'A boy came into the room' is uttered in a context where the only given element is 'room', it is thematic, and 'a boy' rhematic (cf. p.113). The role of semantic structure may be seen in the case of adverbial elements: their degree of communicative dynamism is normally lower than that of the verb and of the object, since the time location of the event is less important than the event itself. For example, the communicative dynamism of 'the book' is greater than that of 'yesterday' in both 'Yesterday I bought the book' and 'I

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13 An analysis of the sentence explicitly couched in terms of 'givenness' was sketched by A. G. Hatcher (1956) more or less in the same years as Firbas'. Hatcher (p.239, fn.6) states that she "abandon<> entirely" the traditional dichotomy into 'psychological subject' ('that which is known') and 'psychological predicate' ('that which is unknown'). In fact, not every utterance can be analyzed into a given and a new part: in some cases, no element is known (e.g., 'What happened?'); in some other cases, on the other hand, all elements are known, and the new information only consists in predicating the truth vs. the falsity of an utterance (e.g., 'No, I didn't see him').
bought the book yesterday' (provided, of course, that both sentences are not uttered with a particular emphasis on any element).

Since the sixties, several Prague linguists (especially Petr Sgall and his school) have framed these functional topics in a formal model, which has taken some of its inspiration from generative grammar: their work will be investigated in the third part of the present volume (see 9.3.1).

3.3 Other European syntacticians

In the post war period, syntactic matters were dealt with by some European linguists who were not, strictly speaking, adherents of any particular school, but who developed a position of their own. Of course, much of their research unavoidably took its impetus from the views and the analyses worked out by the members of the main schools of structural linguistics, namely those of Geneva, Prague, and Copenhagen. Among such linguists, one can quote the Frenchman G. Guillaume, the Englishman C.E. Bazell, the Pole J. Kuryłowicz and especially the Dutchman A.W. de Groot, who devoted a whole treatise to syntax (de Groot 1949b): his general views will be the topic of the following lines, while I will return to Bazell and Kuryłowicz's work in a later section (7.1.2). Concerning Guillaume's work on syntax, I allow myself to refer to Graffi (forthcoming: sections 2.1.5; 2.2.3).

De Groot clearly and explicitly takes a structuralist position; however, he complains that structuralism has so far dealt with syntactic matters only in a very limited way. De Groot's statements are not wholly correct, as the present investigation of structuralist syntax should have proved: but one has to remember that the Prague school syntax was not largely known at his time, and Tesnière's work was simply ignored. Furthermore, it cannot be denied that nothing comparable to Trubekoj's Grundzüge der Phonologie had yet appeared concerning syntax. De Groot's goal, therefore, is to formulate some 'syntactic laws' which can play a role analogous to that of phonological laws discovered by Trubekoj or by Jakobson. To reach this end, he explicitly attempts "at distilling laws" from the research of American structuralists in the domain of syntax (cf. de Groot 1949a:1). The structural laws discovered by structural linguistics are in principle applicable to all languages (cf. de Groot 1949b:273). De Groot therefore constantly refers, in his syntactic work, to Bloomfield and to other American structuralists: his analyses and his results, however, often differ from, and even oppose, those of the Bloomfieldian school (see, for example, below:272-273). On the other hand, he also seems rather influenced by Karcevskij's view of the sentence, and he shows an interest in the notion of 'system' which is typical of European structuralism (cf. de Groot 1948:434-435; 489-490). Still more importantly, his way of representing syntactic structure shows close conceptual similarities to Tesnière's, even if they look super-
tically rather different. De Groot maintains that the actual word order does not always reflect the full complexity of syntactic structure. It is therefore necessary to work out a system for representing such a structure: words are put into brackets which indicate the different group levels, the order of which does not necessarily coincide with the actually observed one. For example, a sentence such as

(10) Then began the most splendid period of Elliot’s life (W. Somerset Maugham)

would be represented as follows (de Groot 1948:438; cf. also 1949b:56 for a Dutch example):

(11) \[ [{ \text{period (splendid most)} } \text{ the } ] \{ \text{of (life Elliot’s)} \} \text{ (began then)}

A graphic representation of the sentence ‘the little children sing’ would be the following one (cf. de Groot 1949b:72; the original example is in Dutch):

| children | little | the | sing |

The similarity with Tesnière are plain: first of all, the ‘structural’ order is assumed to contrast with the ‘linear’ one; secondly, the verb appears as the element occupying the highest position within the sentence structure. De Groot’s classification and analysis of syntactic structures will be the subject of a later section (7.2.2).

A well-known foreign member of Prague linguistic circle was André Martinet: his ‘functional view’ of language explicitly refers to insights which originated in the Prague school. The bulk of Martinet’s work on syntax has appeared quite recently (cf., e.g., Martinet 1975; 1985). As a consequence, it also contains many remarks about syntactic theories which do not belong to the structuralistic age (such as generative grammar). Nevertheless, its main methods and concerns are typical of that age, and therefore it seems more appropriate to deal with Martinet’s syntax in the present connection.

Natural languages, in Martinet’s view, have three features in common (cf. Martinet 1996:92-93): a) their communicative function; b) their use of vocal utterances (i.e., natural language is essentially and primarily a vocal phenomenon, and only derivatively a written one); c) the ‘double articulation’, i.e. a first articulation into significant units (‘monemes’), which are in their turn articulated into distinctive units (‘phonemes’; cf., e.g., Martinet 1949). Martinet wants the term ‘moneme’ (borrowed from Frei, but with a somewhat different sense) to replace ‘morpheme’ since the latter “suggests form rather than
meaning” (Martinet 1996:94). The moneme is “the minimal linguistic unit combining an acoustically perceptible form and a reference to some aspect of experience” (ibid.). For instance, ‘cows’ and ‘oxen’ have two different forms, but partially the same meaning, i.e. the moneme ‘plural’; on the other hand, two identical forms such as ‘last’ assume two different meanings (namely, ‘last’=‘first’ and ‘last’=‘to endure’), hence they represent two different monemes. Furthermore, ‘moneme’ refers to a sense difference which may not have a definite formal expression: for instance, the French moneme graphically represented by \( \text{à} \) is surely present in the form \( \text{au} \ /o/ \), but it impossible to discern two segments within \( /o/ \), one of which would correspond to the moneme \( \text{à} \). In such cases, the forms of the monemes are said to be ‘amalgamated’ (cf. Martinet 1985:§2.26).

The main object of syntax is to make explicit the means which permit the hearer to reconstruct the experience which is communicated to him by means of first articulation units (cf., e.g., Martinet 1985:§§2.8, 6.1). The basic processes to express syntactic functions are the following ones (cf. Martinet 1985:ch.6). 1) The intrinsic value of elements: for example, if an utterance contains three monemes referring to an animate being, to an animate object and to an action, it is probable that the first one will be interpreted as the agent, and the second as the patient. 2) The use of connectives, i.e. ‘functional’ monemes (see below). 3) Word order.

Martinet classifies syntactic relationships into three types which are said to correspond to the three functions of glossematics (cf. Martinet 1985:§5.44). Relation a) would correspond to glossematic ‘interdependence’; relation b) to ‘determination’; relation c), to ‘constellation’ (see above:5.2.5). Such relations are assumed to be universal by Martinet (cf. 1965[1958]:207) and are defined as follows, for two given units A and B:

a) A and B presuppose each other. An example of this relationship is the relation of predication.

b) B presupposes A, but the presence of A does not imply that of B. B may be exemplified by the attributes or by the complements (in Martinet’s terms, ‘expansions’) of traditional grammar. We will return to this particular type of function in a moment.

c) A and B may coexist in the utterance without conditioning each other. This case is exemplified by coordination and by what is called ‘co-presence’ by Martinet (cf. 1985:§5.7).

These different types of syntactic relations are cross-classified along the two dimensions of ‘specificity’ and ‘obligatory expression’. ‘Non-specific’ functions are those which can be put in relation with any type of predicate or nucleus; by contrast, other elements are felt to be directly involved in the action or in the state described (cf. Martinet 1985:§7.13). Such elements are the sub-
ject, the object and the benefactive. Among syntactic functions, the subject has a special status: it is obligatorily expressed, but in itself it has no specific value. Its value is rather determined by the verb with which it occurs (e.g., with ‘to march’ the subject has an agent value, with ‘to suffer’ a patient value, etc.). Therefore, the subject is a ‘non-specific obligatory’ function (cf.§7.10). By contrast, the expression of the object and benefactive functions depends on the properties of the different lexical items (namely, objects only occur with transitive verbs, and benefactives only with verbs of the ‘give’ type). These lexically conditioned specific functions, together with non-specific functions like manner, time, place, etc., form the so-called ‘expansions’. As a result, we have the following classification of functions (cf. Martinet 1985:§7.17):

A. Specificity

1. Specific functions
   e.g. object function
   dative function
2. Non-specific functions
   a) obligatory
      subject function
   b) optional
      e.g., locative function
      manner function

B. Obligatory expression

1. In all cases (syntactic facts)
   subject function
2. Sporadic (lexical facts)
   a) specific functions
   b) non-specific functions

3.4 Benveniste: from historical-comparative grammar to general grammar

Despite his repeated acknowledgment of the importance of Saussure’s work (see, e.g., Benveniste 1963; 1968), Benveniste’s linguistic and especially syntactic research seems essentially to follow lines of its own. In particular, Benveniste combines his experience in the field of historical-comparative grammar of Indo-European languages with a particular skillfulness in the analysis of linguistic facts: his basic analytical categories, however, are rather similar to those of traditional grammar, or, at most, of 19th century syntactic practice. In other words, he is surely well acquainted with the patterns of investigation worked out by European and American structuralism, but he resorts to them only to a limited extent. Somewhat paradoxically, this allows him to sketch some analytical proposals that are sometimes superior to those of the structuralists.
That Benveniste is well acquainted with structuralist procedures is clearly shown, for example, by his 1964 essay. Benveniste states that the discovery of linguistic elements proceeds by singling out the relations which connect them. This procedure is based on the operations of ‘substitution’ and ‘segmentation’. The relations between elements are of a paradigmatic and of a syntagmatic kind. All elements belonging to the same class are substitutable, but not all elements are segmentable: e.g., distinctive features are substitutable, but not segmentable. So far, Benveniste’s position appears to fully coincide with American structuralistic principles. A few lines later, however, he adds that sense is the basic condition that any unit of any level must fulfill to achieve linguistic status (cf. Benveniste 1966[1964]:122). This statement surely makes Benveniste appear much more closer to European than to American structuralism: nevertheless, he also seems not to share certain analytical principles which are typical of European structuralist linguists. For example, he maintains that the notion of ‘word’ is “unreplaceable” (p.123) and that the word is the boundary unit between phonology and syntax: such a position is normally denied to the word by the majority of structuralist linguists (Martinet, for example, would assign such a position to his ‘moneme’). Furthermore, Benveniste does not seem to pay any special attention to the units lying between the word and the sentence, i.e. the word groups (or ‘phrases’, or ‘syntagms’). He says that we form sentences with words, then with word groups (p.124). But he actually opposes the word and the sentence as ‘levels’ in their full right (ibid.). Benveniste adds that the relationships between units of the same level are ‘distributional’, while the relationships between different levels are ‘integral’ (intégratives; p.125). The two extreme levels of linguistic analysis are the sentence on the one hand and the distinctive feature (which Benveniste calls ‘merism’, from the Greek mérisma, ‘delimitation’) on the other: “the sentence is exclusively defined by its constituents; the merism is exclusively defined as an integrant” (ibid.). The definitions of ‘form’ and ‘sense’ are also based on the notions of integration and distribution (pp.126-127).

Another particular feature of Benveniste’s approach is his use of evidence coming from languages belonging to different families to analyze puzzling patterns in Indo-European languages. Benveniste’s basic assumption is that, even if the actual realizations of the several syntactic structures obviously differ across language groups and also across languages belonging to the same group, the same ‘fundamental relationships’ are expressed through analogous means (cf. Benveniste 1966[1960]:202). The clearest instance of this approach is perhaps his analysis of relative clauses (cf. Benveniste 1957-58). Benveniste surveys a variety of languages (African, Amerindian, Semitic, and others) and shows that all of them use nominal determiners as relative markers. In particular, he remarks that, all in all, the Arabic relative clause has the same syntactic
status as the qualifying adjective, and, just like the adjective, it can have both a determined and an undetermined form (Benveniste 1966[1957-58]:214). He then observes that ‘nominal’ relative clauses occur in many ancient Indo-European languages (Sanskrit, Homeric Greek, Hittite, Latin). Such clauses contain a relative pronoun and a predicate, but no verb: Benveniste maintains that the relative pronoun has the role of a nominal determiner (p. 221). Benveniste concludes that “the syntax of the relative clause in Indo-European therefore appears to have the same structure as in the other language families previously analyzed here” (p. 222).

Benveniste’s syntactic investigations to receive most interest are those dealing with the status of the auxiliary verbs ‘to be’ and ‘to have’ and with the definition and classification of grammatical persons and pronouns. After discussing them, I will examine another feature of his syntactic research, namely his particular development of the notion of transposition, which, as has been seen throughout the present chapter, has been a key one for European structuralism since Sechehaye and Bally.

Benveniste opposes the verb ‘to be’ as copula to the verb ‘to be’ as verb indicating existence; the former is “a grammatical mark of identity”, the latter, “a verb in its full rights” (Benveniste 1966[1960]:187). The auxiliary use of ‘to be’ is connected with its use as a lexical verb. The use of ‘to be’ as a copula is purely accidental: in many languages the copula may be expressed by some other means. For example, both in Semitic and in Turkish languages it is the third sg. personal pronoun which functions as copula.

The verb ‘to have’ is symmetrical with respect to ‘to be’: both verbs express the relation of ‘possession’, the latter in a predicative form, the former in a transitive one. ‘To have’ is nothing else than a “reversed to be”: mihi est pecunia (lit. ‘to me is money’) is turned into habeo pecuniam (‘I have money’; Benveniste 1966[1960]:197). ‘To have’, however, is not really a transitive verb: this is shown by the fact that it cannot be passivized (p. 195). ‘To have’ is a verbe d’état (‘stative verb’), exactly like ‘to be’ (p. 198). This identification of the functions of the two different auxiliary verbs allows Benveniste to find a solution for several problems raised by the syntax of various languages. One of these problems is represented by the apparently very odd construction of the (classical) Armenian transitive perfect (cf. Benveniste 1952; 1966[1960]: 201-203). The oddity of such a construction lies in the fact that the subject is in the genitive case. These facts are explained if one bears in mind that the construction ‘to be’ + genitive renders ‘to have’ in Armenian. The identity of functions between ‘to be’ and ‘to have’ is therefore the explanation for the seeming oddity of the Armenian (as well as of other) constructions.

The internal structure of the construction auxiliary verb + lexical verb in French is discussed in Benveniste (1965). Benveniste prefers to replace the tra-
ditional term of *verbe auxiliaire* with *auxiliant*; the lexical verb is named *auxilié* by him. The *auxilié* is defined by Benveniste (1974[1965]:180) as the ‘argument’ and the *auxiliant* as the ‘function’. Benveniste rejects the traditional view (which he also ascribes to Guillaume and to Tesnière) that the auxiliary verb would be the ‘morpheme’ and the lexical verb the ‘semanteme’ of the construction (cf. pp.182-185). The ‘inflectional function’ exclusively belongs to the auxiliary verb; the ‘denotative function’, to the lexical verbs. But it is the *sum* of the auxiliary verb and of the lexical verb which brings about the temporality function (p.183). Similarly, the peculiar meaning of ‘to have’ (or of ‘to be’) is not indifferent to the construction of the particular meaning of the ‘perfect’: in other words, not any verb would be able to bring about such a meaning. The auxiliary choice is explained by Benveniste by saying that the perfect with ‘to have’ means that a certain operation has been accomplished; while the perfect with ‘to be’ means that a certain situation has been established (p.182). Furthermore, ‘intrinsically reflexive’ verbs (*se souvenir*, etc.) take ‘to be’ as their auxiliary; ‘by extension’, also transitive verbs take ‘to be’, when they are used as reflexives (*je me suis blessé*, *je me suis jeté*, etc.); cf. ibid. This kind of explanation can be related to the explanation that Benveniste gives of the difference between active and middle diathesis. Active verbs denote a process which develops externally to the subject; middle verbs denote a process which develops within it (Benveniste 1966[1950b]:172).

I now turn to Benveniste’s definition and classification of grammatical ‘persons’ and of pronouns. Benveniste states that no language seems to lack person distinctions (cf. Benveniste 1966[1946]:227). He classifies grammatical persons on the basis of two different ‘correlations’, one subordinate to the other. The ‘personality correlation’ (*correlation de personnalité*) opposes the third person to the other two; the ‘subjectivity correlation’, which is internal to the preceding one, opposes the first person to the second person; cf. pp.228-236. Benveniste supports these definitions on the basis of the evidence of different languages. Concerning the ‘personality correlation’, he remarks that the third person has no endings in a variety of languages (Semitic, Turkish, Finno-Ugric, Caucasian, Dravidic, Eskimo, several Amerindian languages, Burushaski; cf. pp.228-229). The definition of the third person as ‘non-person’ has several consequences: first of all, one can explain why so-called impersonal constructions are always third person constructions (‘person’ must not be confused with ‘subject’). Third person verbs can take any subject, or none: but this subject (if it is given) is never interpreted as a ‘person’. Furthermore, it is always contained in the verb: if the verb cooccurs with a noun, this is not the subject, but an ‘apposition’. The opposition between the ‘inclusive’ and ‘exclusive’ plural, which is overtly expressed in several languages, shows the joint effect of ‘personality correlation’ and of ‘subjectivity correlation’. As a matter of fact, some
languages (e.g., Siuslaw, an Amerindian language of Oregon) form the exclusive plural by adding the first person ending to the third person plural ending (cf. p.234). By contrast, the inclusive form ('I + you') joins the two persons opposed by the 'subjectivity correlation' (ibid.); for example, an Algonkian language (Fox) has an inclusive pronoun which contains a second person index, and an exclusive pronoun which contains a first person index.

The particular development of the notion of 'transposition' is worked out by Benveniste throughout his analysis of derived agent nouns and of nominal compounds (Benveniste 1967; 1969). Benveniste paid great attention to morphological phenomena and their meanings from at least his 1935 and 1948 books. One of the insights of the latter book is that agent nouns in -ter (e.g., Latin magister) denote someone who has a permanent function, while agent nouns in -tor (e.g., Latin auctor) denote someone who has such a function only in given circumstances. Benveniste returns to the problem in some later articles, where he relates such an analysis with a specific derivational hypothesis, which is applied to another kind of derived noun. He opposes derived nouns in (Greek) phere- to derived nouns in -phoros: the former denote someone 'who actually brings' (Gr. pheré-oikos, ‘who brings his house’), the latter someone 'who is a bearer by nature or by vocation' (Gr. laóphoros, ‘[road] which brings people’ [i.e., road full of people]). The two types would be based on two different predicational structures: pheré-oikos on ‘he brings his house’; laóphoros on ‘he is a bearer (of people)’ (cf. Benveniste 1974[1967]: 152-155). Then the different meanings of the two kinds of derived nouns are explained by assuming two different “derivational histories” for each of them. The essay about agent nouns in French (Benveniste 1969) seems still more inclined towards a “transformational” treatment of the facts: Benveniste himself speaks of the ‘transformation’ which relates Pierre marche ('Peter walks good') bien and Pierre est un bon marcheur ('Peter is a good walker'). The last sentence is not derivable from the combination of Pierre est un marcheur and *ce marcheur est bon, as would be the case of a sentence such as Pierre est un célèbre écrivain, which can be assumed to derive from Pierre est célèbre and Pierre est écrivain.14 Benveniste concludes that bon has two distinct syntactic functions: it can denote both the property of a substantive (as in bon garçon) and the property of a property (as in bon marcheur). An identical treatment of the syntactic behavior of adjectives had already been worked out by Reichenbach in his analysis of natural language based on symbolic logic (cf. below:8.2.). Benveniste does not mention it: this is an instance of the “lack of communication” between linguists on the one hand and logicians on the other that characterizes the whole structuralistic period.

14 Note that the asterisk indicates impossible, not reconstructed, forms. Cf. fn.8, above.
A syntactic derivation is also assumed for compounds, and especially for those that Sanskrit grammarians dubbed *bahuvrihi*, and which are commonly known as ‘exocentric’ compounds (even if Benveniste does not like this last term). One example of such compounds is Hom. Greek *argurótoxos*, ‘(god) with a silver arc’. This has to be traced back to a bi-clausal structure: ‘arc is silver’ and ‘the silver arc is to X’ (remember that for Benveniste this latter construction is the inverse of ‘X has a silver arc’); cf. Benveniste (1974[1967]:156). The first predication is a ‘predication of quality’, hence a syntactic function; the second predication is a ‘predication of attribution’, a semantic function (p. 159). Exocentric compounds therefore have two levels, since they have both a syntactic and a semantic function; the other kinds of compounds have one level, since they only have a syntactic function (p. 159). Benveniste’s conclusion is that compounds “represent the transformation of certain typical sentences, simple or complex, into nominal signs” (p.160).

3.5 The Post-Bloomfieldian distributional approach to syntax

Bloomfield’s impact unmistakably marks the whole domain of syntactic research in the United States in the period between (approximately) 1940 and 1960. This is especially shown by the debate about the notions of immediate constituents, or by that about endo- vs. exocentric constructions: such notions were introduced by Bloomfield in a somewhat sketchy way (see above:5.2.3), and the effort of many scholars (starting with Pike 1943 and with Wells 1947a) was to give a more explicit and rigorous definition of them, as well as to work out reliable methods to discover effectively which strings are constituents and which are not, or if a given construction is endo- or exocentric. However, some new insights were also provided by post-Bloomfieldian linguists which do not derive from Bloomfield’s work: I am especially thinking of Harris’ notion of ‘transformation’, but I will refer to other linguists as well. In the present section, therefore, I will first discuss the topics which originated in Bloomfield’s work and were subsequently deepened by post-Bloomfieldian scholars, such as the behavioristic view of language and the formal, distributional approach to syntax. Then I will present some new ideas brought forth by these same linguists; Harris’ transformational approach, given its particularity and importance, will be the subject of the next section. The special analytical problems connected with IC-analysis will be investigated below (7.3.1), in the framework of a general comparison of the different approaches to word groups analysis.

The aim of post-Bloomfieldian linguists is to offer descriptions of the linguistic structures of any given language. Harris (1951:1) expressly identifies ‘descriptive linguistics’ with ‘structural linguistics’ and states that “the research methods are arranged here in the form of the successive procedures of
analysis imposed by the working linguist upon his data”. This procedural attitude is not restricted to Harris, although his formulation is probably the most explicit one. For instance, Nida’s (1966[1943]) outline of English syntax is arranged by dividing most of the chapters into headings and subheadings which strictly correspond to the described structures (the term ‘descriptive linguistics’ is a key one also for Nida; cf. p.49). There is no chapter devoted to a theory of syntax or the syntactic concepts resorted to.

The goal of grammatical description is not exhausted, however, by the analysis of the given utterances: it also lies in describing all the possible utterances of a given language. Cf. Hockett (1954:217; note, by the way, the use of the term ‘generate’): “a grammatical description (...) sets forth principles by which one can generate any number of utterances in the language”. The problem of explaining the creation of new utterances (and, in general, of new linguistic forms) is faced by the post-Bloomfieldians by resorting to analogy: as one may remember, this explanation can be traced back to the Neo-grammarians, and especially to Paul (cf. above:49-50), and was taken up by Bloomfield (cf. above:182). For example, Hockett (1958:157) writes that “a novel utterance is built from familiar raw-materials, by familiar patterns of putting raw-materials together”. The analysis of ‘real’ linguistic data, i.e. of corpuses, is however the chief concern of post-Bloomfieldian linguists. According to Harris (1954:161), “we have to investigate some actual corpus of utterances, and derive therefrom such regularities as would have generated these utterances”. In this connection, it is interesting to note that post-Bloomfieldian linguists do not seem to use asterisks, contrary to Bloomfield (cf. above:183): this probably means that the problem of non-existent forms does not especially concern them.

Sometimes, the production of new utterances not occurring in a given corpus is needed in order to complete the system. In all such cases, these new utterances are not freely produced by the linguist, but have to be obtained from an informant through a particular technique of ‘eliciting’; cf. Harris (1954:161; 1957:292-293). The eliciting technique and the hearer’s response are the basic criteria of adequacy which the linguist has to appeal to (cf. Harris 1951:20).

This almost exclusive interest in corpuses is a consequence of the behavioristic attitude towards language and language acquisition, which is possibly stronger in post-Bloomfieldian scholars than in Bloomfield himself. A partial exception to this attitude is represented by Fries’ (1952) book, even if its basic assumptions are clearly behavioristic: “We can proceed on the assumption that if a particular response regularly occurs after a speech form or a language pattern then this pattern or form ‘means’ this response” (p.36). Nevertheless, some of Fries’ observations about the speaker’s capacity deserve attention. They do not show a real abandonment of the behavioristic model, but indicate an atti-
tude which is not very widespread among his contemporaries. For example, Fries (p.57) states that “one cannot speak or understand a language without ‘knowing’ its grammar”. The particularity of Fries’ position, as well as his implicit self-contradictions, are also shown by his attitude towards invented examples. Fries (1952) is based on a corpus, namely “a large body of actual English speech observed and recorded in a university community in the North-Central part of the United States” (p.3). On the same page (fn.2), Fries argues against resorting to introspection. Hence the majority of his example sentences belong to this corpus. However, he himself resorts, in some cases, to freely invented examples (cf., e.g., pp.189-198, which deal with the definitions of ‘subject’ and ‘object’).

Post-Bloomfieldian linguists seem to share Bloomfield’s difficulties in tracing a sharp boundary between morphology and syntax. This difficulty is especially shown by sequences such as ‘the president of the bank’s daughter’ (cf. Wells 1947a:98-102). How has it to be analyzed into ICs? One could treat ‘the president of the bank’ as a single word, and then there is no problem in considering ‘-s’ as an affix (this is Bloch & Trager’s solution; cf. 1942:67); on the other hand, one could treat ‘-s’ as a word, and put the first division between it and the preceding word-sequence ‘the president of the bank’. Both alternatives, however, according to Wells (loc. cit.) “offend common sense”. The problem does not exist in treatments such as Harris’, which do not distinguish between morphology and syntax (cf. Harris 1951:262), and hence do not take ‘word’ as a linguistically significant unit. Wells’ solution is not so drastic. He states that

instead of proclaiming, therefore, that every word in every language must be a constituent of any sequence in which it occurs as a part, the most we may say is that every word should be so regarded unless it engenders a conflict or complication in the description of the language. (p.102)

Morphology and syntax, whether neatly separable or not, together form what post-Bloomfieldian linguists call the ‘grammatical pattern’, or the ‘grammar’ of a language: it is completed by the ‘phonological pattern’, or ‘phonology’ (cf. Hockett 1954:216; 1961:36). A basic principle of American structural linguistics is that these two patterns (or ‘levels’, or ‘strata’) cannot be mixed: phonological analysis must precede grammatical analysis and must not assume any part of the latter (cf. Hockett 1942:19). See also Bloch & Trager (1942:71): “the basis of all syntactic analysis must be an examination of phrases determined by phonemic criteria, chiefly by juncture and intonation”. This prohibition against the mixing of levels was criticized by Pike, who maintained that “grammatical analysis of an initial kind is prerequisite to phonemic analysis” (1947:169; cf. also Pike 1952). Despite this and other criticisms, Hockett was still holding this view at the beginning of the sixties: “the phonological system
of a language can be discovered and described without any criterial use of grammatical facts" (Hockett 1961:49). Thereafter the principle ‘against the mixing of levels’ was to become a kind of trademark of orthodox post-Bloomfieldians, marking their difference from “reformers” such as Pike, or from generative grammarians.

In their descriptive works, all post-Bloomfieldians consistently developed the formal approach to syntax (as well as to morphology) initiated by Bloomfield. Such an approach to syntax was a permanent feature of post-Bloomfieldian linguists. Cf., e.g., Hockett (1958:129) and Nida (1966[1943]: 60). This further deepening of the formal approach is marked by the use of the term ‘distribution’, which does not seem to occur in Bloomfield (1933), but which plays an essential role by the time some papers appeared shortly afterwards, such as Harris (1941). For Harris, only distributional regularities are the subject matter of descriptive linguistics (cf., e.g., Harris 1951:5). Harris (1951:15-16) defines distribution as follows (cf. also Harris 1954:146):

The ‘distribution’ of an element is the total of all environments in which it occurs, i.e. the sum of all the (different) positions (or occurrences) of an element relative to the occurrence of other elements.

In a later paper (1957:284), Harris keenly remarked that, “since each morpheme has a unique set of co-occurrences”, it would be difficult “to set up any compact description of a language”. However, “morphemes can be grouped into classes in such a way that members of a class have rather similar sets of co-occurrences, and each class in turn occurs with specific other classes to make a sentence structure” (ibid.). The description of a language is therefore accomplished not on the basis of the distribution of its morphemes, but of its morpheme classes. Although not always with the same amount of methodological self-consciousness as Harris, this kind of distributional approach pervaded the work of American structuralists. In particular, Bloomfield’s notion of ‘form-class’ (see above:5.2.3) was a cornerstone of their syntactic analyses. The most systematic of such analyses is perhaps that contained in Fries’ (1952) book.

I now turn to some revisions of Bloomfield’s ideas and to some new insights by post-Bloomfieldian linguists. First of all, one can note that the term ‘taxeme’, which had a central role in Bloomfield (1933), gradually disappears from the forties onwards. Nida, presenting in 1966 his outline of English syntax dating back to 1943, apologizes, among other things, for the use of a “somewhat ‘antiquated’ terminology” (p.7). One such antiquated term is indeed ‘taxeme’. Bloomfield’s definition of a taxeme had already been criticized by Pike in 1943. Pike especially objected to Bloomfield’s statement that taxemes do not have meaning. On the contrary, Pike (1943:66) maintained that all four kinds of Bloomfield’s taxemes (selection, order, modulation and phonetic modification) do have meaning. Possibly because of its uncertain status, not
only the term, but also the notion of the taxeme almost fully disappears from subsequent treatments of syntax in post-Bloomfieldian models (it does not even occur in the index of Hockett 1958). Nevertheless, the name of the first kind of Bloomfield’s taxemes (i.e., selection) is still today a key term and a key concept in many syntactic theories.

Unlike the taxeme, a notion employed by Bloomfield which remains at the center of post-Bloomfieldians’ concerns is ‘morpheme’. It was defined by Bloomfield as “a linguistic form which bears no partial phonetic-semantic resemblance to any other form” (Bloomfield 1933:161). The morpheme is a ‘simple’ form, which is opposed to ‘complex’ forms, which are composed by constituents: hence Bloomfield’s notion of morpheme is strictly correlated to that of constituent (see above:186). Post-Bloomfieldian linguists tend to assume the notion of morpheme as a kind of primitive. See Harris (1946:162): “We assume, then, that we have isolated the morphemes of a language”. In an analogous vein, Wells bases his notion of ‘expansion’ (see below:284) on the undefined notion of the morpheme. Hockett (1958:123) defines morphemes as “the smallest individually meaningful elements in the utterances of a language”.

Another notion which was resorted to by post-Bloomfieldian linguists rather often is that of the ‘zero element’. The importance of the notion of ‘zero sign’ was stressed by Jakobson (1939), who credited its discovery to Saussure (1922:124[1983:14]) and its fruitful development to Bally (1922; 1965[1932]: §§248-256). Actually, the notion of ‘zero’ had already been used by Bloomfield (1933), referring both to morphological (e.g., p.209) and syntactic phenomena (e.g., p.252). Nida (1966[1943]) employs the notion of zero in the description of many syntactic facts. On p. 93, speaking of the introducers of relative clauses, he lists as ‘personal and impersonal antecedents’ the elements ‘that’ and ‘zero’. One can note the difference with preceding treatments of the topic, such as, for example, Jespersen’s (1933:360), where clauses of this kind (e.g., ‘the man I saw’) were labeled ‘contact clauses’, “because what characterizes them is the close contact in sound and sense between the clause and what precedes it”. Nida (1966[1943]:142) also says that sentences like ‘he was taken care of’, ‘this must be paid attention to’, etc., contain a “zero anaphoric substitute for the 2d constituent of the prepositional phrase attributive to the 2d attributive head”. The notion of ‘zero-anaphoric substitution’ is widely used at pp. 152-153 to describe a series of ellipsis phenomena. On pp. 113-114, verbs like ‘believe’ are said to be followed by a dependent clause with a ‘zero verb head’. Correspondingly, sentences like ‘He was appointed king’, ‘They were believed wise’, etc., are said to contain a ‘zero verb head’ (p.143). Dealing with such cases, Hockett (1958:197) speaks of ‘zero connectors’. Hockett (p.259) also speaks of ‘zero anaphora’ to refer to some elliptical constructions, like, for
example, ‘I like fresh candy better than stale’. Whereas the notion of zero occurs in a somewhat scattered way through the works by Nida and Hockett, it is systematically employed by Harris (1951), whatever level of analysis is dealt with (i.e., phonology, morphology, or syntax). Harris’ examples of zero-elements in the syntactic domain often coincide with Nida’s: he too adds a zero-morpheme to the class of clause markers, taking into account relative clauses and complement clauses as well (‘The clock he fixed’ and ‘I know he is’; cf. pp.336-337).

I am going to conclude this section by reporting some remarks by Hockett which in a sense foreshadowed some future topics of research. Hockett (1958:248-249), discussing the Chinese equivalent of a sentence like ‘That car I can’t drive’, says that the ‘valence’ of the Chinese word for ‘car’ (kāi) is ‘unsaturated’, while it would be ‘saturated’ in a sentence like ‘Do you know how to drive a car?’. (‘Valence’ does not have, in this connection, the same meaning as it does in Tesnière’s works: it merely indicates that the verb ‘drive’ enters into a ‘directive’ construction, in Hockett’s sense; see below:267). In any case, Hockett seems to hint at the idea that ‘drive’ is followed by a “gap” in the last example. Immediately after, Hockett introduces the distinction between ‘deep’ and ‘surface’ grammar. The most apparent linguistic layer, he says, constitutes surface grammar, beneath which “lie various layers of ‘deep grammar’, which have much to do with how we speak and understand” (p.249).

To illustrate the contrast between deep and surface grammar, Hockett (pp.250-251) also brings forward several English examples. (1) The two sentences ‘I don’t like to drive such a large car’ and ‘Such a large car I don’t like to drive’ “differ in surface grammar, but are much the same at deeper levels” (p.250). (2) The four sentences (a) ‘She’s singing’, (b) ‘She’s running’, (c) ‘She’s singing a hymn’, (d) ‘She’s running a car’ are alike in surface grammar, but not in deep grammar: a relation labeled N “holds between ‘is singing’ and ‘she’ in (a) and (c), between ‘is running’ and ‘she’ in (b), but between ‘is running’ and ‘the car’ in (d)”. By contrast, “another deeper relationship, E, holds between ‘is running’ and ‘she’ in (d), and still a third, A, between ‘is singing’ and ‘a hymn’ in (c)” (pp.250-251). Then Hockett compares English with Georgian, which presents three different constructions at its surface: the nominative, ergative, and accusative. N-relationship of the English examples corresponds to nominative construction, E to ergative construction, and A to accusative construction. (3) The two sentences ‘Atoms are too small to see by any possible technique’ and ‘They are too much in love to see clearly’ are very similar in surface grammar, but not in deep grammar. “In the first sentence, ‘atoms’ and ‘see’ are related as they are in ‘You can’t see atoms’; in the second, ‘they’ and ‘see’ are related as they are in ‘They see you’” (p.251). These observations sound very similar to transformational treatments.
3.6 Harris’ transformational theory

Actually, neither the concept of ‘transformation’ nor the term itself originated with the American structuralists. For example, Wundt had already spoken of passive sentences as ‘transformations’ of the corresponding active ones (cf. above:3.2.4); and the term ‘transformation’ also occurs in Frei (1929) to denote the relation connecting a pair of synonymous possessive constructions (see above:178). These observations, however, were rather random; the notion of transformation, by contrast, becomes the cornerstone of the system of syntax worked out by Harris from the 1950s onwards.\footnote{For a lucid presentation of Harris’ transformational theory see also Seuren (1998:231-242).} A transformational approach to syntax was developed, more or less in the same years, by one of Harris’ students, namely Noam Chomsky: Harris was however the first to investigate the idea of transformations systematically, as Chomsky himself (1975b:41) recognizes. Harris’ and Chomsky’s approaches are certainly rather different in their final form: nevertheless, it may be interesting to ask whether and in what measure they influenced each other in the period of their elaboration. According to Chomsky’s report of about twenty years later (1975b), the two scholars developed their theories in an essentially independent way; according to some statements by Harris (see, e.g., 1957:283-284fn.), some contact actually took place between them. As a matter of fact, many of the empirical analyses which can be found in Harris’ and Chomsky’s works of the 1950s and the early 1960s show noticeable similarities; something which will be stressed in the present section and in some of the following ones (see, e.g., 8.4.2). Nevertheless, the theoretical frameworks and the conceptions of language underlying the two analyses are certainly not the same, nor do they appear very similar: Harris’ concerns are mainly empirical, since he aims both at extending the scope of structural descriptive linguistics and at simplifying its procedures; for his part, Chomsky, while sharing such empirical concerns, has as his goal that of building a theory of language structure according to the standards of logic and the philosophy of science (which, incidentally, he began to study at Harris’ suggestion; cf. Chomsky 1975b:33; cf. also below:8.4.1). Harris’ transformational theory is therefore sketched in the present section, and some more specific points of it will be dealt with in the two immediately following chapters; Chomsky’s approach to syntax will be the topic of many sections of the third part of the present volume.

The notion of transformation was originally introduced by Harris in a rather incidental way: it was used serve as an auxiliary means within ‘discourse analysis’ (cf. Harris 1952:17). The goal of discourse analysis was to extend the methods and the scope of structural linguistics beyond the limits of the sentence: it therefore aimed at discovering substitution classes, i.e. equivalent sequences, within a connected discourse, or text. In some cases, such equivalent
sequences could be determined on the basis of simple occurrence in the same context. Since, however, such an occurrence is rather seldom, resort could be made to the notion of ‘equivalent’ sentences: transformations just state an ‘equivalence’ between sentences. Examining an actual text (a record cover), Harris notices that the sequence ‘Casals is X’ frequently occurs, but that the sequence ‘the self-exiled Casals’ occurs only once. This second sequence can be made equivalent to the first by means of a transformation: hence ‘the self-exiled Casals’ becomes equivalent to ‘Casals is self-exiled’ (ibid.). An analogous equivalence holds between ‘Casals plays the cello’ and ‘The cello is played by Casals’ (p.19).

We will say that sentences of the form \( A \) are equivalent to sentences of the form \( B \), if for each sentence \( A \) we can find a sentence \( B \) containing the same morphemes except for differences due to the difference in form between \( A \) and \( B \). (ibid.).

The notion of equivalence as the basis for maintaining a transformational relation between two sentences remained a constant in Harris’ theory, although its formulation somewhat changed across the years. In Harris (1957:288), two or more constructions are said to be ‘transforms’ of each other, or each of them is said to be derived from the other if they contain the same n-tuples. For instance, the two constructions ‘he met us’ (\( N_1 v V N_2 \))\(^{16} \) and ‘his meeting us’ (\( N_1’s Ving N_2 \)) are transforms of each other, since they are satisfied by the same triple (\( N_1, V, N_2 \)). If all n-tuples which satisfy one construction also satisfy the other, the transformation is said to be ‘reversible’, as is the case for the example just quoted. If, by contrast, some n-tuples only satisfy one of the constructions, but not the other, the transformation is ‘nonreversible’. This occurs with the transformation relating active and passive structures: \( N_1 v V N_2 \rightarrow N_2 v be Ven by N_1 \). In fact, some triples satisfy only the second sequence and not the first: ‘The wreck was seen by the seashore’, but not ‘*the seashore saw the wreck’.\(^{17} \) This argument is resumed in a different formulation in Harris (1965:367-370), but it remains unchanged in its essential outlines.

On what basis is it possible to maintain that two constructions are transforms of each other, or, more exactly, that they are satisfied by the same n-tuples? In the cases of nominalization and passive, the evidence is rather immediate. By contrast, the evidence is not so direct in the case of another couple of constructions that Harris maintains to be transformationally related, namely

\(^{15} \) On the meaning of the symbol ‘\( v \)’ see below.

\(^{16} \) The starred form has been introduced here for reasons of clarity; it is not quoted by Harris, who only rarely (e.g., Harris 1965:389) uses asterisks in the papers which are discussed here. To indicate ungrammatical sentences, he instead resorts (1965) to the symbol for a negated existential quantifier: e.g., ‘\(-\exists\) An hour was practised by the man on Tuesday’ (Harris 1965:369).
questions (both of the ‘yes-no’ and of the ‘wh’-type) and answers. Harris’ analysis of these and analogous transformational relations essentially resorts to the notions of ‘pro-form’ (‘pro-morpheme’, in his own terms) and ‘zero element’. They had already been used by Bloomfield and post-Bloomfieldians. Harris deepens the investigation of their status and makes them cornerstones of his system.

Pro-morphemes are not only pronouns, but also pro-V(verbs), pro-A(djectives), pro-S(entences) and pro-N-pairs (cf. Harris 1957:301-306). An instance of pro-V is ‘did’ in a sentence such as ‘I left when he did’ (Harris 1957:305; see also the next paragraph). Pro-As are, e.g., ‘this’, ‘that’, ‘and a number of words like ‘aforementioned’, ‘other’” (p.306). Pro-SS are certain uses of “‘this’, ‘that’, ‘it’, ‘so’, zero, etc.” (ibid.): e.g., ‘I don’t like him - Why so?’ A case of pro-N-pairs is ‘each other’ in a sentence like ‘Men and women marry each other’. Another special kind of pro-morpheme is ‘wh’ (p.303). The co-occurrences of pro-morphemes of a given class Y “equal the sum of the X-co-occurrences of all the members of the class Y” (p.302). If a sequence contains an element belonging to the class Y, this element is the ‘antecedent’ of the pro-morpheme, which is said to be ‘bound’ by it. When a pro-morpheme lacks an antecedent, it is ‘free’. These terms of ‘free’ and ‘bound’ to designate the antecedent-pronoun relation were to play an essential part in generative syntax (see below:10.2.4). Besides allowing the possibility of being substituted by pro-morphemes, morphemes can also have ‘zero variants’: for instance, such a sentence as ‘the shelf is wider than the closet’ contains the zero-variants of the morphemes ‘is’ and ‘wide’, which occupy the positions after ‘closet’ (p.295); “these positions are actually not empty but they are occupied by zero morphemes” (p.313).

Now it is possible to come back to the analysis of questions. They normally appear in a sequence, assertion/question (‘John came here’ # ‘Did he?’, or ‘Who came, did you say?’) or question/answer (‘Who came?’ # ‘John’, or ‘Did John come?’ # ‘Yes, he did’). It can be shown that matched assertions, questions and answers contain all and the same morphemes, the only difference lying in the fact that some morphemes within one construction are matched by pro-morphemes or zero-variants within the other. So, for example, the yes-no question ‘Did he?’ contains the pro-morpheme ‘he’ of ‘John’ and the zero-variant of ‘come’. The ‘wh’-question ‘Who came?’ contains a pro-subject N (’-“o’), which matches ‘John’ of the corresponding assertion or answer. The elements ‘do’, ‘does’, ‘did’, are not morphemes, but only ‘phonemic carriers’ for the verb suffix (which, in the example given above, would presumably be a zero morpheme indicating past). For Harris assumes that verbal morphemes such as ‘-s’ (e.g., ‘paint-s’), ‘-ed’ (e.g., ‘paint-ed’), or zero (e.g., ‘paint-Ø’), are verbal affixes even after they move (the term is Harris’) in front of the verb.
The element 'do' is what 'carries' them, not only in questions, but in a variety of other constructions as well: 'He does not paint', 'He does paint', 'Only then does he paint', 'I paint and so does he' (cf. Harris 1957:300). The behavior of 'do' is therefore wholly analogous to that of auxiliaries like 'be', 'have', 'will' or 'can' (cf. 'Will he paint?', 'He will not paint', etc.). For this reason, Harris concludes that both verbal affixes and auxiliaries belong to a special class, which he symbolizes by means of a small 'v', to distinguish it from full verbs, indicated by capital 'V' (p.301). The 'wh'-element can be described "as occurring (...) before a sentence structure S₂ which lacks some particular constituent" (p.303): the element following the 'wh-' ('-o', '-at', '-ose', etc.) is a pro-morpheme of this lacking constituent, as has just been seen. This analysis is applied by Harris to all kinds of 'wh'-constructions, which are therefore treated as transforms of declarative sentences:

In constructions like 'I know whom you by-passed' or 'Whom did you by-pass?' the V 'by-pass' is never followed by an object N, though elsewhere it is. We can then say that 'whom' – or, for other reasons, only the '( )om' – is itself the object N₂ of 'by-pass', so that '( )om you by-passed' becomes the well-known construction N₁ v V N₂ with the N₂ moved up. We avoid having unique constructions like 'you by-passed' without object N. (p.295)

Harris' analyses sound very similar to those of Chomsky known as 'Affix-hopping' and 'wh-movement' (see below:8.4.2; 10.2.2). In particular, both Harris and Chomsky assume that verbal affixes "move around" the verbal roots, and that 'do' in interrogative and negative sentences is not a verb, but just a "support" for verbal affixes. Concerning 'wh'-constructions, the remark that the 'wh'-element in the initial position of the sentence is matched by an apparent "gap" in the sentence itself (the missing object of 'by-pass', within the example above) is the starting point for both scholars. It is therefore reasonable to suppose that they influenced each other. On the other hand, one cannot overlook the fact that Chomsky's theoretical framework was different from Harris': a comparison of them will be presented below (8.4.2). Very sketchily, one could say that Harris and Chomsky started from the same set of facts and even of analytical assumptions, to solve partly different problems and to reach largely different goals.

Harris formulated a 'list of major grammatical equivalencies' (i.e., of transformations) for English starting with his first paper on transformational theory (cf. Harris 1952:21-23). Since Harris (1957:324-332), he also sketched a typology of transformations, which are classified under three main headings: "those that occur in independent sentences (S ↔ S); those that occur in sequential sentences (S₁ ↔ S₂); and those that occur in sentences that occupy the position of an N-phrase (S ↔ N)" (pp.324-325). The first class contains transformations such as the passive, the insertion of 'introducers' (e.g., 'A boy came' ↔ 'There
came a boy'), or certain word permutations (‘He always despised the public’ ↔ ‘the public he always despised’); cf. pp.325-327. The second class of transformations “change an independent sentence into a sequential one” (p.327): among others, questions, coordinations, the various kinds of ‘wh-’ constructions. Such transformations usually bring about ‘attendant change’ in the S₂ of the sequence, such as the insertion of pro-morphemes or of zero-variants. The third class “contains transformations which nominalize a sentence, i.e. change to a form that can appear in one of the N-phrase positions of another sentence” (ibid.). Instances of such nominalizations are gerunds (e.g., ‘Your reading (of) these things’, ‘the barking dogs’), ‘to’-clauses (‘For him to visit journalists (is useless)’), ‘(We want) him to visit journalists’), dependent structures which contain neither ‘-ing’ nor ‘to’, like finite clauses with or without ‘that’ (‘I believe (that) he went’) or other kinds of non-finite dependent structures (‘I saw him take it’, ‘They considered him a police agent’). Also the attributive adjective formation (‘The storm is distant’ → ‘The distant storm’) and possessive formation (‘John has a book’ → ‘John’s book’) belong to Harris’ ‘nominalization transformations’ (cf. pp.327-330). To these three major classes, two minor groups are added: ‘many-one’ transformations and ‘quasi-transformations’. The former group contains transformations which bring about the same transforms from different sentence types: the insertion of free pronouns and the dropping of agent ‘by’-phrases in passive sentences are instances of such transformations. ‘Quasi-transformations’ are those “in which two constructions fall short, in one respect or another, of satisfying the conditions for a transformation”, but which “may nevertheless be of interest for various purposes” (p.330). For example, constructions such as ‘give him this’ and ‘give this to him’ or ‘the sun is larger than the earth’ and ‘the earth is less large than the sun’ are transformationally connected, “but by no means can all logical or semantic opposites be transformationally paired in such a way” (p.327). When, as in this case, it is impossible to delimit exactly the set of elements to which the transformation applies, one gets a ‘quasi-transformation’ (cf. p.331).

A partly different classification of transformations is found in Harris (1965:371-382). In this paper, transformations are grouped into (1) ‘unaries’, (2) ‘nonsentential increments’, (3) ‘binaries’, and (4) ‘unaries on increments

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18 The attentive reader will have noticed that the two last quoted transformations are symbolized by a simple arrow (→) and not by a double one (↔): this is because they are ‘nonreversible’ transformations in the sense defined above. Harris (1965) generalizes the use of the simple arrow instead of the double arrow, “because once we have a transformational relation between forms A and B, it is convenient (...) to develop a formulation in which B is obtained from A by an operation, with A being the simpler or descriptively prior form” (p.371fn.18). This notational change is clearly connected to the increasing weight given to the notion of the ‘kernel’ and to that of ‘incremental transformation’; see below.
and binaries'. (1): examples of unaries are permutations, addition of pleonastic material, the replacement of words by prowords, mutual substitution of "weak" verbs ('He was sick', 'He became sick', 'He sickened'), the "middle" transformation ('I attach this interpretation to your words', 'This interpretation attaches to your words'), and the passive transformation (cf. pp.371-374). (2) nonsentential increments "add to a sentence-form a whole category of words" (p.374); the most important of such increments are 'inserts', 'verb-operators', and 'sentence-operators' (cf. pp.374-377). Inserts may be 'local inserts' (e.g., 'quite' before an adjective, or 'a' before a noun, etc.), 'tense inserts' (e.g., 'not' after t; this last symbol corresponds to the 'v' of Harris 1957) and 'sentence inserts' (e.g., 'however', 'in general'). Verb-operators create a new verbal complex by adding some elements to the simple V. So, for example, auxiliary phrases ('have-en' and 'be-ing') constitute a special class of verb-operators. Sentence-operators (marked \( W \)) are special subcategories of verbs, nouns and adjectives which take as their subject or as their object a "slightly deformed" sentence. So, e.g., sentences such as 'I know (that) he came', 'I prefer for him to come', 'I wonder if he came or not', 'I wonder whether he came or not', 'That he came surprised me', are all due to the "deformations" induced by the different sentence-operators (cf. pp.375-376). As can be seen, these "deformed sentences" correspond to the 'nominalizations' of Harris (1957) (3): binaries are transformations operating on two sentences to yield a resultant sentence. The various kinds of coordinations, of subordinations introduced by conjunctions ('because', 'while', 'after', etc.), and 'wh'-constructions belong to the class of binaries (cf. pp.377-379). (4): unaries on increments and binaries are unary operations on the result of incremental or binary transformations. The passivization of a sentence produced by sentence-operators is an instance of unary on increments: 'They recognize that he came' → 'That he came is recognized by them' (cf. pp.379-382).

The analysis and the comparison of sentence structures "prepare the ground for showing that all sentence structures are combinations or transformations of just a few simple sentence structures" (Harris 1957:310). These few simple sentence structures (or 'elementary sentences') and the sentence combiners (conjunctions, 'wh'-elements, etc.) form the 'kernel' of the grammar (cf. Harris 1957:334-339; 1965:364; 382; 384-386). The structure of kernel sentences is very simple and for the most part it is common to all of them. In Harris (1965:362; 384), it is symbolized as follows:

\[
12) N t V \Omega
\]

\( t \) is the symbol indicating auxiliaries and verbal affixes (cf. also above); \( \Omega \) "may be zero, \( N \), \( NPN \), etc. according to the subtype of \( V \)" (Harris 1965:384). "In addition to exhibiting the minimal sentence constructions, the kernel sen-
sentences are thus also the domain of the major restrictions of co-occurrence in the language” (Harris 1957:336). Also the kinds of words which may occur in kernel sentences belong to a limited set: “most morphologically derived words are not in the kernel”, but they are transformationally introduced, as happens for a word like ‘boyhood’ (‘He was yet a boy’ → ‘He was yet in his boyhood’); cf. Harris (1965:385). Most kernel words are concrete, because abstract nouns are derived by transformations, such as the insertion of verb-operators: ‘This item covered him adequately’ → ‘This item gave him adequate coverage’. Even “pronouns, numbers, most plurals, most occurrences of the, etc.” (ibid.) are transformationally introduced. The notions of transformation and of kernel have therefore the effect of greatly simplifying the task of descriptive syntax (cf. Harris 1957:337-338). Moreover, transformations can account for the potentially unlimited number of sentences in a given language: “the kernel (including the list of combiners) is finite; all the unbounded possibilities of language are properties of the transformational operations” (ibid.).

Exactly as the set of sentences in a language can be described as derived from a subset of elementary sentences, so the set of transformations can be described as the product of a few ‘elementary’ transformations (cf. Harris 1957:332-334). For example, an agentless passive sentence is the product of the passive transformation and of the ‘by’-phrase deletion. In some cases, the application of an elementary transformation may produce a sentence structure to which another transformation is not applicable: a passive transformation cannot apply to a passive sentence. In general, “a given transformation does not apply to all sentences” (p.333): for example, a passive transformation is applicable to a N v V N structure, not to a N is N structure (ibid.). A precise list of elementary transformations is found in Harris (1965:387).

Harris' model of syntax is perhaps the most articulate and thorough one among those worked out by structuralist linguists (with the possible exception of Tesnière). And, in fact, Harris' investigations of transformational relations cover a wide empirical domain, being concerned with a variety of syntactic structures. Another important point to note is that Harris formalized the notion of transformation, which until then had essentially been only intuitive. Chomsky’s early writings (see below:343) share with Harris’ the idea of the ‘kernel’ of a language, which was possibly the most successful notion stemming from Harris’ transformational framework. Actually, this success was mainly due to the intuitiveness of such a notion, and also to its most traditional aspects: the derivation of the attributive adjective from a ‘wh + to + adjective construction’ does not greatly differ in itself from Port-Royal analyses, and it was the example of transformation which was most widely quoted in non-technical discussions. Moreover, given the similarities (which, however, do not mean identity) between Harris’ and Chomsky’s approaches during the 1950s, such very sim-
ple examples of transformational derivations were frequently quoted, as they formed the core of any transformational treatment, be it framed in Harris’ or in Chomsky’s terms. One cannot deny that the procedures of 17th century general grammar again surface, more or less unwittingly, within the transformational framework: nevertheless, the present section should have given a hint of the novelties of Harris’ approach.
CHAPTER 6

STRUCTURALIST APPROACHES TO SENTENCE ANALYSIS

0. Introduction

The conception of the sentence presented in the published version of Saussure’s *Cours* has been introduced above (5.1.1): the sentence was defined as a unit of *parole*, not of *langue*. The problems connected with the interpretation of Saussure’s thought have also been reviewed: nevertheless, the idea that the sentence belongs to *parole* was developed by several structural linguists. Some linguists tried to relate the allegedly Saussurean solution to a more systematic distinction of the phenomena of ‘language’ (*langue*) vs. those of ‘speech’ (*parole*): this was the case, for example, of Bally, or of Gardiner. Others, such as Karcevskij or Mathesius, partly restated the problem: they opposed the sentence as a ‘grammatical pattern’ (‘clause’, in Karcevskij’s terms), belonging to language, to its realization as a phenomenon of speech. Finally, such linguists as Meillet attained positions which prefigured the distributional ones, and were therefore subsequently developed by Bloomfield. Despite all these differences, all of the investigated scholars agreed on the ultimate abandonment of the psychologistic conception of the sentence as a ‘connection of representations’ and the increasing importance given to the communicative aspect of the sentence. Such conclusions clearly mark the break between structuralist syntax and that of the psychologistic age. This will be the subject of section 6.1.1. The correlation of the notion of sentence with the *langue/parole* opposition is connected with a distinction previously not taken into account, namely that between ‘sentence’ and ‘utterance’: this will be discussed in section 6.1.2. In the immediately subsequent sections, some other topics will be investigated which also characterized (although to a differing extent) structuralist approaches to the notion of sentence: 1) the typology of sentences, which especially concerned Bloomfield and the American structuralist school in general (section 6.1.3); 2) the distinction ‘sentence’ vs. ‘clause’ (section 6.1.4). In this last section, special attention will be paid to the analysis of infinitival constructions. It will be seen
that their clausal nature is clearly recognized only by certain linguists belonging to the structuralist trend.

In the second section of the chapter, some assumptions about the internal structure of the sentence held by structuralist scholars will be discussed. This topic involves the analysis of the notions of subject and predicate: in section 6.2.1, several positions assuming that such notions must also be defined on a level other than the grammatical one will be examined. This is possibly the domain where the contacts as well as the differences between structuralistic syntax and syntax of the earlier psychologistic age manifest themselves in the clearest way. Section 6.2.2 deals with the debate concerning the proper definitions of grammatical subject and predicate and of the mutual relation of these entities. The debate on this subject, too, shows considerable similarities with that of the psychologistic epoch: while some scholars go on assuming a subject-predicate structure for all sentences, others reject such an analysis. Among the latter group, the most radical position appears to be Tesnière’s, who expressly puts the notion of subject on the same plane of those of object and of the other ‘participant roles’. Section 6.2.3 deals with an old problem of syntactic analysis: that of nominal (‘verbless’) sentences. The novelty of some structuralist treatments of the subject (especially Hjelmslev’s) is the assumption that such sentences contain a ‘zero sign’ and that inflectional morphemes do not syntactically belong to the verb, but to the sentence as a whole. Finally, section 6.2.4 discusses ‘field theory’, which is independent of the assumption or the rejection of a bipartite analysis of the sentence into subject and predicate. As a matter of fact, it analyzes sentence structure according to the different positions (the ‘fields’) where the different sentence members (verb, nominal groups, adverbial elements) may occur in Germanic languages.

1. The sentence as a unit

1.1 Sentence as a phenomenon of parole

The most complete and interesting development of the conception of the sentence as a phenomenon of parole is probably Bally’s. His analysis of the sentence essentially reshapes Gabelentz’s in the framework of the opposition langue/parole. For Bally, the sentence is “the expression of a thought” which has “a melody which exactly matches it” as its “sensory correlative” (Bally 1965[1932]:§50). Sentence is the ‘act of parole’ (cf. §119). The foundation for this analysis is offered by the notion of ‘actualization’ (cf. above:173-174). All concepts of langue are ‘virtual’: in order to indicate actual things and representations, they have to be ‘actualized’ by ‘actualizers’, e.g. deictics or verbal finite tense. This actualization (namely, the implementation of langue through parole) first of all takes place within sentences.
Bally’s insights, as first formulated in his 1936[1913] book, also explicitly influenced Karcevskij’s theory of the sentence, which, nevertheless, shows many original features of its own and does not reach the same conclusions as Bally’s. Karcevskij sharply opposes ‘sentence’ (phrase), on the hand, and ‘clause’ (proposition), on the other: the latter is a grammatical unit, the former is not. The sentence is a function of dialogue, while clause is not (cf. Karcevskij 1931:189). Clause is a ‘syntagm’, hence it shows the typical binary structure of syntagms according to Bally (cf. above:174): determined vs. determining. The clause is a ‘predicative’ syntagm: its determined is the subject and its determining is the predicate. This predicative value of the clause is due to the mood, tense and person features (cf. Karcevskij 1931:189; 1937:62). The sentence does not necessarily show a binary structure: ‘yes’, ‘no’, ‘out of here!’ are sentences as well (Karcevskij 1937:62). What brings about a sentence, is its intonation (p.59). Intonation is the process which par excellence actualizes (in Bally’s sense) linguistic signs (Karcevskij 1931:190). Hence a clause, to be actualized, must receive a sentence intonation: this is the reason why sentence and clause are so often mistaken for each other (Karcevskij 1937:63). Summarizing, Karcevskij opposes clause to sentence as grammatical vs. non-grammatical units; and clause to any other kind of syntagm as predicative vs. non-predicative grammatical units. At the same time, clause is opposed to sentence as virtual vs. actualized sign. Sentences may actualize clauses and other syntagms as well. As will be seen in the next section, Karcevskij’s classification of sentence types is based precisely on the different functions which sentences can hold within the dialogue. Nevertheless, he states that this kind of analysis does not concern parole, but langue (Karcevskij 1931:191).

Scholars like Gardiner and Guillaume further worked out the view ascribed to Saussure by defining the sentence as the ‘unit of speech’ (discours, in Guillaume’s terms) and opposing it to the word, ‘the unit of language’. This means, for Gardiner, that only a sentence can realize a communicative act (it is “a purposive structure”; Gardiner 1951[1932]:182). This property of sentences has several important consequences. First of all, sentences have to be sharply distinguished from clauses, since the latter lack such a property. Furthermore, it is not necessary for a given utterance to be a sentence, that is, formed by a subject and a predicate; hence the structure subject + predicate is not necessary to define a sentence. The end result is that also utterances like ‘Yes!’, ‘Alas!’, ‘Balbe!’ are sentences (p.216). Subordinate clauses are formed by a subject and a predicate, but, as has been just seen, they cannot fulfill a sentence function. Hence, “a genuine sentence is a unit of actual speech, i.e. language meaningfully applied to some state of things, and purposefully addressed to some listener” (p.236). Sentences can also be ‘incongruently’ used (on Gardiner’s no-
tions of congruence and incongruence see above:5.1.2): this occurs if (1) they lack the character of purposiveness or (2) their grammatical form is different from their function. Instances of (1) are subordinate clauses and questions used as protases of conditional sentences (‘Are you pleased, then I’m pleased too’); instances of (2) are questions used as statements (‘Is my account overdrawn!’), or statements used as commands (‘Thou shalt not steal!’), etc. (cf. pp.227-233).

Gardiner is therefore a representative of the ‘holistic’ approach to the nature of sentences (cf. above:4.1.1): it is not surprising that he is sharply critical of Ries’ approach (see 4.1.6), which, because it requires a given grammatical structure for the sentence, is deemed too restrictive (cf. Gardiner 1951[1932]: 210-213). Also both Paul and Wundt’s ‘psychological’ definitions of the sentence (see 4.1.4) suffer from the same defect: they do not take into account the essential purposive character of the sentence (pp.240-251). In other words, they do not consider the “volitional reaction”, but only the “stimulating circumstance” within the act of speech.

Ries’ definition of the sentence was also strongly criticized by Bloomfield: his review of Ries’ (1931) volume anticipates much of what can be found about that topic in Bloomfield (1933). Ries’ approach, according to Bloomfield, suffers from a basic fault: it aims at giving a definition of the sentence which matches the popular usage and understanding of this term. Bloomfield (1931:205) considers this approach to be unscientific: “We do not ask a zoologist to define the term ‘fish’ as to include whales, or insist that if he will not include whales in a class with fish, he must not use the term ‘fish’”. The only path to follow, Bloomfield goes on, is to give up any reference to linguistic feeling and to resort to purely formal criteria. As a consequence of these remarks, Bloomfield (p.208) was led to adopt Meillet’s definition of the sentence:

un ensemble d’articulations liées entre elles par des rapports grammaticaux et qui, ne dépendant grammaticalement d’aucun autre ensemble, se suffisent à elles-mêmes. (Meillet 1937:355 [=1912:339]).

[A set of articulations which are bound together by some grammatical relationships, and which are self-sufficient, since they do not depend on any other set.]

In order to answer Ries’s (1931:11) objection to such a definition, namely that some forms contained in the sentence, e.g. the subject, do not ‘depend’ upon any other, Bloomfield proposes to reword Meillet’s definition by simply saying that the sentence is “a form which is no part of any other form” (Bloomfield 1931:209). It is this last definition which occurs in Bloomfield (1926: Definition 27 and 1933:170). Not all post-Bloomfieldian linguists gave explicit definitions of the sentence, probably because they accepted Bloomfield’s. And, in fact, all their definitions are typically distributional, hence fully in line with the
general approach to syntactic analysis initiated by Bloomfield. They therefore differ not only from that of Ries, but also from that of Gardiner. They share with the latter, however, a holistic approach and a neglect for the grammatical aspect of the sentence.

By contrast, another scholar who, like Gardiner, essentially started from a communicative point of view, namely Mathesius, did not totally ignore the grammatical, or analytical, aspect of the sentence. His partly different perspective is probably connected to Mathesius' rejection of Gardiner's basic assumption, viz. that the sentence belongs to speech and not to language. Mathesius distinguishes between the sentence as 'abstract pattern' and the sentence as 'concrete utterance': the former belongs to language, the latter is a phenomenon of speech (cf. Mathesius 1964c[1936]:317). An analogous view was held some years later by de Groot (1949a:3). Mathesius therefore shares with Ries (cf. above:4.1.6) the view of the sentence as an entity conditioned by the grammatical system of the language to which it belongs. However, while Ries saw the relationship between sentence and reality as a direct one, according to Mathesius this relationship is due to the speaker's intervention. Mathesius' definition then runs as follows:

the sentence is an elementary speech utterance, through which the speaker (or writer) reacts to some reality, concrete or abstract, and which in its formal character appears to realize grammatical possibilities of the respective language and to be subjectively, that is, from the point of view of the speaker (or writer), complete. (Mathesius 1964c[1936]:319fn.7)

Mathesius stresses the difference between his definition and those of Paul and of Wundt (see above:4.1.4): "it should be pointed out that in one respect our definition is deficient. It contains no reference to the process through which the sentence arises" (Mathesius 1975:80). This deficiency, however, is only apparent: the weak point of the 'genetic definitions' lies in their view of the sentence as a joining of two representations (Paul), or in the analysis of a whole into two representations (Wundt). Indeed, the representational definition of the sentence was abandoned by structural linguists: as will have been noticed, no definition investigated in the present section (communicative or distributional, "language-oriented" or "speech-oriented") is couched in representational terms. This fact was surely due to the general distrust towards psychologism which began to set in the early decades of twentieth century, but it was also a consequence (however indirect) of the langue/parole dichotomy: if the sentence is seen a phenomenon of parole, i.e. as a communicative unit, it must not be necessarily bipartite. If, on the other hand, it is conceived as a pattern belonging to langue, i.e. the social side of language, its definition in representational terms no longer
seems adequate, since it unavoidably refers to processes which take place within the individual.

1.2 ‘Sentences’ and ‘utterances’

A systematic distinction between sentence and utterance only gradually emerges throughout the works of the structuralist age. The term ‘utterance’ frequently occurs in Bloomfield (cf., e.g., 1933:170), but it is not assigned a technical value: it is more or less synonymous with ‘act of speech’ (and it is so defined, in fact, by Bloomfield 1926:154). An analogous use is found in Gardiner (1951[1932]:205-206), who adds that “every finished utterance is a sentence”. By contrast, it is the clear distinction between sentence and utterance which allows Mathesius to argue against Gardiner’s assignment of the sentence to the sphere of speech only (cf. above:6.1.1). The utterance is the concrete, observational, entity of linguistic description (cf. Mathesius 1975:13). In practice, however, Mathesius often uses ‘utterance’ as synonymous with ‘sentence’. For example, Mathesius (1975:81) states that the majority of sentences contain two basic elements, and immediately after he adds that the basis of the utterance is called its theme, and the nucleus its rheme.

Among post-second World War Prague linguists, the opposition sentence vs. utterance is consistently adopted by Daneš. To be more exact, he distinguishes three kinds of entities (cf. Daneš 1964:229): (1) the ‘utterance-event’, (2) the ‘utterance’ and (3) the ‘sentence pattern’. The utterance-event is the single, individual entity, belonging to parole. The utterance does not belong to parole, but nevertheless it is still bound to a given context and to a given situation, it contains concrete lexical entries; Daneš equates it with phrase in Karcevskij’s sense (see section 6.1.1). Sentence, or sentence pattern, corresponds to Karcevskij’s proposition. Sentence patterns are the basis of grammatical utterances. Not all actual utterances are grammatical utterances: ungrammatical utterances are not based on sentence patterns and take their communicative function from situation, context, and intonation (cf. Daneš 1964:230).

Post-Bloomfieldian linguists sometimes give to ‘utterance’ the meaning of ‘concrete act of speech’ and sometimes another different, although not unrelated, meaning. For instance, Bloch (1946:200-201) distinguishes four kinds of utterances, according to their intonational patterns; an utterance can contain more than one sentence. Harris (1951:14) defines the utterance as “any stretch of talk, by one person, before and after which there is silence on the part of the person”. Harris goes on as follows:

The utterance is, in general, not identical with the ‘sentence’ (as that word is commonly used), since a great many utterances, in English for example, consist of single words, phrases, ‘incomplete sentences’, etc.
From the above passage, and from other passages as well (cf., for example, Harris 1951:351-352), one would be led to conclude that Harris assigns to the notion of utterance a more empirical, more primitive character than to the notion of the sentence.

This more primitive, more concrete character assigned to the utterance can explain the fact that some structural linguists systematically choose the utterance, and not the sentence, as the starting point of their analysis and classification of syntactic units. Instances of this approach can be found both among American and European structural linguists, e.g. in Fries’, Mikus’, or Benveniste’s work. Fries (1952:21) starts from Bloomfield’s definition of sentence, but he pays much more attention to the sentence in the context of a conversation. A possible classification of sentences (‘single free utterances’) is based on the type of response they elicit. On this basis, Fries distinguishes: I. Utterances that are followed by ‘oral’ responses only. II. Utterances which are followed by ‘action’ responses, “sometimes accompanied by one of a very limited list of oral responses”. III. Utterances that are “accompanied (not necessarily followed) by very brief oral signals of attention interjected at irregular intervals but not interrupting the span of talk” (pp.41-42). Class II utterances are named by Fries ‘requests’ and class III utterances ‘statements’ (cf. pp.47-49). Greetings, calls, questions, requests and statements are all ‘communicative’ utterances. There exist also ‘non-communicative’ utterances, such as, for example, interjections, or expressions of pain, disgust, anger, etc. (cf. pp.52-53). “These forms, with meanings inferred from the situations in which they usually occur, are not used to elicit regular responses from those who hear them” (p.53).

According to Mikus, all utterances (énoncés) are ‘homofunctional’, since they perform the same task, namely communicating (Mikus 1972:136). The different classes of utterances are established on the basis of the ‘modi’: hence he draws an initial distinction, within declarative utterances, between ‘explicit’ and ‘implicit’ utterances: ‘I know that it is raining’ (explicit) = ‘it is raining’ (implicit). Implicit utterances, in their turn, are subdivided into ‘direct’ (e.g., ‘it is raining’) and ‘indirect’. The latter class is further partitioned into ‘volitive’ utterances and interrogative utterances; cf. p.136. Questions are subdivided into ‘modal’ (A) and ‘dictal’ (B) questions; each of these two classes is further subdivided into ‘total’ (1) and ‘partial’ (2). (A1): Paul est-il ici? (‘Is Paul here?’). (A2): Est-ce Paul qui est ici? (‘Is it Paul that is here?’). (B1): Qu'y a-t-il? Que se passe-t-il? (“What is there?” ‘What is happening?’). (B2): Qui est arrivé? (“Who arrived?”); cf. p.137.

1 On the notion of modus and dictum, which Mikus takes from Bally, see below:6.2.1.
Benveniste uses ‘utterance’ as a cover term for ‘sentence’ and for other linguistic strings as well. The sentence (phrase) coincides for him with the ‘finite assertive utterance’ (énoncé assertif fini). The finite assertive utterance is characterized by two properties: it is uttered between two pauses; it has a specific intonation (Benveniste 1966[1950a]:154).

From this partial survey of the sentence/utterance opposition, one gets the impression of a certain duality of its value: some linguists (e.g., Fries or Benveniste) use utterance as a term indicating the genus, and sentence as a term indicating a species of utterance. Some others (like, for example, Mathesius, but also Harris) seem to consider the two entities as lying on two different planes: the utterance on the concrete plane, the sentence on the abstract one. These two planes (partly) correspond to parole and langue, respectively.

1.3 Classification of sentence types

As one would expect, the typologies of sentences proposed by the different syntacticians of the structuralist period are strictly dependent on their general conception of language and their overall approach to syntax. As a consequence, the communicative function of sentences is the basic classificatory criterion for some of them, whereas the formal aspect is the cornerstone for others. The topic of the classification of sentence types, however, remains at the center of the attention of many scholars, as it was for many others beforehand, during the ‘psychologistic’ age.

Karcevskij distinguishes sentences according to the different functions they fulfill in dialogue: questions, answers, and statements. There are two further kinds of sentences, viz. commands and exclamations, but they do not belong to the process of dialogue: with commands, the addressee is “eclipsed” by the speaker; exclamations may be uttered without any addressee at all (Karcevskij 1937:60). The intonation of the question is tense and can be “clearly rising”; the intonation of the answer is lax, and can be “clearly falling” (ibid.). The intonation curve of the statement combines the tenseness of the question with the laxity of the answer (p.61). Karcevskij admits that he is not able to describe the intonation of the imperative sentence (p.65), and states that exclamations may accompany any kind of sentence, but there is no ‘emotive’ or ‘exclamatory’ clause (proposition) (p.66). Commands and exclamations are therefore on a rather different plane with respect to questions, answers and statements. This difference, contrary to what one might expect, is not only linked to dialogic functions: questions, answers, and statements try to follow the clause shape (p.65), while commands are a predicative structure of a special kind (ibid.), and it has just been seen that there is no exclamatory clause. One can therefore con-
clude that the grammatical point of view is still central even to a scholar like Karcevskij, who apparently tries to separate communication from grammar.

Mathesius’ position seems to be the reverse of Karcevskij’s. It has been said in the preceding section that Mathesius not only insists on the communicative function of the sentence, but also on its “formal”, “customary” character. He maintains, however, that it is not necessary for all sentences to be bipartite, i.e. formed by a theme and a rhyme. Actually, there are two kinds of one-element sentences: 1) ‘incomplete’ sentences, like ‘Nonsense!’ used as an answer: these are completed by the context. 2) ‘Thetical’ sentences, like those containing impersonal verbs in languages such as Czech, Italian, or Spanish, where the sentence ‘it rains’ corresponds to Prši, Piove, and Llueve, respectively, viz. to one-element structures (cf. Mathesius 1975:82-83). Hence, the ‘grammatical’ aspect of the sentence does not necessarily involve the presence of a subject and of a predicate. Karcevskij’s and Mathesius’ positions seem to meet midway, so to speak: Karcevskij firstly stresses the difference between the sentence as a communicative unit and the clause as a predicational structure, but he eventually acknowledges the pervasive value of the latter. Mathesius stresses the importance of the formal aspect, but he does not exclusively identify it with a predicational structure, given the communicative efficiency of some one-element structures. The communicative and the grammatical points of view balance each other.

Gardiner (1951[1932]:189) presents a classification of sentence types which summarizes 19th century discussions on the topic, but which also explicitly relates to Bühler’s three functions. As a consequence, sentences are to be distinguished according their being centered on the speaker, or on the referred thing, or on the hearer; in the last case, Gardiner adds, a further distinction must be drawn between ‘questions’ and ‘requests’ (this terminological choice, based on the common element quest-, from Latin quaero ‘to ask’, alludes to the close kinship between the two kinds of sentences). The end result of this classification is the following diagram:
Bloomfield distinguishes two types of sentences: the ‘favorite’ and the ‘non-favorite’. They are called ‘full sentences’ and ‘minor sentences’, respectively (cf. Bloomfield 1933:171). In English, the former type is exemplified by sentences containing a finite verb; cf. Bloomfield (1931:207; 1933:172). The latter type of sentences is exemplified by interjections, by particles such as ‘yes’ and ‘no’, and by expressions such as ‘this one’, ‘tomorrow morning’, etc., used as answers to a question (cf. Bloomfield 1931:ibid.; 1933:176). English has two kinds of favorite sentence forms, ‘command’ (‘Come!’) and ‘actor-action’ (‘He came’). The number and the patterns of sentence-types differ across languages. For instance, some languages (such as Slavic languages, Spanish or Italian) express actor-action constructions by means of a single ‘sentence-word’ (cf. p.172): e.g., Italian canto (‘I sing’), canta (‘she (he, it) sings’). Latin has three favorite sentence-types (Bloomfield 1931:207; cf. 1933:173):\(^2\) (1) a finite verb containing a personal-anaphoric actor: amat (‘she (he, it) loves’); pluit (it rains’), etc. (2) “A finite verb containing a goal element”: amatur (‘she (he, it) is loved’), etc. (3) “Two substantive (noun, pronoun, or adjective) forms”: beatus ille (‘happy (is) he’). The first two types are called ‘narrative’ by Bloomfield, the third one ‘equational’. Bloomfield’s ‘equational’ type therefore corresponds to the traditional nominal (or ‘verbless’) sentence. Both narrative and equational type realize a ‘predication’, in Bloomfield’s terms (cf. Bloomfield 1933:173): ‘predication’ is indeed the common name for every bi-

\(^2\) To be exact, Bloomfield (1933) states that Latin (as well as Russian) has two favorite sentence types: the ‘narrative’ and the ‘equational’ one. The narrative type is said to show “two varieties”: the actor-action construction (amat), and the goal-action construction (amatur).
partite sentence-form, so, for example, 'John ran' and beatus ille are both instances of predication.

Bloomfield’s classification of English sentence-types can be tentatively summarized as follows (the following schema is not Bloomfield’s, but ours):
A) Full sentences (‘favorite’ sentence-types)
   1) actor-action sentence type
   2) commands
B) Minor sentences
   1) completive (‘This one’)
   2) exclamatory (‘This way, please!’)
   3) aphoristic (‘The more, the merrier’).

One can note that no special place is given to interrogative sentences in the above schema. They are introduced as a further subtype of a sentence subtype, namely the sentences called ‘explicit’, as, e.g., ‘I did hear him’ (cf. Bloomfield 1933:174). A sentence like ‘Did I hear him?’ is therefore an instance of the ‘inverted’ explicit type.

Bloomfield’s labeling of sentence types was substantially followed by post-Bloomfieldians. Nida’s (1966[1943]) main distinction lies between ‘major sentence types’ and ‘minor sentence types’. The former types can occur (A) as single clause frames or (B) as multiple clause frames. The first of these in turn is subdivided into ‘independent exocentric patterns’ and ‘dependent exocentric patterns’ (i.e., subordinate clauses). Independent exocentric patterns may be ‘clauses as heads’ or ‘attributive to clauses’ (i.e., adverbs such as ‘undoubtedly’, ‘naturally’ or parenthetical expressions such as ‘to tell the truth’, ‘to do it justice’, etc.). Instances of clauses as heads are the actor-action type and the goal-action type; the actor-action clause type, in its turn, is partitioned into transitive, intransitive and equational clause types. Minor sentence types are subdivided into the ‘completive’ type (e.g. ‘Yes’, ‘No’), the ‘exclamatory’ type (interjections, expressions like ‘Come home!’ or ‘Fire!’) and the ‘aphoristic expressions’ (‘So far so good’, ‘First come first served’). One sees that Nida’s classification of main clauses largely overlaps with Bloomfield’s classification of sentences. Nida does not mention sentence words of any type, but this is clearly explicable, since his analysis is limited to English, where such sentence types do not occur. Nida’s classification of minor sentence types is identical to Bloomfield’s, even in terminological choice. Nida, like Bloomfield, does not assign any specific place to interrogative sentences.

Hockett’s classification of sentence types is similar to Nida’s, although it is less detailed. Hockett first opposes simple sentences to non-simple sentences, which can be ‘compound’ or ‘complex’. Compound sentences are brought about by co-ordination; complex sentence by the addition of an ‘attribute’. At-
tributes in Hockett’s sense are words (‘So, I can’t go’), phrases (‘In that case, I can’t go’) and clauses as well (‘If that is true, I can’t go’); cf. Hockett (1958:200). Hockett’s classification is also rather close to Bloomfield’s: he even resorts to Bloomfield’s label ‘favorite sentence type’ to denote what Nida names ‘major sentence types’. Furthermore, Hockett uses, like Bloomfield, the label ‘sentence-word’ to refer to Latin finite verbs (cf. p.203). Hockett does not use the terms ‘actor-action’, nor ‘goal-action’ types: he speaks, instead, of ‘active’ and ‘passive’ clauses. According to him (p.204), the distinction between active and passive clauses ‘cuts across’ the classification of subject-predicate clauses: intransitive, transitive, and equational. On this point, therefore, Hockett detaches himself from Nida and in general from the Bloomfieldian tradition. Passive sentences can be ‘intransitive’ (‘The job | was done by Bill’) and ‘transitive’ as well (‘A book | was given John’). The corresponding active sentences are ‘Bill | did the job’ and ‘Someone | gave John a book’; both are labeled ‘transitive’ (cf. pp.204-205). “Equational sentences are not matched by passives”, says Hockett (p.205). But he adds that a sentence like ‘He is considered correct’ is an intransitive passive derived from ‘I consider him correct’, by separating the Immediate Constituents of the equational clause ‘him correct’.

Bloomfield’s notion of ‘favorite sentence type’ is to be found also in works by European structural linguists, such as de Groot, whose analysis of the sentence, however, also shows some similarities to the Prague school tradition, and especially to Karcevskij. De Groot (1949a:9) lists four ‘favorite sentence types’. 1: “proper names referring to the hearer”: ‘Mary!’, ‘Mother!’. 2. Interjections. 3. Imperatives. 4. Subject-predicate combinations. As can be seen, this list is wider than Bloomfield’s: types 1. and 2. of de Groot’s belong to ‘minor sentence types’, in Bloomfield’s view. De Groot’s “general law” on the matter is that “favourite sentence types are proper names of the hearer, and subjective words or groups” (ibid.).

1.4 ‘Sentences’ and ‘clauses’

In general, the phenomenon of subordination is not especially dealt with by the early structuralist syntacticians: for example, the question whether infinitival constructions are clauses in their own right or simply belong to the same clause as their governing verbs begins to be systematically faced only in the post-second World War years. But even the terms themselves ‘sentence’ and ‘clause’ were not always clearly distinguished. An interesting exception to this general trend is represented by some observations by Brøndal. The assumption of a sharp distinction between morphology and syntax (see above:190-191) leads him to reject the classification of subordinate clauses into ‘substantive’, ‘adjective’ and ‘adverbal’ clauses: for such a classification is not syntactic, but
"pseudo-morphological" (Brøndal 1943[1937]:73). Its inadequacy is shown, for example, by its inability to distinguish between subject and object clauses: both would be ‘substantive clauses’, without further differentiation. Also a “logical” approach to subordination is deemed inadequate by Brøndal. It is based on the notions of ‘determined’ and ‘determining’: the subordinate clause is sometimes qualified as ‘determining’. An object clause, however, is surely subordinate, but it is not determining at all. Furthermore, there are subordinate clauses which are not determining, but determined: subject clauses are a case in point (so it would seem that the partition subject-predicate is viewed as a determined/determining relation); cf. Brøndal (p.75). Hence Brøndal refers to Jespersen’s conception of dependent clauses (see above:4.2.3) and divides clauses into ‘primary’, ‘secondary’ and ‘tertiary’. The different combinations of the three different kinds of clauses bring about different kinds of sentences (périodes). (A) Sentences formed by a primary clause only (e.g., ‘He is sick’). (B) Sentences formed by combinations of primary clauses with secondary or tertiary ones (e.g., ‘He says that he is sick’). (C) Sentences without any main clause: all clauses are subordinate to the sentence as a whole; they are neither subordinate nor coordinate to each other (e.g., ‘If he doesn’t come, it’s because he is sick’); cf. p.78.

The importance of the opposition between sentence and clause, often overlooked by the European structural linguists, was increasingly felt by the American ones. From what has been said in the preceding section, one can remark that the main difference between Bloomfield and post-Bloomfieldians’ classification of sentence types lies in the attention that Nida and Hockett, for example, but not Bloomfield, pay to the difference between simple and complex or compound sentences, or, in other words, to the notion of ‘clause’. This notion is well known to Bloomfield, but it does not seem to have any particular role in his system. On the contrary, Bloomfield’s sentence types correspond to Nida’s main clause types (see above:237). Hockett also (1958:204) distinguishes the following clause types, within the subject-predicate variety: I) with the predicate as a verb (‘John | ran away’); II) with the predicate as an ‘objective constitute’ (‘John | saw me’); III) with a predicate as a ‘connective constitute’ (‘John | is a big man’); this is the ‘equational’ clause type. These three clause-types correspond to Nida’s three types of actor-action sentences.

A problem connected with the notion of clause is what kinds of structures have to be considered as subordinate clauses, or, in other terms, if all clauses must contain a finite verb form. Jespersen was very clear on this point (cf. above:4.1.7): the presence of a finite verb form was not a necessary condition to have what he called a ‘nexus’. An analogous path was followed, more or less in the same years, by Sechehaye, who singled out two clausal forms which
somewhat deviate from most regular ones. The first form is dubbed ‘implicit logic clauses’: they are, for example, the impersonal constructions (cf. Sechehaye 1926a:144-149), the absolute constructions, the object complement constructions (cf. pp. 156-164). The second type of clauses which deviates from the regular form is represented by ‘second degree clauses’, namely infinitival and participial clauses (cf. pp.167-172).

Jespersen’s insights about the existence of nexuses which do not explicitly show a predicational form were taken up and further developed by Diderichsen. His ‘field analysis’ of the sentence (see below:6.2.4) has some interesting consequences also insofar as the analysis of special constructions is concerned. Special attention is given to the elements which occur in the ‘content field’ (see below:259): in some cases, the object may be considered the ‘logical subject’ of a ‘secondary predication’ (these are Diderichsen’s own terms). Instances of such cases are the following constructions (where the ‘logical subject’ is emphasized):


A position such as Jespersen’s, Sechehaye’s or Diderichsen’s is indeed rare in the panorama of structuralist syntax: the majority of structural linguists, especially, but not only, the Europeans, do not take ‘secondary predications’ into account, and do not even consider infinitival constructions as clauses. For example, Bloomfield (1933:269) refers to infinitival subject clauses (‘to scold the boys would be foolish’) simply as ‘marked infinitives’. According to Tesnière (1966[1959]:ch.180, §20) “the infinitive is not a verb”. This means that the infinitival clause is not on a par with dependent clauses containing a finite verb (cf. ch.182,§2). The same path is also followed by scholars such as Mathesius, Togeby, or Benveniste: all of them refer to infinitival constructions as ‘infinite verbs’ or ‘infinitival objects’ (hence, not clauses) governed by a finite verb (see, e.g., Mathesius 1975:128ff.; Togeby 1965[1951]:90; Benveniste 1965).

In this connection, the investigations of the Danish linguist Gunnar Bech (1983[1955-57]) into German infinitival constructions deserve special attention, both for their empirical coverage and for their theoretical insights. Apparently, Bech shares the standard view that infinitival constructions are not autonomous clauses: infinite verbs are ‘homosexually’ governed (in Hjelmslev’s sense; see above:5.2.5), hence the infinite and its governing verb belong to the same clause. Nevertheless, Bech devotes ample space to the problem of

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3 Diderichsen (1976) is the German translation of a collection of essays by the Danish linguist edited posthumously by Anders Bjerrum, Eli Fischer-Jørgensen, Henning Spang-Hanssen and Knud Togeby. Since most of these essays were previously unpublished, I indicate only the original year of their completion, as specified by the editors.
determining the subject of the infinitival constructions. He distinguishes (p.31) between subject “in the proper sense” and subject of the infinitival verb or of the participle (his ‘supina'; see fn.4), which he calls the ‘logical subject’ or ‘agent’: but his analysis, in practice, ends by treating infinitival constructions as clauses, or as ‘nexus’ in Jespersen’s sense.  

In fact, Bech’s main concern is to determine the ‘orientation’ of the infinitival constructions, viz. which argument of the governing verb corresponds to which argument of the governed infinitival verb. He then lists five kinds of orientation; in the first three, the subject of the infinitive respectively corresponds to: (1) the subject of the governing verb (er will gehen, ‘he wants to go’); (2) the direct object of the governing verb (Ich sehe ihn gehen, ‘I see him go’); (3) the indirect object of the governing verb (Ich befehle ihm zu gehen, ‘I order him (DAT.) to go’). In the two last kinds of orientation, the subject of the governing verb corresponds to non-subject arguments of the infinitive: (4) to the direct object (er wird gelobt, ‘He is praised’); (5) to the indirect object (er bekommt ein Buch geschenkt, lit. ‘he receives a book donated’, ‘he was given a book’). As can be seen, Bech treats passive and double object constructions on a par with infinitival constructions: in his system, the participles of frames such as (4) and (5) are instances of supina like those of (1)-(3); cf. p.32.

What is especially interesting in Bech’s treatment of the topic is the fact that he resorts to some syntactic tests in order to establish which is the ‘orientation’ of a given infinitival construction. The most important of such tests is that of reflexivization (cf. pp.35-40). If a reflexive pronoun governed by an infinitive co-refers with the subject of the governing verb, then the orientation is as in (1) above: ich will mich beeilen, lit. ‘I want to hurry myself’. If there is coreference between the reflexive and the object of the governing verb, then the orientation is as in (2): man fordert mich auf, mich zu beeilen, lit. ‘one forces me to hurry myself’. Finally, if the coreference takes place between the reflexive and dative object of the governing verb, the orientation belongs to type (3): man befiehlt mir, mich zu beeilen, lit. ‘one orders me (DAT.) to hurry myself’.

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4 To be exact, Bech’s arguments refer to the kind of infinitival constructions which he calls ‘supina’, and which he opposes to ‘participles’ (cf. Bech 1983[1955-57]:12ff.). Supina in Bech’s sense are governed infinitival forms, while participles are un gouverned ones: the latter occur, e.g., in infinitival relative clauses (ein enttäuschte und weinendes und gar nicht zu tröstendes Kind, ‘a frustrated, crying, and inconsolable child’). The opposition supina vs. participles does not coincide with the morphological classification: past participles can function both as supina, if they are governed by an auxiliary or a modal verb, or as participles, like enttäuschte in the example above. Bech analyzes uninflected participles as having a ‘zero ending’, while supina do not have any ending at all: geliebt-0 (participle) vs. geliebt (supinum); cf. Bech (1983[1955-57]:14-15).
Hence Bech treats infinitival constructions as clauses, or at least as predicational structures, despite his explicit statement of their ‘homonexual’ nature. This apparent contradiction may be explained if one considers that the key concept in Bech’s system of syntax is not that of clause, but rather that of ‘verbal field’, which is constituted by all sentence members depending on the verb (cf. p.43). Every sentence contains as many verbal fields as finite verbs and supina (ibid.): therefore an infinitive verb and its governing verb belong to two different fields. This notion of verbal field shows a certain similarity to Tesnière’s approach, which bases the analysis of the syntactic structure on the verb (see above:197). However, it is difficult to imagine that Tesnière influenced Bech’s studies, given the subsequent publication of Tesnière’s major book (1966[1959]). Besides, Bech fails to give references to the work of other scholars. Possibly, both Bech and Tesnière testify to the growing tendency to give up the traditional analysis of the clause into subject and predicate (see below:6.2.2): such a tendency becomes a principle in Tesnière’s system, while it remains implicit with Bech.

The analysis of infinitival sequences as clauses seems to gain more ground (although not explicitly) with post-Bloomfieldian scholars. Wells (1947a:91-92) deals with an example of infinitival construction (‘want to go’), but he does not commit himself to name it as a clause or as a phrase: he only deals with the problem of where the constituent boundary has to be put, i.e. before or after ‘to’. The analogy of ‘want to’ with ‘can’, ‘must’, ‘will’, etc., would suggest adopting the first solution (the ICs would therefore be ‘want to | go’). However, since in ‘to go is easy’, ‘to go’ is undoubtedly a constituent, “it is desirable that it be treated as a constituent wherever it occurs with the same meaning; on this ground we choose the analysis ‘want | to go’” (p.92).

Nida essentially divides infinitival constructions into two groups: 1) infinitives without a subject (e.g., ‘I desired to leave’) and 2) infinitives with a subject, i.e. with a noun phrase or a pronoun in the objective case (e.g., ‘They advised him to be good’, ‘They believe him to be the finest yet’, ‘They wanted him to go’); cf. Nida (1966[1943]:108-109; 111-112). The second group is said to be an instance of ‘dependent form clauses’. Hence the presence of an explicit subject is the criterion for a sequence to be defined as a clause; note that the assumption that the objective pronouns in the above given examples are all subjects of the following infinitive verbs is by no means uncontroversial. A similar view, however, is also held by Hockett (1958:195), who, examining what he calls ‘objective constructions’, says that one set of them is instantiated by “a clause with or without a conjunction” and lists among others the following examples: ‘(I) advised | John to eat better meals’, ‘(I) considered | John to be wrong’, ‘(I) got | it done’, ‘(We) call | him John’. (The subject is put within
brackets in order to show that the objective construction is the focus of the discussion). As can be seen from the position of the vertical stroke, the noun phrases and the pronouns are considered to belong to the same constituent as the infinitive verb, hence as its subjects.

The status of infinitival constructions is thoroughly investigated in some of Harris’ papers belonging to the transformational period (see especially Harris 1957:306-309; 320-323). Several types of such constructions are analyzed as being formed by two clauses: this holds for sentences like ‘I asked him to deny it’, or like ‘They let the newcomer speak’. The just quoted examples are instances of two different constructions: the former one is a ‘word-sharing combination’, the latter a ‘constructionally included sentence’. ‘Word-sharing combinations’ “consist in the second sentence overlapping the first around the common word” (pp.320-321): they are symbolized as \( N_1 V_1 N_2 + N_2 V_2 \). In the example above, the shared word is ‘him’, which is both the object of the first verb and the subject of the second one. In a ‘constructionally included sentence’, the first verb has as its object the whole sequence \( NV \): in symbols, \( N_1 V_1 (N_2 V_2) \). The difference between the two kinds of infinitival constructions can be detected by noting the sometimes different effects of the transformations applied to them. Consider two sentences such as ‘Everyone heard my brother denying the story’ (word-sharing combination) and ‘Everyone awaited the reports announcing victory’ (constructionally included sentence): passivization of the former brings about ‘My brother was heard denying the history by everyone’, that of the latter ‘The reports announcing victory were awaited by everyone’ (cf. p. 322). Constructions such as ‘He avoided working’ are treated as analogous to constructionally included sentences: their only difference is due to the fact that their second \( N \) is identical to the first, and then it is represented by zero: “‘I wanted to write’ is \( N_1 V_1 (N_1 V_2) \) while ‘I wanted you to write’ is \( N_1 V_1 (N_2 V_2) \)” (p.308). Hence Harris, unlike Nida, assumes that a clausal structure may occur even if one of its constitutive elements, namely the subject, is phonetically zero: this is a further example of the importance of zero elements in his system of syntax (see above:221). It should also be remarked that the representation of infinitival constructions as containing a zero subject was to play an essential role also within the Chomskian framework, from Rosenbaum (1967) until the more recent analyses in terms of ‘control’ (cf. 8.4.4; 10.2.4). The existence of a zero subject is, however, assumed by Harris only when it can be replaced, as in the case of ‘want’ sentences, by an explicit one. Sentences where this is impossible, or “not very natural”, such as ‘I’ll go to sleep’, are analyzed as containing a kind of auxiliary verb “which is added to many (though not necessarily all) \( V \) to make a larger \( V \)-phrase” (Harris 1957:309). This is another instance of both the similarities and the differences between Harris’ and Chom-
sky's approaches to syntax: the former is more strictly distributional and linked
to observable phenomena, the latter is decidedly more abstract. At any rate,
Harris' analyses stated that infinitival constructions were clausal, and this was a
starting point for any investigation within the 'Chomskian program' (even
though it was rejected in some other versions of generative grammar; see be-
low:9.4.3).

2. Analysis of sentence structure
2.1 'Grammatical' vs. 'psychological' or 'actual' analysis

Some linguists of the structuralist period more or less explicitly preserved
the opposition between 'grammatical' and 'psychological' (or 'logical') catego-
ries typical of the psychologistic age of syntax (on which cf. 3.2.2, above): this
is the case, for example, for Gardiner, Sandmann, and de Groot. On the other
hand, the 19th-century notions of 'psychological subject' and 'psychological
predicate' were reshaped in a communicative framework by linguists of the
Geneva and Prague schools. Remember that the term 'actual' was a key notion
both for Bally (see above:5.2.1) and for the Prague linguists, especially Mathe-
sius (see 5.2.2). In short, one could say that the opposition between grammati-
cal and psychological categories was restated by Bally or Mathesius as that
between the grammatical (also called 'formal') vs. actual analysis of the sen-
tence.5

Gardiner maintains that the analysis into a subject and a predicate is neither
a necessary nor a sufficient condition for a given string of words to be a sen-
tence: some sentences are realized through a single word, and subordinate
clauses contain a subject and a predicate, but they are not sentences. Neverthe-
less, he qualifies sentences consisting of a subject and a predicate as "more
satisfactory" (Gardiner 1951[1932]:217). Such sentences are divided "into two
parts, (1) the part referring to the thing spoken about, which is called the 'sub-
ject', and (2) what is said of the subject,6 namely the 'predicate’” (pp.255-256).
Concerning the distinction between grammatical and logical categories, Gar-
diner writes:

When 'subject’ and 'predicate’ are used without further qualification (...) it
must be understood that grammar and logic, or what amounts to the same, form
and function, are here in agreement, and that the terms refer to congruent
function. (p.273)

5 On Mathesius', Gardiner’s and Sandmann’s conceptions of subject and predicate, see also Elf-
6 Gardiner’s footnote: “This is an abbreviation for ‘what is said of the thing meant by the sub-
ject’".
To discover the logical (or 'psychological', or 'functional') predicate, the 'question test' already used by Paul (cf. above:89-90) is resorted to by Gardiner:7 'Henry has arrived' answers the question 'What has Henry done?', and then 'has arrived' is the logical predicate (as well as the grammatical one); 'Hénry has arrived' answers the question 'Whó has arrived', and then 'Hénry' is the logical predicate (cf. Gardiner:ibid.). Sentences where the logical predicate does not match the grammatical predicate are named by Gardiner 'incongruent predicational nexuses'. Congruence between grammatical and logical elements must be assumed unless contrary evidence is given (on Gardiner's notion of 'congruence', see above:171): hence, in sentences such as 'A good fellow, Charles!', where the first member is clearly the logical predicate, we must assume that it is also the grammatical predicate, and the order is grammatical predicate-grammatical subject (p.275). In the flow of speech, words continuously tend to change from predicates into subjects (p.291). In the case of 'incongruent' sentences, Gardiner is not always willing to label as the logical predicate: for example, 'has arrived' in 'Hénry has arrived'. The reason for this is that the words 'has arrived' are not "suited to a subject". Therefore he proposes to change the terminology, and say that in a sentence like that quoted above 'Hénry' is 'predicatively used' (cf. p.289): in such a way, the use of the terms 'logical subject' and 'logical predicate' is avoided. Formal criteria seem therefore to prevail over functional ones: indeed, Gardiner states that some words are more apt to function as subjects, and some others as predicates: nouns are an instance of the former case (cf. p.276), verbs and adjectives of the latter (cf. p.260). In conclusion, one could say that the traditional, grammatical, notions of subject and predicate still seem to play the key role in the definition of this pair of concepts, even for a scholar like Gardiner, who is often very critical of grammatical approaches to syntax.

Sandmann, like Gardiner and many others before them, acknowledges that many sentences consist of one member: hence they are not analyzable into a subject and a predicate. Sandmann, however, does not distinguish between different kinds of sentences (one-member vs. bipartite, and so on): instead, he opposes 'sentence' with 'construction'. Only constructions show a subject-predicate (S-P) structure; "the sentence as such is not necessarily an object of syntax" (Sandmann 1954:140).

Sandmann's aim is not only to distinguish the grammatical categories of subject and predicate from the corresponding psychological ones, but also to show the need for such categories, contrary to what had been maintained by

7 Hatcher also (1956) makes an essential use of such a test to single out the 'given' elements of a sentence. In the examples immediately below, accented letters (e.g., 'i' in 'arrived') indicate contrastive stress.
Svedelius or Kalepky (cf. above:3.2.3): these scholars completely gave up the notions of subject and predicate, and argued for an analysis of sentences into *terminus a quo* and *terminus ad quern* (Svedelius) or into different sentence-members (‘bearer’, ‘patient’, etc.), all lying on the same plane. This kind of analysis, according to Sandmann, only applies to what he calls the ‘representational’ level of grammar (see above:172). By contrast, subject and predicate are connected to the ‘cognitional’ level of grammar, where ‘judgement’ takes place. The form of the judgement is universal (cf. Sandmann 1954:118): every judgment consists of two different parts, a *determinandum*, or *prius logicum*, or ‘subject’, and a *determinans*, or *posterius logicum*, or ‘predicate’. Even sentences like ‘It is raining’ contain an S-P structure: “the S is that relatively undetermined individual existence X, constituted by the fact that we turn our attention to it, and the judgement has again the structure of *X is A’*” (p.125). Such a structure, however, is a purely cognitional structure: it does not match any ontological reality. This marks the difference between Sandmann’s position and Aristotle’s classical theory of judgement, which he essentially follows, in every other aspect: “Aristotle had confused things represented (substance and accident) with S and P” (p. 154).

The representational and the cognitional levels are related to each other, as are the cognitional and the formulational ones: Sandmann speaks, in the former case, of the “integration of representational grammar” and in the latter of “integration of ideal grammar”, where ‘ideal’ means ‘representational + cognitional’ (cf. p.215). He stresses that the order in which these levels are described does not mean at all that we first represent, then think, and eventually speak: representation “cannot therefore be supposed to exist prior to the cognitional act” (p.196) and formulation, “far from being a mere reflex of ideal grammar in linguistic symbols” must be considered as the fulfillment of the communicative task (p.213). Sandmann, therefore, does not endorse a ‘Modistic’ view of language, where *modi significandi* would be the mirror of *modi intelligendi*, and these latter the mirror of *modi essendi*.

The integration of representational grammar and cognitional grammar is realized by combining the ‘terms’ expressing representations into subject and predicate. For example, given a sentence such as ‘John likes Mary’, where John is labeled *T*₁, ‘likes’ *T*ᵦ (r= ’relation’), and ‘Mary’ *T*₂, its cognitional form would be: ‘John (*T*₁=S) (likes Mary (*T*₁*T*₂=P))’. The integration of ideal grammar and formulational grammar brings about some discrepancies, which are caused by communicative needs and by historical change. Sandmann says that “the reasonable approach to grammar of formulation is therefore the historical method” (p.214).
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The distinction between grammatical and psychological categories is a kind of discrepancy between ideal and formulational grammar. Sandmann prefers to name psychological categories ‘cognitional’: this new terminology is rather confusing, as he himself admits, “since any S-P relation is of a cognitional nature” (p.137); in fact, one may remark, grammatical categories are simply those corresponding to the ‘cognitional’ categories of determinandum and determinans (see above). Nevertheless, “‘cognitional’ may be more acceptable to those scholars who were used to either ‘logical’ or ‘psychological’” (ibid.). The criteria proposed by Sandmann to single out the ‘cognitional’ subject and predicate partly reformulate those worked out by earlier scholars: word order (Gabelentz) “can be accounted for only by considering the most disparate factors” (p.138) and stress (Paul, Wegener, Gardiner) does not always single out the real logical predicate. Sandmann’s conclusion is that “(normal) stress plus word-order gives us the criterion for assessing the cognitional values of parts of statements wherever they diverge from their grammatical value” (p.245). Unlike Gardiner, Sandmann does not hesitate about labeling as (cognitional) subject also parts of statements which do not show any formal similarity to grammatical subjects, i.e. to nouns or noun groups. One may also observe the somewhat paradoxical fact that Gardiner’s “innovating” attitude is more constrained by grammatical worries than the essentially “traditional” approach of Sandmann (an Aristotelianism modified through the results of 19th century psychologism and historical grammar).

The problems typical of the psychologistic age of syntax were also revisited by de Groot. De Groot (1949b:97-98) distinguishes subject and predicate, on the one hand, from ‘subdued’ (onderwerp) and ‘uttered’ (gezegde) on the other. We can speak of an ‘uttered’ only when the sentence contains a verb. Hence it is better to say that a sentence such as ‘one man, one vote’ has a subject and a predicate, but not an onderwerp and a gezegde. De Groot (pp.104-108) further distinguishes a ‘procedens’ and a ‘proces’, and a ‘subdued-thing’ (onderwerpszaak) and an ‘uttered thing’ (gezegdezaak): the latter pair of terms is opposed to ‘subdued’ and ‘uttered’, respectively. In a sentence like ‘it rains’, there is a ‘subdued’, but no ‘procedens’; in a sentence like Dutch Er werd gedanst (lit. ‘It has been danced’, ‘We have danced’), there is no ‘subdued’ at all. De Groot calls ‘positive subject’ the stressed element of the sentence and ‘negative subject’ the unstressed one: for instance, in ‘CHARLES will come tomorrow’, the positive subject is ‘Charles’, while in ‘Charles will COME tomorrow’, the positive subject is ‘come’, whose predicate is ‘tomorrow’, and ‘Charles’ is the ‘negative subject’, whose predicate is ‘will come tomorrow’ (p.108). In de Groot’s view, “normally, there is no such analysis applicable, if there is no such emphasis in the sentence” (1957b:311). The grammatical subject is “the mem-
ber of the word-group that contains a pronoun in the subjective case, or its equivalent, usually a noun (...), or a noun-group (...). Similarly, the grammatical predicate is defined (I am talking about English) as the member of the clause which contains the finite verb” (ibid.).

Let’s now turn to the linguists who replaced the ‘psychological’ categories with the ‘actual’ ones. According to Bally, the sentence is formed by *modus* and *dictum*, which are complementary to each other. *Modus* indicates the act of thought by the thinking subject, *dictum* indicates the representation performed by such an act. The *modus* is the ‘theme’, the dictum is the ‘goal’ (*propos*) of the utterance (Bally 1965[1932]:§32). For example, in a sentence such as ‘I think that the accused is innocent’, ‘I think’ is *modus*, ‘that the accused is innocent’ is *dictum*. Through the particle ‘that’, language ‘transposes’ (cf. above:5.2.1) an originally autonomous representation (i.e., an autonomous sentence) into a *dictum* and connects it to the ‘copula’, which in turn connects *dictum* with *modus*. Hence there exist two different relationships within the explicit sentence: the copula forms a ‘partial syntagm’ together with the goal, where the copula is the determined and the goal is the determining; this ‘partial syntagm’ is in turn the determining of the theme. As a consequence, the general scheme of the utterance is not A + c + Z, but A x cZ (§154; A=theme; c=copula; Z=goal). ‘Theme’ and ‘goal’ correspond to Gabelentz’s ‘psychological subject’ and ‘psychological predicate’ respectively: this equation is not explicitly stated by Bally, but it is assumed in practice. The grammatical subject and predicate only occasionally correspond to the psychological subject and predicate, the latter categories being identified both according to the kind of thought expressed and according to the situation and the context (§105).

Bally’s analysis of the sentence into *modus* and *dictum* was further elaborated by Mikus. Mikus’ analysis and classification of utterances (a notion which, for Mikus, is logically and empirically prior to the sentence; see above:6.1.2) is based on his interpretation of the noun–verb opposition. It is described as a spatio-temporal relation: the noun (*E*-sign, *signe-espace*) needs a verb (*T*-sign, *signe-temps*) to realize a temporal dimension; reciprocally, the verb needs the noun to realize a spatial dimension (cf. Mikus 1972:117). The event may be expressed through a sign (*dormit, ‘He sleeps’*) or through a syntagm (*Petrus dormit, ‘Peter sleeps’*); in the latter case, the ending *-t* is “parasitic”. In the expression of the event, the verb is Ti and the noun is Td in the ‘phenomenal’ (*phénoméniste*) interpretation, the verb is Td and the noun is Ti in the ‘objectual’ (*chosiste*) interpretation.

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8 For the meaning of these symbols, see above (201).
*Modus* and *dictum* are present in every utterance be it ‘synthetic’ or ‘analytical’: for example, ‘Ah!’, is a synthetic utterance and ‘I have a bad toothache’ is an analytical utterance (p. 127). Synthetic utterances are variants of analytical utterances (p. 128). There are four different ‘stages’ (*niveaux*) through which the utterance can be realized on a growing scale of analyticity and complexity. The structure of the ‘dicto-modal syntagm of the third stage’ (namely, the ‘most analytical’ one) is the following (cf. p. 133):

\[
(1) \quad \left[j' \times (a v u)\right] \times [(l e \ t r a i n) \times (\text{était parti})]
\]

‘I saw that the train had left’

The modal syntagm is \(T_i\), the dictal syntagm \(TD\). A whole utterance can never be denied: only the *modus*, or the *dictum* can be denied, but not both. In the above syntagm, \(j'ai\ vu\) is the ‘modal’ syntagm, and \(l e\ t r a i n\ \text{était parti}\) is the ‘dictal’ syntagm. \(j'\) has no specific label (but it is the ‘E modal sign’, which corresponds to \(m o i\)); \(a i\ vu\) is the ‘modal verbal syntagm’; \(l e\ t r a i n\) is the ‘dictal nominal syntagm’; \(\text{était parti}\) the ‘dictal verbal syntagm’. All utterances, analytical as well as synthetic, are ‘homofunctional’, since they perform the same task, namely communicating (p. 136). Communication may succeed in many different ways, and so we get different kinds of utterances: all of them, however, can be traced back to an optimum, the dicto-modal declarative syntagm, which is the neuter, ‘logical’ *modus* (cf. ibid.).

As has been seen above (5.2.2), the analysis of the sentence into two communicative parts, distinct from the grammatical ones, was also a central point of Mathesius’ system of syntax: he named the psychological subject ‘theme’ and the psychological predicate ‘enunciation’ (later called ‘rHEME’), in order to mark more clearly the difference between the ‘formal partition’ and the ‘actual partition’ of the sentence. The differing extent to which different languages tend to make the grammatical subject coincide with the theme is an example of what Mathesius means by ‘linguistic characterology’: such a tendency is very strong in English, while it is rather weak in Czech. For instance, while word order in English is mainly determined by the ‘grammatical principle’, which calls for the subject to be put before the predicate, in Czech the fundamental role is played by the actual partition of the sentence: the grammatical predicate, when it is the theme of the sentence, can freely precede the grammatical subject (cf. Mathesius 1941-42; 1975:156-157). For example, a Czech sentence like

*Doma mi pomáhá tatínek* (lit. ‘at home to-me helps father’) puts the grammatical subject at the end, since it is the enunciation (or ‘rHEME’). In order to make the grammatical subject precede the grammatical predicate, English resorts to the passive construction: ‘at home, I am helped by father’ (ibid.). Hence English tends to identify the grammatical subject with the theme much more than
Czech. This tendency explains the development of psychological verb constructions from Middle English to Modern English: *me liketh* became *I like*. This development is unknown to most Indo-European languages, which normally do not have unagentive subjects with verbs in the active form. Such is the case of Czech, where the fundamental function of word order is to express the actual articulation of the sentence and hence there is no particular tendency to “thematize” the subject. Linguistic characterology, however, is not limited to phenomena of functional syntax: formal syntax must also be taken into account, i.e. “the formal analysis of the sentence”, which is different for each language, since each language “has its own ‘sentence cliché’” (Mathesius 1975:86). Hence Mathesius (pp.86-145) devotes ample space to topics such as the classification of sentence types, the problem of verbless sentences, the grammatical notions of subject, object and indirect object, etc.

Mathesius, therefore, does not deny the scientific legitimacy of the grammatical notions of subject and predicate. Quite the contrary, he defines them as the ‘essential elements of the sentence’ (cf. Mathesius 1975:103). He maintains (p.100) that, in the early stages of Indo-European languages, the grammatical subject was always the agent of the action predicated by the verb: but this pattern began to be deviated from even in the oldest period, with the birth of the passive construction. Czech still tends to make the grammatical subject coincide with the agent while English tends to make the grammatical subject coincide with the theme, as has just been seen. Taking into account both the functional and the formal approaches to sentence analysis, one can say that the subject expresses the rheme of the utterance and at the same time the agent in the Czech sentence *Doma mi pomáhá tatínek*. In its English equivalent, by contrast, the grammatical subject “merely denotes the theme of the utterance, the function of expressing the agent of the action being taken over by the adverbiaal adjunct” (p.101).

2.2 The grammatical aspect of the sentence: the subject-predicate relation

Mathesius, Gardiner, Sandmann, and de Groot, therefore, assumed (although in rather different terms) the necessity and the legitimacy of the categories subject and predicate, both on the grammatical level and on the ‘actual’ (or ‘psychological’) one. On these points, their views differ from those of some linguists belonging to the age preceding the structuralism, such as Svedelius, Noreen, and Kalepky, who all maintained that the subject category is illegitimate, from a linguistic point of view (cf. above:3.2.3).

Views such as those of Svedelius, Noreen, or Kalepky found their most consistent and thorough development in Tesnière’s work although it is difficult to prove (as well as to exclude) a direct influence on it by the above mentioned
linguists. Tesnière (1966[1959]:ch.49, §§1-6), in particular, states that the analysis of the sentence into subject and predicate derives from an unwarranted transference of logical categories to grammar. Subject and object, actually, are ‘participant-roles’ (see below:7.2.1) on the same plane: this is shown by the fact that they can be interchanged with each other when the sentence becomes passive (see id.: §§14-16). The definitions of subject and object given by Tesnière (ch.51, §§7-10) run as follows: the subject is the participant-role “performing the action”; the object is the one “undergoing the action”. A consequence of this view is the broadest extension that the concept of sentence takes in Tesnière’s system: lacking any particular grammatical form (and especially the subject-predicate dichotomy), it can be defined as an organized set whose constituent elements are words (cf. ch.1,§2). This definition cannot distinguish the sentence from the word-group; and therefore Tesnière is led to conclude that there are as many types of sentences as there are nodes, viz. four: ‘verbal sentence’, ‘substantival sentence’, ‘adjectival sentence’ and ‘adverbial sentence’. As examples of the last three kinds of sentences Tesnière often brings forward book titles: l’estupide XXe siècle (‘substantival sentence’); ouvert la nuit (‘adjectival sentence’); à la recherche du temps perdu (‘adverbial sentence’; cf. ch.47). However, if a simple sentence contains a verb, the verbal node is always the central node of that sentence (cf. ch.48, §§9-11).

Tesnière’s position however remained isolated within the structuralist framework: the notions of grammatical subject and grammatical predicate are preserved by the majority of syntacticians of the structuralistic age, although they are often left undefined. The assumption of a subject-predicate dichotomy automatically raises some problems: e.g., are both elements necessarily present in all kinds of clauses or not? Does the predicate presuppose the subject, or vice versa? Or do both elements presuppose each other? These topics were especially investigated by Bloomfield and his followers in the United States, and by glossematicians and Martinet among European structuralists. Let’s examine such investigations in turn.

It has been seen in 6.1.3 that the notion of predication plays a key role in Bloomfield’s analysis and classification of sentence types. Bloomfield neither discusses the adequacy of the notions of subject and predicate, nor attempts to define them: he simply resorts to them in an operational way. Nida follows Bloomfield’s lines on this respect too: one may note that, for major sentence types, his analysis is a binary one and the major constituent break always lies between subject and predicate. Sentences are always considered to be exocentric constructions. Therefore, the subject-predicate relation appears to be one of mutual presupposition even if this is not explicitly stated by American structuralists. This analysis holds for all major sentence types and subtypes (see
above:237): transitive, intransitive, equational (therefore, the verb 'to be' is treated as every other verb) and goal-action sentences. Minor sentence types, co-ordinate sentences and clauses with attributives are also described as binary. Even parenthetical clauses are represented as a product of an initial binary division of the sentence (cf. Nida 1966[1943]:19-21).

Hockett defines 'topic' and 'comment' as immediate constituents of the predicative type rather than as the subject and the predicate of grammatical tradition. He adds that "(...) in English and the familiar languages of Europe, topics are usually also subjects, and comments are predicates". This identifications, however, fails "sometimes" in English, and "more generally in some non-European languages" (Hockett 1958:201). On these matters, Hockett's remarks resemble Mathesius'.

Bloomfield's answer to the question whether all clauses are by necessity constituted by a subject and a predicate would be negative: there also exist 'sentence-words' (see above:6.1.3). In general, the answer is negative also for many (but not all) European linguists. For instance, Togeby (1965[1951]:78) remarks that in some languages (e.g. English and Danish) the presence both of a subject and of a predicate is necessary, but not in some other languages (e.g. Latin). This position contrasts with that of Hjelmslev's, according to whom a subject must always be 'catalyzed', i.e., assumed as present in the content plane even if it is not realized on the expression plane (cf. Hjelmslev 1959[1938]:153).

Togeby (1965[1951]:78) adds that French sentences too can be, in some cases, considered to be formed by the predicate only. This is the case when the subject is a clitic pronoun (pronom conjoint): for it would be "more natural" to consider all clitic pronouns to belong to the predicate, be they subject pronouns (je, tu, il) or object pronouns (me, te, le). Plainly, this assumption is based (even if not explicitly) on the fact that all clitic pronouns form a single 'clitic group' together with the verb. Togeby (p.80) also proposes an "operational" definition of the clause (proposition), which joins together the holistic and the analytical ones. Indeed, he defines as clauses both (1) 'independent units', "forming clauses by themselves or in combination" and (2) units showing either the construction subject–predicate or only the predicate, depending on the language. As can be seen, this definition sounds very eclectic.

Since glossematic syntax (and glossematics as a whole) takes the notion of 'dependency', i.e. relation, as its basic one (cf. above:5.2.5), linguists such as Togeby and Hjelmslev himself were obviously concerned with the problem of defining the kind of relation which connects subject and predicate. And since Martinet's syntax also makes an essential resort to glossematic functions, the French linguist too had to face such a problem. It seems that Hjelmslev would
not conceive the subject-predicate relation as a solidarity (namely, as a mutual presupposition), but rather as a selection, where the predicate is the selector (i.e., the determining) and the subject the selected (i.e., the determined) term: in other words, the subject does not need the predicate, but the inverse does not hold (Hjelmslev 1959[1938]:160). On the other hand, according to Togeby (1965[1951]:101), it is difficult to prove that the predicate is the syntactic determining of the subject.

Martinet (1965[1958]:207) explicitly defines the subject-predicate relationship as a ‘solidarity’: neither of them can be said to determine the other. In Martinet’s view, subject and predicate are not word groups, nor words, but word stems. A typical feature of the subject is the impossibility of its omission: the subject differs from the object and from the other ‘expansions’ exactly because of this obligatoriness with any kind of verb: by contrast, the object is obligatory only with verbs belonging to specified classes (cf. Martinet 1985:§5.14 and above:5.3.3).

In some other passages, however, Martinet seems to consider the subject-predicate relationship as a determination relationship. Martinet (1985:§9.3) states that the moneme called predicate is the nucleus of the utterance: subject, complements and adverbs are called its ‘determinations’. Hence, the subject-predicate relationship would be a determination and not a solidarity. In the following section (§9.4), the subject is defined as a “non-omissible ‘complement’”. In a preceding section (§5.17), the function of the subject is said to be that of ‘actualizing’ the predicate: syntagms like French *il y a* are given as examples of such ‘actualizers’, the ‘actualized’ element being the string that follows them (and which Martinet calls the ‘real predicate’, hence not the postposed subject). Martinet also objects to the adequacy of a definition of the subject as the ‘topic’ of a following ‘comment’: in a sentence like ‘a lamb was drinking in the flood of a pure wave’, any element can indifferently be the topic or comment (§8.51). In that same section, Jespersen’s notion of ‘nexus’ is also criticized, as an “unconscious sacrifice to the tradition”: the subject-predicate relation has to be considered as a determination of the predicate by an element possibly endowed with an actualization function.

To summarize: while American structural linguists agree in viewing the subject-predicate relation as a mutual presupposition, glossematicians and Martinet do not seem to find a definite answer to the problem. These difficulties are probably related to the general lack of agreement among European structural linguists as far as the predication relation is concerned, a topic which will be dealt with in a later section (7.1.2).
2.3 More on the problem of verbless sentences: the notion of ‘zero sign’

The grammatical analysis of the sentence is not only concerned with the definition of the subject-predicate relation, but also with the definition of which categories may fulfill the predicate function. For this reason the problem of verbless (or ‘nominal’) sentences, which pervaded the debate on sentence structure during the psychologistic age of syntax (see above:4.1.1), is also confronted by many structuralist linguists. This discussion deserves some attention, since it also contains some proposals for the analysis of sentence structure. The problem may be put as follows: are verbless sentences elliptical, i.e. formed through the deletion of a verb they formerly contained, or not?

Verbless sentences, apparently, are considered as perfectly normal structures, hence not elliptical, by the majority of structuralist syntacticians. For instance, Tesnière (1966[1959]: ch.66, §§6-10) simply treats nominal sentences as instances of predicative sentences (phrases attributives, in French grammatical terminology). In such instances, the noun or adjective in the predicative function plays the same role of the verb in verbal sentences, namely it is the ‘governing’ node. Hence a Latin sentence such as *Triste lupus stabulis* (‘the wolf is a sad thing for the stables’) will have the following stemma:

(2) \[
\begin{array}{c}
\text{triste} \\
\text{stabulis} \\
\text{lupus}
\end{array}
\]

In languages where ‘pure predicative sentences’ such as *Triste lupus stabulis* are not possible, the predicative adjective is accompanied by a form of ‘to be’: this is a case of a ‘dissociated nucleus’, where the verb ‘to be’ would be the auxiliaire, and the predicate the auxilié (cf. ch.67, §6). (Note, by the way, that Tesnière in the original passage calls the verb ‘to be’ the ‘substantive verb’: this is an unexpected sign of the persistent strength of the general grammar tradition).

Mathesius (1975) recognizes that verbless sentences are rather marginal in languages like English or Czech, which are the main subject of his investigation, whereas they belong to “basic sentence types” in a language like Russian (cf. pp.95-96). Nevertheless, he devotes a rather ample space to their analysis. Following his classification of possible sentence structures (see above:6.1.3), he divides verbless sentences into those formed by one element and those formed by two elements (p.87). The former kind of sentences can be ‘theitical’ (e.g., ‘The bell, sir’, ‘No apologies’) or ‘predicative’ (‘Nonsense’, ‘Off with you’): cf. pp. 87-89. Bipartite verbless sentences are exemplified by cases such as ‘An excellent idea, this!’; ‘Tickets downstairs at the office’, or by the so-called ‘headline style’ (cf. pp.89-90).
Mathesius does not explicitly address the question of whether verbless sentences are elliptical or not, but, apparently at least, he would answer in the negative: there is no need to postulate further entities, when communication succeeds in one way or another. Bally (1922; 1965[1932]:§§245-256) held a different view. According to him, 1) a ‘zero copula’ (i.e., a really verbless sentence) can be assumed only for languages like Russian, which never use a copula with a whole inflectional paradigm. 2) Concerning Latin sentences such as *Paulus aeger* (‘Paul <is> ill’), one cannot speak of ‘zero copula’, but of ‘understood copula’, on the basis of the parallel type *Paulus aeger est*. 3) There exist ‘elliptical’ cases, where the understood element is related to a sign lying in the preceding or in the following context.

Bally’s notion of ‘zero’ was also to play an important role in the glossematic framework (just as the notion of ‘zero-element’ played an analogous role in post-Bloomfieldian linguistics; see above:5.3.5). Given Hjelmslev’s opposition between the content plane and the expression plane, some contents may be expressed by zero elements. The operation which assumes content units with zero expression (or, vice versa, expression units with zero content) is called ‘catalysis’ by Hjelmslev: it is crucial in Hjelmslev’s analysis of verbless sentences.

In fact, Hjelmslev (1959[1948]:170) states that sentences such as *omnia praeclara rara* (‘all excellent things <are> rare’), *vox populi vox dei* (‘the voice of people <is> the voice of God’), do not contain any ‘understood’ verb ‘to be’: they actually contain some content elements with ‘zero expression’, namely ‘infectum’ (i.e., ‘non-perfective’), ‘present’ and ‘indicative’. The ‘commutation test’ (see Hjelmslev 1961[1943]:§ 14) is what allows us to draw such a conclusion. If we replaced *infectum* with another aspect, present with another tense, or indicative with another mood, the expression would necessarily change. Aspect substitution: *omnia praeclara rara ~ omnia praeclara fuere rara* (‘All excellent things were rare’). Tense substitution: *omnia praeclara rara ~ omnia praeclara erunt rara* (‘All excellent things will be rare’). Mood substitution: *omnia praeclara rara ~ omnia praeclara sint rara* (‘all excellent things be [subjunctive] rare’). Hjelmslev can therefore conclude that aspect, tense and mood morphemes, traditionally named as ‘verbal’, belong to the sentence as a whole and not to the verb: for the commutation test proves that they are present even though there is no verb. Conclusions very close to Hjelmslev’s were drawn by Bazell (1949b:141fn.1) and by Fourquet (1950:82; cf. also 1973[1959]:98; [1965/1970]:109). Togeby (1965[1951]:76-77) rejected such an analysis, without bringing specific arguments, but limiting himself to a reference to Kurylowicz (1948).

More or less in the same period as Hjelmslev, Benveniste (1950a) worked out a conception of verbless sentences which appears much closer to Mathesius...
Such sentences are considered by him as being on the same plane as other sentences: i.e., they are complete in themselves and not elliptical at all. Nor do they contain a zero copula. It is not necessary, indeed, that the predicate of the sentence be morphologically a verb (cf. Benveniste 1966[1950a]:155). Evidence for such an assumption is presented by several non-Indo-European languages, which do not morphologically mark the opposition between verbal and nominal forms, but nevertheless clearly distinguish finite assertive utterances from other forms of utterance. This position clearly resembles Sapir’s and Brøndal’s (cf. above:188; 191). Contrasting his views on the matter with Hjelmslev’s, Benveniste rejects the hypothesis that nominal sentences contain zero-morphemes (i.e., morphemes without expression) of tense, aspect and mood: “it is unjustified to search for an implicit expression of tense, of mood and of aspect within a nominal utterance which by its own nature is non-temporal, non-modal, non-aspectual” (p.166fn.).

In the present connection, it is not especially important to investigate whether Benveniste’s position is more adequate than Hjelmslev’s, or vice versa (for some remarks on the topic I refer to Graffi 1985). What is more important is to realize exactly where the disagreement between the two linguists lies: while for Hjelmslev any sentence contains inflectional morphemes, be they phonetically expressed or not, Benveniste sees the distinguishing feature of nominal (‘verbless’) sentences precisely in the absence of such morphemes. However, Benveniste does not reject the notion of zero sign, nor the idea that inflectional morphemes belong to the sentence as a whole, even if they are realized through the verb: this is surely an important achievement of the structuralist analysis of the grammatical structure of the sentence, even if one arrived at in a rather unsystematic and somewhat casual way.

2.4 Feldertheorie and the analysis of the sentence

The most systematic analysis of sentence structure carried out within the framework of European structuralism (although explicitly limited to Germanic languages) is possibly the so-called Feldertheorie (‘field theory’), which was first worked out by Diderichsen (1976[1943]:44-58; [1964]:320-344). This analysis was developed by the Danish linguist in total independence from glossematic concerns and goals, which, however, he shared to a large extent. Diderichsen (1976[1964]:322-323fn.3) mentions Fourquet (1938) as one of the works which, in the same years and independently from his own research, have dealt with about the same problems as Feldertheorie.

The perspective of Fourquet (1938) is mainly diachronic. Nevertheless, the introduction (pp.5-21) very clearly explains how the German sentence can be analyzed according to two contrasting points of view: the ‘subject-verb’ point
of view and the 'absolute verbal position' point of view. Consider the following sentences (the examples are ours):

(3) Gestern kaufte Hans ein Buch
    'Yesterday Hans bought a book'
(4) Kaufte Hans ein Buch?
    'Did Hans buy a book?'

The 'subject-verb' point of view considers (3) and (4) to be phenomena of 'inversion'; the other point of view simply classifies them according to the position of the finite verb: (3) is an instance of a 'verb second' sentence, (4) of a 'verb first' sentence. Another position of the finite verb in German is at the end of the sentence, namely the 'verb-final' position, which occurs in dependent clauses. Fourquet strongly argues for the 'absolute' point of view, and he criticizes the 'inversion' approach as still being connected to the old idea of the 'natural order' typical of general grammar.

Fourquet quotes as representatives of the absolute point of view several scholars since the 1880s; moreover, he refers to Meillet's doctrine insofar as historical matters are concerned. Nevertheless, the view of the verb as the central element of the sentence, whose position is 'absolute', whereas the position of the other sentence elements is defined with respect to it, is surely related to Tesnière's views, which were taking shape during the thirties (see above:195); and, as a matter of fact, Fourquet and Tesnière were both working at the University of Strasbourg during the thirties. Fourquet also wrote the introduction to Tesnière's posthumous book (1966[1959]). Moreover, Tesnière's assumption that the verb is "le noeud de phrase" is explicitly quoted by Fourquet (1938:25). For his part, Tesnière (1966[1959]:ch.58,§3) explicitly refers to Fourquet when dealing with German construction.

An analysis of the German sentence in 'absolute' terms is also found in Tesnière (ch.58): the words 'inversion' and 'absolute' are used by Tesnière himself. Such an analysis is presented as a consequence of the abandonment of the subject-predicate dichotomy (see above:251). The German sentence is no longer described in terms of subject inversion with respect to the verb, but as a free arrangement of the several participant and circumstantial roles around the verb, which lies in first position within interrogative and exclamative sentences, in final position in clauses introduced by a subordinator, and in second

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9 It should be kept in mind that such an order is obligatory in German in sentences such as (3), namely those which begin with any adverbial or nominal element.
position in all remaining cases (ch. 58, §§4-5). Hence the several possible word orders of a German statement such as ‘Yesterday my son visited the museum with a friend’ would be represented as follows (§2):

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mein Sohn</td>
<td>besuchte</td>
<td>gestern</td>
<td>mit einem Freunde</td>
<td>das Museum</td>
</tr>
<tr>
<td></td>
<td>Gestern</td>
<td>besuchte</td>
<td>mein Sohn</td>
<td>mit einem Freunde</td>
<td>das Museum</td>
</tr>
<tr>
<td></td>
<td>Mit einem Freunde</td>
<td>besuchte</td>
<td>mein Sohn</td>
<td>gestern</td>
<td>das Museum</td>
</tr>
<tr>
<td></td>
<td>Das Museum</td>
<td>besuchte</td>
<td>mein Sohn</td>
<td>gestern</td>
<td>mit einem Freunde</td>
</tr>
</tbody>
</table>

Hence position 2 in the table above is “reserved” for the verb; any other position may be occupied by any ‘subordinate’ in Tesnière’s sense (ch.58, §6; cf. also above:196). The fact that the infinitive and the participle appear in final position in the German sentence is a further proof, in Tesnière’s view, that such categories are not verbs, but ‘transferences’ from verbs (ch.58, §§9-10; on the meaning of ‘transference’ in Tesnière, see below:7.2.1).

Another possible forerunner of the ‘absolute’ approach, which, however, neither Fourquet nor Diderichsen quote, is Gabelentz’s analysis of the sentence as a “three partitions wardrobe” (see above:4.2.4). The boundaries of Gabelentz and Tesnière’s partitions, however, do not fully coincide with those of Diderichsen’s fields: in particular, while the second partition of Gabelentz and Tesnière contains the finite verb only, Diderichsen’s second field, as will be seen in a moment, contains three members. The term ‘member’ has a technical value in Diderichsen’s model: he explicitly refers to Girard’s (1747) notion of membres de phrase (cf. above:136), which he assumes as primitives of syntactic analysis. Interestingly, Fourquet (1938:6) distinguishes membres de phrase from éléments de phrase: the former are the words and the word groups, the latter are the units bearing a syntactic function, such as subject or object. A similar distinction is not drawn by Diderichsen. Field theory, with respect to other possible ways of analyzing the sentence, has the advantage of being able to specify the position of each member with respect to all other members, not just of some members with respect to each other: for instance, the verb with respect to the subject, or the verb with respect to the object, etc. (cf. Diderichsen 1976[1964]:323).

The field analysis of the sentence (‘topical analysis’, topische Gliederung) must therefore integrate the analysis in terms of members (‘logical analysis’, logische Gliederung). Diderichsen’s view of the sentence is explicitly analytical (cf. above:4.1): the sentence is for him “a speech unit which consists of a
finite verb and its eventual complements (subject and determinations)”. The finite verb is the ‘essential member’ of the sentence, on which both topical and logical analyses are based (cf. Diderichsen 1976[1943]:44). The fields are the units immediately below the sentence level and they are in their turn constituted by the sentence members. The respective order of the members within each field can be formulated through “rather simple rules” (Diderichsen 1976[1943]:47). The different sentence-members, “according to their role in the whole logical structure” (p.46) are distinguished into three types: a) ‘object members’ (Gegenstandsglieder), i.e. subject, direct object and indirect object; b) ‘situation members’ (Zustandsglieder), i.e. predicates; and c) ‘circumstantial members’ (Umstandsglieder). Within Gegenstandsglieder, Diderichsen contrasts subjects on the one hand and objects on the other: the subject “essentially lies outside of the verbal concept” (p.46). Subjects can be contrasted with objects even in languages, such as modern Germanic or Romance ones, which have lost the case endings of nouns: for nominals with object or subject function can be replaced by pronouns, which show a morphological case (cf. Diderichsen 1976[1964]:333). From a categorial point of view, members may be nominal (N), verbal (V), adverbial (A) or conjunctional (K) (cf. 1976[1943]:55).

The sentence fields are: 1) ‘foundation field’ (Fundamentfeld, formerly called ‘initial field’, Anfangsfeld): it is so labeled because it normally hosts “the member on which the sentence is built” (Diderichsen 1976[1964]:328). 2) ‘Nexus field’ (formerly called ‘actual field’), so named because “its members form a nexus or characterize such a nexus” (ibid.). 3) ‘Content field’ (Inhaltsfeld), since its members “display the potential content of the lexical verb” (Diderichsen 1976[1943]:50). Some elements (conjunctions, etc.) may precede the foundation field: they form the ‘conjunction field’ (Konjunktionsfeld), which occurs in front of the initial field (pp.48-49). It is not mandatory that all members actually occur: shorter sentences can be considered as “reductions” of the full forms, and the missing members can be marked as “empty slots” (p.47). There is no necessary relation between the member type and the field in which it occurs. For example, the subject often occurs in the initial field, but an indefinite subject may also occur in the content field: ‘There has come more information about this matter’ (p.50). The field distinction also allows Diderichsen to classify adverbs into three types: 1) those which may occur only in the content field (Inhaltsadverbien); 2) those which may occur only in the nexus field (Nexusadverbien); and 3) those which may occur in both fields (freie Adverbien; cf. Diderichsen 1976[1964]:339).

The order of the fields, Diderichsen maintains (1976[1943]:50), is common to all the languages he investigates, i.e. Germanic languages; by contrast, the order of the members vary both across languages and across the several sen-
sentence types within the same language (p.51). More exactly, the foundation field and the nexus field vary according to the different clause types while the content field always shows the same structure. The foundation field is a particularity of declarative main clauses: in interrogative clauses the first position is occupied by the interrogative word or by the verb, and in imperative clauses by the verb, which belongs to the nexus field. The foundation field can contain one member at most, except than in English; see the following examples (somewhat adapted from Diderichsen 1976[1943]:57), contrasting Danish with English:

<table>
<thead>
<tr>
<th>Foundation field</th>
<th>Nexus field</th>
<th>Content field</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>V-place</td>
<td>N-place</td>
</tr>
<tr>
<td>Heldigvis</td>
<td>havde</td>
<td>K.</td>
</tr>
<tr>
<td>Fortunately</td>
<td>K.</td>
<td>has</td>
</tr>
<tr>
<td></td>
<td>Er</td>
<td>han</td>
</tr>
<tr>
<td></td>
<td>Has</td>
<td>he</td>
</tr>
</tbody>
</table>

Subordinate clauses which show a particular ‘dependent order’ (i.e., those which are introduced by a subordinating conjunction: there exist clauses which have a main clause form and a dependent clause function; cf. Diderichsen 1976[1948]:107-108) do not have any foundation field (cf. Diderichsen 1976[1964]:329); so they behave like interrogative or imperative sentences, from this point of view. The particularity of the dependent order lies also in the respective order of the adverb and finite verb: while the former member follows the latter in main clauses, such an order is reversed in dependent clauses. The following tables illustrate the differences between ‘main’ and ‘dependent’ order (English translations are literal):

<table>
<thead>
<tr>
<th>Conj. field</th>
<th>Foundation field</th>
<th>Nexus field</th>
<th>Content field</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>V-place</td>
<td>N-place</td>
<td>A-place</td>
</tr>
<tr>
<td>Han</td>
<td>ryger</td>
<td>aldrig</td>
<td></td>
</tr>
<tr>
<td>He</td>
<td>smokes</td>
<td>never</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Conj. field</th>
<th>Nexus field</th>
<th>Content field</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>V-place</td>
<td>N-place</td>
</tr>
<tr>
<td>(at)</td>
<td>han</td>
<td>aldrig</td>
</tr>
<tr>
<td>(that)</td>
<td>he</td>
<td>never</td>
</tr>
</tbody>
</table>

The order of the sentence members may be further conditioned by ‘lightness’ vs. ‘heaviness’ factors. For example, in Danish, a pronominal object precedes the negation while a nominal object follows it: *jeg gav ham det ikke* (‘I didn’t give it to him’, lit. ‘I gave him it not’) vs. *jeg gav ikke Peter æblet* (‘I didn’t give the apple to Peter’, lit. ‘I gave not Peter the apple’); cf. Diderichsen
(1976[1943]:49). Within each member, different word orders can appear: the determined-determining order is called by Diderichsen ‘analytical’; the determining-determined order ‘synthetic’ (pp.51-52). The connection with Henri Weil’s work should be evident (cf. above:4.2.4): this connection is even more plausible considering that Diderichsen was especially interested in the historiography of linguistics (cf., e.g., the chapters devoted to Rask, to the origin of historical-comparative linguistics, and to Darwin and linguistics, in his 1976 volume). The roots of field analysis would therefore lie in the insights of some pre-structuralist syntacticians (especially Weil and Gabelentz). However, it was essentially stimulated by positions such as Tesnière’s: his close contacts with Fourquet must be remembered, together with the recognized influence of the latter on Diderichsen’s ideas.
CHAPTER 7

THE TECHNIQUES OF SYNTACTIC DESCRIPTION

0. Introduction

The aim of the present chapter is to illustrate in more detail some of the technical aspects of the structuralistic models of syntax surveyed in chapter 5. The first part (7.1) deals with two notions which are among the basic ones for American and European structuralist syntax, respectively: that of ‘construction’ (7.1.1) and that of ‘determination’, i.e. the relation between the determining and the determined member of a syntagm (7.1.2). The debate on the former notion develops Bloomfield’s insights (cf. above:5.2.3); in particular, it centers around the opposition between ‘endocentric’ and ‘exocentric’ constructions and on the relationship between ‘head’ and ‘attribute’ in the former ones. The discussions of the notion of determination resume - in a structuralist framework - some earlier issues, dating back to the 19th century syntax at least. One of such issues concerns the differences vs. the similarities between attributive and predicative constructions (cf. above:4.2.2).

The subject of sections 7.2. and 7.3. is the various kinds of analysis worked out by the different structuralist schools to define and describe syntactic units and especially word groups. Such analyses may be classified under two major headings, according to their approach to the definition and delimitation of these units. The first kind of approach takes as its starting point the different word classes and bases the definition of the different word groups on them. I will name it the ‘non-procedural’ approach. The second kind of approach, which I will call ‘procedural’, starts from the analysis of the syntactic chain: it arrives at delimiting word groups and also at defining word classes on the basis of the distributional relations discovered within that chain. Among non-procedural approaches, those of Tesnière and of de Groot deserve special attention: they are dealt with in 7.2.1 and 7.2.2, respectively. The procedural approach characterizes American structural linguistics, but it does not exclusively belong to it: it is also typical of several European schools, such as glossematics or Frei’s and Mikus’ ‘syntagmatics’. Within the procedural approach, two directions are
possible: top-down, i.e. from the syntactic chain as a whole down to the minimal units, or bottom-up, i.e. from the minimal units to the syntactic chain as a whole. The majority of procedural approaches are top-down: Immediate Constituent analysis (see 7.3.1), glossematic and ‘syntagmatic’ procedures (see 7.3.3 and 7.3.4). In contrast, Harris’ approach ‘from morpheme to utterance’ (7.3.2) is bottom-up. The final section of the chapter (7.3.5) shows how the different procedural approaches dealt with a specific empirical issue: that of ‘discontinuous constituents’, i.e. of those elements which in a sense “belong together” but are not adjacent to each other. The topic of discontinuous constituents is especially interesting since it will be one of the most investigated by the syntactic theories of the second half of the 20th century, as will be seen in the third part of the present book.

1. Definition and typology of constructions
1.1. American structuralism: ‘endocentric’ and ‘exocentric’ constructions

The typology of constructions was a central topic of debate both for European and American structuralism. The starting points of the two schools were different: the notion of predication for the European linguists, that of constituent for the Americans. The end results arrived at by both schools are however comparable, as will be seen in what follows. In the present section and in the next one, the general problem of the typology of constructions will be investigated: the specific techniques resorted to by the different schools and scholars for defining syntactic elements will be discussed in the second part of the chapter.

The notion of ‘construction’ played a central role in Bloomfield (1933), but it was essentially introduced as a primitive, i.e. without explicit definition: “Whenever two (or, rarely, more) forms are spoken together, as constituents of a complex form, the grammatical features by which they are combined, make up a ‘construction’” (Bloomfield 1933:169). One of the greatest efforts of post-Bloomfieldian syntacticians has therefore been to provide a definition of construction which is both explicit and adequate. The first scholar to pay special attention to this problem is probably Wells (1947a). He states (p.93) that “grammatical ‘order’ is something more than mere sequence. To this ‘something more’ we propose to give the name ‘construction’”. Wells’ insistence on the fact that grammatical order cannot be reduced to linear order undoubtedly recalls analogous statements not only by Bloomfield, but also by Tesnière, such as his stressing of the distinction between ‘structural order’ and ‘linear order’ (see above:5.2.6). Since Tesnière’s model of syntax was hardly known at that time, the most reliable hypothesis is that the idea of ‘structural order’ had developed in tandem throughout the different structuralist schools.
Wells’s definition of construction reads as follows:

Now a ‘construction’ is a class C of occurrences, subject to the following conditions: (1) there is at least one focus-class which includes all the sequences of which the members of C are occurrences; (2) all these occurrences have a certain meaning in common; and optionally (3) all these occurrences occur in a certain total environment or in all of a certain class of total environments.¹ (Wells 1947a:94)

A similar procedure seems to be followed by Hockett, although in rather different terms. Hockett’s (1958:218) eventual definition of construction is the following:

Any member of such-and-such a form-class, conjoined to any member of a certain other form-class, produces a form of a certain third form-class, provided that the selection from the first two form-classes are compatible with regard to concord, governmental concord, government, or cross-reference, whichever is relevant.²

After giving an explicit definition of construction, the next step is that of distinguishing endocentric vs. exocentric constructions: once again, American linguists want to deepen Bloomfield’s insights (see above:5.2.3) and to give more formal definitions. Wells (1947a:83) only hints at the notion of endocentric, while Nida (1948:174) gives a definition both of endo- and exocentric:

Endocentric constructions are those in which the tactical structure of the construction (its class) is substantially the same as that of the head constituent or of both constituents. Exocentric constructions are the converse of this.

According to Nida (1948:173), the opposition endocentric vs. exocentric is only one of the three ‘structural perspectives’ on the basis of which the ‘tactical arrangement’ of Immediate Constituents has to be described. The other two are

¹ The notions of ‘focus’ and ‘environment’ which occur in the above definition are in their turn defined as follows by Wells (p.86): “Every sentence may be divided into ‘focus’ and ‘environment’. The focus is any sequence that is viewed as replaceable by other sequences; correlative, the rest of the sentence is the environment of such a sequence. […] The class of all sequences substitutable for a given focus in a given environment may be called the ‘focus-class’ relative to that environment”.

² ‘Form-class’: “a class of forms which have similar privileges of occurrence in building larger forms” (p.162); ‘concord’ = agreement of nominal morphemes; ‘governmental concord’ = agreement of nominal morphemes governed by intrinsic properties of the head noun [in general, number and case instantiate concord, and gender governmental concord; both kinds of concord occur in endocentric constructions]; government occurs in exocentric constructions; ‘cross-reference’ = subject-verb agreement, or possessor-possessed thing agreement in noun phrases; cf. pp.214-218.
‘co-ordinate’ vs. ‘subordinate’ and ‘paratactic’ vs. ‘hypotactic’ (pp.174-175). In Nida (1966[1943]:17) ‘paratactic’ and ‘hypotactic’ are represented as the two main construction types; ‘co-ordinate’ and ‘subordinate’ are represented as the possible kinds of endocentric construction.

Hockett (1958:184-185; 191ff.) seems to strictly follow Bloomfield’s lines (see above:186), even in his terminological choices:

Some constructions are such that the form-class of the constitutes is similar to the form-class of at least one of the ICs. Here “similar” means that the two ranges of privileges of occurrence largely overlap. [...] Any construction which shows the property just described and illustrated is ‘endocentric’. The constituent whose privileges of occurrence are matched by those of the constitute is the ‘head’ or ‘center’; the other constituent is the ‘attribute’.

Harris (1951) defines exocentric and endocentric constructions as follows:

Sequences of the type $XY = Z$ are called exocentric constructions. (Harris 1951:275fn.31)

Sequences of the type $XY = X$ are called endocentric constructions, and the $X$ in $XY$ is then called the head of the construction. (p.276fn.33)

For each of these couples, $X$ is called the ‘primary’ and $Y$ the ‘secondary’. The secondary term of an exocentric construction is what changes the ‘utterance position’ of the primary. So, for example, ‘darkness’ is an exocentric construction (adjective + suffix = noun), whose primary is ‘dark’ and whose secondary is ‘-ness’: it is ‘-ness’ that changes ‘dark’ into a noun, hence changes its ‘utterance position’. In an endocentric construction, the secondary term is what allows the construction to replace another belonging to the same category. So, e.g., ‘it’ is the secondary term of the construction ‘lay it’, since ‘it’ makes it possible for such a construction to replace, e.g., ‘lie’. Harris does not use the notion of ‘head’: but it seems rather clear that it corresponds to his ‘primary’ of an endocentric construction.

All the above definitions seem to essentially agree. Not all linguists, however, agree on which constructions to classify as endo- and which as exocentric. Nida (1966[1943]) employs a symbolism in his graphic representations of English syntactic structures from which we may infer that he considers clauses (both main and independent) and prepositional phrases as exocentric, and all subject and all predicate expressions (i.e., of the transitive, intransitive, equational and goal-action types) as endocentric (cf. p.18). By contrast, all constituents labeled by him ‘verb phrases’ (namely, constituted by auxiliaries or modal verbs plus main verbs) are classed as exocentric (cf. pp.43-44).

Hockett’s classification differs from that of Nida on many points. In fact, Hockett (1958:191) lists three “major types of exocentric construction”, which
are 1) the ‘directive’ type, 2) the ‘connective’ type and 3) the ‘predicative’ type. In type 1), the ICs are a ‘director’ and an ‘axis’: ‘in | the box’; ‘if | he is going’; ‘saw | John’. As can be seen, the objective construction (transitive construction in Nida’s term) is considered as a subtype of the directive construction; hence it is labeled as exocentric and grouped together with the clause and the prepositional phrase. The motivation for this grouping is that “the range of privileges of occurrence of ‘visit Bill’ does not resemble that either of ‘visit’ or of ‘Bill’” (p. 185). The other subtype of Hockett’s directive construction is that formed by a ‘directive particle’ (namely, a preposition or a subordinating conjunction; cf. p.192) and an ‘axis’. Hockett’s type 2) (‘connective’ type) corresponds to Nida’s ‘equational’ predicate expression: consistently with his preceding assumptions, Hockett labels it as exocentric. Hockett’s type 3) (‘predicative’ construction) corresponds to Nida’s clause, and both linguists agree in considering it exocentric.

Let’s now turn to the notion of ‘attribute’. In Bloomfield (1933), it denotes any element different from the head in an endocentric construction. Such a wide meaning is likewise assigned to ‘attribute’ or ‘attributive’ by post-Bloomfieldian syntacticians; cf., e.g., Nida (1966[1943]:51). Nida names the indirect object ‘1st type attributive to verb head’ and the direct object ‘2d type attributive to verb head’ (pp.105-106). The reason for this terminological choice lies in the fact that the indirect object normally precedes the direct object in English. It has to be noted that ‘attributives to clauses’ in Nida’s sense are not part of an endocentric construction, but of a ‘paratactic’ one, according to the symbols introduced by Nida himself (cf. p.18; 20-21). Note also that Nida (1966[1943]:18) specifies that ‘attributives’ to verbs “do not ‘modify’ the verb in the same way that adjectives seem to modify noun heads”.

Bloch (1946) states that the Japanese clause is formed by the predicate and (optionally) by one or more ‘attributes’. Such attributes are of three types: 1) ‘Adverbial phrases’; 2) ‘Relational phrases’ (viz., NPs of any kind and function); 3) ‘Quotational phrases’ (viz., subordinate clauses); cf. pp.218-223. Hockett (1958:186) lists four classes of attributive constructions (the head is italicized in each case): I) those where the attribute comes first (e.g., ‘big tree’); II) those where the head comes first (e.g., ‘number three’, ‘(the) book on the shelf’); III) those where “the attribute is discontinuous and encloses the head” (e.g., ‘(the) latest volume to come out’, ‘(a better plan than yours’); IV) those where “the head is discontinuous and encloses the attribute” (e.g., ‘did not go’, ‘can never go’).

It may be noted that Nida does not distinguish ‘participant roles’ from ‘circumstantials’, in Tesnière’s sense (cf. below:277-278): both objects (direct as well as indirect) and adverbials are uniformly ‘attributes’ for him. An analo-
gous position is held by Bloch. Hockett's analysis is rather different: his objective construction (cf. Hockett 1958:195-196) is kept distinct from the attributive construction: the reason for this different treatment is due to the fact that he treats objective construction, unlike attributive construction, not as endocentric, but as exocentric. At any rate, no post-Bloomfieldian treatment of endocentric constructions goes further than distinguishing the head from the attribute: the possibility that such constructions may have a more layered structure seems to elude them.

1.2 European structuralism: ‘determination’, ‘coordination’, and ‘predication’

The analysis of the notions of ‘determined’ and ‘determining’ (on whose history see above:4.2.4) underwent a basic change during the last decades of 19th century: it no longer started from single words (one of which determines the other), but from the determination group as a whole (seen as constituted by a ‘determining’ member and a ‘determined’ one). The topic was dealt with also by structuralist syntacticians, who devoted a considerable amount of debate to it.

The starting point of this debate lies in the analysis of the Geneva linguists, which have been presented above (5.2.1): it can be summarized by saying that, while for Bally and for Frei all kinds of syntagms (except the co-ordinative ones) are instances of a determination relation, Sechehaye assumes that determinative syntagms and predicative syntagms belong to two basically different types. Trubeckoj (1939b) essentially espouses Sechehaye’s positions: he says that he “strongly doubts” that subject and predicate can be considered as determined and determining (p.75). Such a statement is supported with a battery of new arguments, which Trubeckoj draws from cross-linguistic comparison: many languages mark the determining-determined relationship in a special way, but the subject-predicate relationship is not marked in this same way. For instance, determining precedes determined in Altaic and Uralic languages: the adjective precedes the noun, the genitive precedes the noun, the adverb precedes the verb or the adjective to which it connected; by contrast, the predicate (the alleged determining) follows the subject (the alleged determined). Hence it is necessary to distinguish ‘determinative syntagms’, formed by a determining and a determined, from ‘predicative syntagms’, formed by a subject and a predicate (cf. p.76).

‘Determination’ is also the name Hjelmslev gives to the first of his three kinds of dependency to which he assigns the more technical term of ‘functions’

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3 I use ‘determined’ and ‘determining’ to correspond to the French terms déterminé and déterminant. Although ‘determining’ is rather awkward, I have preferred it to ‘determiner’ as the latter has a narrower scope than the French déterminant.
Hence determination has, in Hjelmslev's system, a different meaning from the traditional one. Nevertheless, one may ask which syntactic relations are instances of which Hjelmslevian function: in other words, which relation is a case of 'determination', which one of 'interdependence', and which one of 'constellation'. Hjelmslev does not offer any particularly clear solution to this question. A concrete example is instead given by Uldall (1949:71), who compares Jespersen's 'three ranks' analysis (see above:4.2.3) with Hjelmslev's system of dependencies. Uldall starts from Jespersen's classical examples 'the furiously barking dog' (a junction) and 'the dog barks furiously' (a nexus). What is especially important in Uldall’s analysis is the clear distinction between junction and nexus, namely between the attributive and predicative relation: the relation between the primaries ('dog') and the secondaries ('barking', 'barks') is defined by him as being of unilateral presupposition in a junction, of mutual presupposition in a nexus. This idea was probably implicit in Jespersen, but it was not expressed in a clear way; Hjelmslev too was rather implicit on this subject. Uldall therefore arrives at a result which is very close to Trubeckoj’s.

Trubeckoj’s article brought about several reactions, the most interesting of which (in my view) were those by Kuryłowicz, De Groot and Bazell. Kuryłowicz (1973[1948]) considers group (i.e., attributive construction) and clause (i.e., predicative construction) as the 'basic linguistic structures' and states that both of them are instances of a determination relation. In an attributive word group, the noun is the determined and the attribute is the determining member; in a clause, the subject is the determined and the predicate the determining member. Where, then, does the difference between the two constructions lie? According to the Polish linguist, it lies in the difference of their respective 'constitutive members'. The 'constitutive member' of a construction is the member which 'represents' it in its 'external' syntactic relations: in the case of a word group, the constitutive member is the determined, since it plays the role of the whole group within a larger structure (cf. Kuryłowicz 1973[1948]:35). In a clause, however, the constitutive member is the predicate. This last assumption is chiefly based on the analysis of subordinate clauses. In languages like German, where such clauses may show an order of elements different from that of main clauses, the predicate is the element whose position changes according to the type of subordinator: e.g., with denn ('because') the predicate occurs in second position, as in main clauses, while with weil (also meaning 'because') it occurs at the end of the sentence. Moreover, the predicate of the subordinate clause varies according to the predicate of the main clause, as the phenomena of consecutio clearly show (cf. pp.38-39). Kuryłowicz therefore concludes his argumentation by stating that "the word group has the same syntactic value as..."
its determined member, the clause the same syntactic value as its determining member” (p.40).

De Groot (cf. 1949b:54-55) also defines the subject-predicate relation as a determination relationship, where the predicate is the determining and the subject the determined. The subject is the head of the whole sentence in languages such as English or Dutch: cf. de Groot (1949b:80). The difference between a substantive-participle construction on the one hand (‘the barking dogs’) and a substantive-verb construction on the other (‘the dogs bark’) lies in the fact that the latter, but not the former, expresses “the speaker’s attitude about reality”. De Groot (1949b:59ff.) therefore criticizes Trubeckoj’s analysis, which sharply opposes determinative and predicative groups. He also criticizes Kuryłowicz’s definition of the predicate as the constitutive member of the sentence. On this point, de Groot misunderstands Kuryłowicz’s views, by equating ‘constitutive’ with ‘determined’. This misunderstanding once more shows that ‘determined’, for de Groot, is wholly synonymous with ‘head’. According to de Groot, determination (or, ‘subordination’, as he prefers to say, in opposition to ‘coordination’) and predication are not opposed, but freely combine with each other. Hence we can have four kinds of structures: co-ordinative (i.e., non-subordinative) and non-predicative, co-ordinative and predicative, subordinative and non-predicative, subordinative and predicative. The results of this classification are illustrated by the following table (cf. de Groot 1949b:61):

<table>
<thead>
<tr>
<th>co-ordinative group</th>
<th>subordinative group</th>
</tr>
</thead>
<tbody>
<tr>
<td>non-predicative</td>
<td>predicative</td>
</tr>
<tr>
<td>‘men, women, children’</td>
<td>‘one man, one vote’</td>
</tr>
<tr>
<td>‘barking dogs’</td>
<td>‘dogs bark’</td>
</tr>
</tbody>
</table>

Bazell (1945-49; 1949a,b; 1950) offers a detailed treatment of the syntactic relations, taking account both of the more traditional notions of determining and determined and of the glossematic and post-Bloomfieldian notions. Bazell distinguishes three kinds of syntactic relations: ‘subordination’, ‘determination’ and ‘cohesion’. They all belong to what he calls ‘functional’ relations, which are opposed to ‘overt’ relations (Bazell 1949a:5). While the latter relations are “immediately apparent within the chain”, the former ones “are not apparent from inspection of any given chain alone” (ibid.). Bazell defines the three relations in the following terms:

One member of a syntagm is said to be subordinate to the other when the latter is characterised by such features as are also characteristic of the whole syn-
tagm. The endocentric constructions are obviously subordinative, the ‘head’ being the superordinate member of the group. (Bazell 1950:11)

We shall say that one member of a syntagm determines another when its unmarked and characteristic function is to stand in a given relation to a member of the class to which the other member of the syntagm belongs. (Bazell 1950:10)

Cohesion is the degree with which two units combine to make the equivalent of a single unit. (Bazell 1949b:82)

It is essential to bear in mind that, for Bazell, these three kinds of syntactic relations do not define three different kinds of syntagms (as, for example, attributive vs. predicative constructions): quite the contrary, they are present in any syntagm, and only their values differ. The only non-determinative syntagms are the coordinative ones (Bazell 1949a:10-11). Hence both noun/attribute and subject/predicate are instances of a determination relation and of a subordination relation as well: their difference lies in the fact that, in the former construction, the determining member (i.e., the adjective) is also the subordinate member, while in the latter one the determining (i.e., the predicate) is the superordinate member (cf., e.g., Bazell 1950:11). The superordinate role of the predicate is shown by the fact that it is the bearer of the morphemes which characterize the whole nexus, like the tense and mood morphemes (cf. Bazell 1949b:84-85). “For the tense of the verb or other predicative is in meaning the tense of the whole sentence” (Bazell 1949a:7); Bazell hence holds the same views as Hjelmslev about verbal morphemes (cf. above:255). The verb is not only the determining of the subject, but also of the object: on this point, Bazell’s views differ from those held by the majority of syntacticians. He arrives at such a result on the basis of his notion of ‘unmarked and characteristic function’ (cf. Bazell’s definition of determination given above): such a function, for a verb, is to take a nominal as its object, hence the verb determines its object. The existence of intransitive verbs “is no more an argument for the marked status of the object than the impersonal verb is for the marked status of the subject” (Bazell 1950:11). The difference between the subject/verb relation on the one hand and the verb/object relation on the other lies in their different degree of cohesion, which is lesser between the subject and the verb than between the verb and the object (p.12). The subject can indeed be defined as “the subordinate determinatum with minimal cohesion” (ibid.).

Two aspects, therefore, differentiate Bazell’s position from those of Kuryłowicz and of de Groot. The first is the assumption of a relation of subordination, different from that of determination and combined with it: such a difference is fundamental for Bazell, while Kuryłowicz (implicitly) and de Groot (explicitly) equate determination with subordination. The second aspect is related to the role of the verb as determining the object, or vice versa: as has been
seen, Bazell holds the former view, while Kurylowicz and de Groot assume the opposite position, namely that the object determines the verb. Still another view is expressed by Fourquet (1950): he opposes the subject/predicate relation to the determining/determined relation. In Fourquet’s terms, however, the first relation is restricted to predicative nominal constructions, with or without the copula. All sentences containing a verb are said to belong to the determined/determining construction type (cf. Fourquet 1950:88-89). In this latter type of construction, there are several ‘layers’ of determination: the subject determines a determining/determined group, that formed by the verb plus the object, within which the determining member is the object. Therefore, Fourquet assumes that the subject-predicate relation is “less strict” than the verb-direct object one, taking a position analogous to Bazell’s, on this subject.

Haugen (1951) and Togeby (1965[1951]:12) systematically compare glossematic functions to the types of constructions of American structural linguistics. Glossematic ‘selection’ would correspond to the subordinative endocentric construction; ‘solidarity’ to the exocentric construction; ‘combination’ to the coordinative endocentric construction. Glossematic syntax seems therefore to become rather close to American structural linguistics, both in its concepts and in its analytical methods: it is difficult to say if such a position would have been taken by Hjelmslev himself. Also Diderichsen (1976[1952]:128-129) sketches a comparison between glossematic functions and the American structuralist typology of constructions. He maintains that glossematic functions have a different value if they are defined according to the ‘syntagmatic’ vs. the ‘systematic’ point of view, in Togeby’s sense (see above:194). For example, the relation between the preposition and its object is a syntactic solidarity (since this construction is exocentric), but a systematic selection. Diderichsen (1976[1948]:109) also stresses the need to distinguish between the part-whole relationship, on the one hand, and the relation between the two members of a determination relationship, on the other. To this end, he proposes to call the former kind of relationship ‘linkage’ (Zuordnung) and to use the name ‘determination’ only for the latter one. Hence a subordinate clause would be ‘linked’ to the main clause, while it would at the same time be ‘subordinate’ to the main verb.

The comparison between the analysis of syntactic functions by European linguists on the one hand and by American linguists on the other further developed in the fifties. A significant contribution to this field is de Groot (1957a), which undertakes a systematic comparison with the analyses of word groups carried out by Bloomfield and post-Bloomfieldians and radically reformulates many preceding positions of the Dutch linguist. The main difference lies in the analysis of the subject-predicate relationship. In de Groot (1948; 1949a,b), it is
defined as a subordinate group, while in de Groot (1957a) it is defined as a word group with a peculiar structure: the so-called ‘conjunctive’ group. Bloomfield’s classification, according to de Groot, suffers from a fundamental restriction: it is simply a distributional classification (with some further inadequacies; see below), while structural syntax must aim at a ‘structural classification’. Such a classification will present a system, hierarchically ordered, of the different oppositions between the different kinds of word groups (cf. de Groot 1957a:139-151). It is based on two notions which are given without further definition: ‘coordinative’ and ‘predicative’, with both a positive and negative value. The primary opposition is that between predicative and non-predicative. By contrast, de Groot (1949b:59) had stated that the primary opposition was that between coordinative and subordinative, while that between predicative and non-predicative was only secondary (see above). Within non-predicative groups, coordinative groups are opposed to non-coordinative ones: cf. ‘fathers, mothers, children, and dogs’ vs. ‘the stern father’. Predicative groups are ‘simple’ (‘the father is stern’) or ‘complex’ (‘the father is stern, though’); cf. p.145.

To complete his system, De Groot introduces an opposition between two terms commonly considered as synonymous, namely ‘coordinative’ and ‘conjunctive’ relation: “a ‘conjunct’ is defined as a non-omissible member of a group of which the other member is equally non-omissible (...) A coordinate is defined as a member of a word-group of which each member is omissible” (De Groot 1957a:131). The subject-predicate relation is an instance of conjunctive relation: neither ‘John’ nor ‘ran’ can be omitted in ‘John ran’. An instance of coordinative relation would be ‘fathers, mothers, children, and dogs’, each member of which can be freely omitted. These oppositions are assumed as more or less universal; further distinctions within them differ from language to language.

On the basis of these notions, de Groot reaches the same results as Bloomfield as far as the mutual relations of the group members are concerned, but his classification of word groups based on the notions of ‘coordinative’ and ‘predicative’ allow him to preserve the peculiarity of the subject-predicate relation. For both prepositional groups (‘with John’) and predicative groups (‘John ran’) are constituted by two conjuncts, neither of which can be omitted: hence they correspond to Bloomfield’s exocentric constructions. At the same time, they are contrasted according to their nature: ‘with John’ is a ‘non-coordinative, non-predicative group’ (of the kind ‘subordinating conjunctive connective’; cf. de Groot 1957a:119), while ‘John ran’ is an ‘(independent) predicative group’ (p.120). Not every predicative relation, however, is conjunctive from the distributional point of view. Consider, e.g., English predicative groups: they can be ‘independent’, namely coincide with the clauses, or ‘dependent’. This latter kind of predicative group is exemplified by absolute constructions and by ‘head
with appositive’ constructions (e.g., ‘the boy, angry, (left)’; ‘John, the Baptist, (died)’); cf. ibid. (An analogous view of the apposition as ‘non-sentence predication’ is held by Mathesius 1975:90). The apposition (‘angry’, ‘John’, in the examples above) can be freely omitted: hence the head with appositive constructions is a predicative construction without at the same time being a conjunctive one (cf. de Groot 1957a:146).

The essential difference between determinative (or subordinative) and predicative constructions was not recognized by all European structural linguists: the opposite view was still held, e.g., by Sandmann (cf. above:246) and, in later years, also by Mikus (cf. p.249). Even Martinet’s position on the question wavered somewhat (cf. p.253). However, people like de Groot ended up by sharing the positions held since the thirties by their American colleagues and by adopting the distinction between endocentric and exocentric constructions. Nevertheless, the adoption of such a common framework did not imply that the analyses of the specific constructions were always the same within both schools. Some instances of such differences have been examined in the present section; some others will be dealt with in 7.2.2.

2. Looking for syntactic units: non-procedural approaches
2.1 Parts of speech and syntactic nodes in Tesnière

The cornerstone of Tesnière’s system of syntactic analysis is his treatment of parts of speech: for his taxonomy of syntactic structures is based on the classification of parts of speech and of their ‘transferences’ (translations). According to Tesnière, the classification of parts of speech presupposes the distinction between ‘static’ and ‘dynamic’ syntax: the former investigates ‘categories’, the latter ‘functions’. The analysis of categories consists in the assignment of single words to the different parts of speech; the analysis of functions in the discovery of the relationships which connect words with each other. Since it concerns structural syntax, Tesnière’s investigation only deals with functions (cf. Tesnière 1966[1959]:ch.25, §11).

The first distinction to draw is that between ‘full’ and ‘empty’ words. Such a distinction belongs to the semantic level: it is matched, on the structural level, by that between ‘constitutive’ and ‘subsidiary’ words (cf. ch.29, §1; on the opposition between ‘semantic’ and ‘structural’ in Tesnière, see above:5.2.6). Constitutive words are opposed to subsidiary ones according to the capacity vs. the incapacity of “assuming a structural function and forming a node” (ch.29, §2): for example, in the sentence member *le livre d’Alfred, livre and Alfred* are constitutive, *le* and *d’* subsidiary. Constitutive words are ‘morphemes’ from the structural point of view and ‘semantemes’ from the semantic point of view (cf.
ch.29, §§13-14). In general, constitutive words are also full words, but in some cases they can be empty words.

Full words are substantives, adjectives, verbs, and adverbs, which are symbolized by the letters O, A, I, and E, respectively. Their relationships are summarized by Tesnière in the following table (ch.32, §21):

<table>
<thead>
<tr>
<th>Substance (Noun)</th>
<th>Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete..........</td>
<td>Substantive</td>
</tr>
<tr>
<td>Abstract..........</td>
<td>Adjective</td>
</tr>
</tbody>
</table>

Substantives are defined as “full words expressing the notion of a substance”; adjectives as “full words expressing abstract attributes of substances”; verbs as “full words expressing abstract attributes of processes” (cf. ch.32, §§3-12). Pronouns are not defined by Tesnière as an autonomous word class, but as a subclass of substantives, and they are named ‘general substantives’ (cf. ch.34, §20).

Empty words are subdivided by Tesnière into ‘junctional’ (jonctifs) and ‘transferring’ (translatifs), to which ‘indices’ are to be added. Junctional words have the task of joining full words or the nodes they form (cf. ch.38, §5); transferring ones that of transforming the category of full words: for example, in the French substantival node le bleu de Prusse (‘Prussian blue’), le and de are transferring words: the former one transforms the adjective bleu into a substantive; the latter the substantive Prusse into an adjective. Indices may be assimilated to transferring words: indices, however, do not transform the category of full words; they only ‘indicate’ it. Whereas the initial category is exactly defined with transferring words, this does not happen with indices: their initial category (1) is not exactly defined, or (2) it is identical with the resulting category. An instance of (1) is ‘love’: with the personal index ‘I’, it is a verb; with the article ‘the’, it is a noun. An instance of (2) is French livre, which is always a substantive, before and after the addition of the article le. It is not always easy to distinguish indices from transferring words: for example, le in le bleu is transferring, since it transforms an adjective into a substantive, while in le livre it is an index. The main types of indices are inflectional endings, articles and ‘personal indices’. This is the name given by Tesnière to clitic pronouns, in opposition to stressed pronouns, which are defined by him as ‘personal substantives’ (see above). Personal indices are distinguished from personal substantives since they cannot 1) be stressed; 2) be preceded by prepositions; 3) be

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4 Such labels are chosen by Tesnière since they match the final letters of the corresponding word classes in Esperanto: -i for infinitivals, -o for substantives, -a for adjectives, -e for adverbs (cf. Tesnière 1966[1959]:ch.33, §3).
employed in isolation, e.g. as an answer to a question (cf. ch.59, §§10-12). As a general remark, it may be noticed that Tesnière's definitions of the four classes of 'full words' still appear to be strictly related to the general grammar tradition, while those of 'empty words' look decidedly more innovating.

The analysis of word groups and of the whole syntactic structure is based on the word classes as defined above. The letters symbolizing the categories of full words make it possible to create a 'virtual stemma', i.e. a general pattern of sentences which can correspond to an infinite variety of particular sentences. A sentence such as, e.g., *votre jeune cousine chante délicieusement* ('your young cousin sings delightfully') will have the stemma on the left, which is an instance of the virtual stemma on the right (cf. ch.33, §17):

(1)

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<table>
<thead>
<tr>
<th></th>
<th>chante</th>
<th>I</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>cousine</td>
<td>délicieusement</td>
</tr>
<tr>
<td>E</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>votre</td>
<td>jeune</td>
</tr>
</tbody>
</table>
```

Each capital letter is the symbol of a node: I of a verbal node, O of a substantival node, A of an adjectival node, and E of an adverbial node. As noted above, these nodes correspond to the four types of word group recognized by Tesnière. By means of virtual stemmas, it becomes possible to grasp the structural identity of sentences which, across languages, can show different word orders: *Alfred parle bien, Alfred spricht gut, Aulus bene loquitur* (cf. ch.33, §17).

How can any syntactic category be reduced to one of the four word classes contained in the virtual stemma above? The notion of Tesnière's system of syntax which answers this question is 'transference' (as he himself suggests rendering the French word *translation*; cf. Tesnière 1966[1959]:ch.154, §2). Transference indicates the transformation of words of one kind into words of another kind (ch.152, §1). Tesnière's transference closely resembles Bally's 'transposition' (see above:176-177): and indeed, Tesnière quotes Bally as the first of his forerunners (ch.163, §2). The operation of transference reduces any

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5 Among the other forerunners of the concept of *translation* mentioned by Tesnière (Guillaume, Gougenheim, Benveniste, Kuryłowicz, Dauzat; cf. Tesnière 1966[1959]:ch.163, §§9-15), Kuryłowicz is the one whose treatment (1936) is possibly the most directly related to Tesnière's. The Polish linguist also singles out noun, verb, adjective and adverb from the other parts of speech. He maintains that each of them has its 'primary' syntactic function: the noun, that of being the subject; the verb, of being the predicate; the adjective, of being the determining of the noun; the adverb, of being the determining of the verb. The other functions such parts of speech may assume are brought about by means of the process of 'syntactic derivation', which is always formally marked: e.g., the noun may assume the subject function by taking the
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category to one of the four classes of ‘full’ words, i.e. Nouns, Adjectives, Verbs and Adverbs. Even subordination is a result of transference: a verbal node is reduced to a noun, or to an adjective, or to an adverb. The transference to a noun yields ‘participant’ subordinate clauses (ch.241, §11); the transference to an adjective ‘adjectival’ subordinate clauses (ch.245, §4); the transference to an adverb ‘circumstantial’ subordinate clauses (ch.254, §1). One may once again notice that the system of the parts of speech has logical priority over the system of dependencies in Tesnière’s framework. In fact, dependent clauses are not defined in terms of their type of relation with the main clause, but according to the part of speech whose function they eventually take. Transferences inside word groups are treated identically: for example, a noun in the genitive or governed by a preposition such as English of is defined as “a noun transferred to an adjective” (ch.176, §8). This last case of transference is dubbed by Tesnière “transference of the first degree”; it takes place inside the simple sentence. The other case of transference, that involving subordinate clauses, is called ‘transference of the second degree’ (cf. ch.164).

The highest node in the ‘virtual stemma’ above is the symbol for verbs: according to Tesnière, if a simple sentence contains a verb, the verbal node is always the central node of that sentence (see also above:6.2.2). Hence Tesnière’s analysis of the verbal node coincides with the analysis of the most common type of sentence. This is the so-called ‘valency’ grammar,6 a metaphor which Tesnière explicitly borrowed from the technical language of chemistry. Tesnière (1966[1959]:ch.97, §3) compares the verb to “a kind of hooked atom” which can exert its power of attraction on a smaller or larger number of ‘participant roles’ (actants, in Tesnière’s terms; I am here adopting the English terminology used by Lyons 1977 and by Quirk & al. 1985). These participant roles indicate the actors of the ‘little drama’, that is to say of the process expressed by the verb. In general, the definitions of the three kinds of roles are based on semantic criteria. The first participant role (prime actant) is ‘the performer of the action’ (“celui qui fait l’action”; ch.51, §6); the second participant role (second actant) is the ‘undergoer of the action’ (“celui qui supporte l’action”; §9); the third participant role (tiers actant) is ‘the beneficiary or the injured party of the action’ (“celui au bénéfice ou au détriment duquel se fait

accusative ending, or, in languages without morphological cases, by taking an obligatory position with respect to the verb.

6 According to Allerton (1996:359), the notion of valency had already been expounded by de Groot (1949b) and hinted at by Bühler (1934). De Groot cannot be said to have been a real forerunner of Tesnière, since the work of the latter dates back to the thirties and the forties. Allerton’s remark is probably correct insofar as Bühler is concerned; but, in this case, Svedelius and Kalepky could also be numbered among Tesnière’s forerunners (see above:3.2.3).
The traditional labels of ‘subject’ and ‘object’ are preserved by Tesnière for his ‘first participant role’ and ‘second participant role’, respectively (§7). The second actant of passive verbs (namely, the agent) is dubbed ‘countersubject’ by Tesnière (§18).

The number of participant roles varies according to the class to which the verb belongs: so there exist several verb classes according to their ‘valency sets’. Verbs with no participant roles are called ‘0-valency verbs’ (traditional ‘impersonals’; cf. ch.98, §1); verbs with only one role ‘1-valency verbs’ (standard ‘intransitives’; cf. ch.99, §1); verbs with two roles ‘2-valency verbs’ (standard ‘transitives’; cf. ch.100); verbs with three roles ‘3-valency verbs’ (typically, the verbs of ‘telling’ and of ‘giving’; cf. ch.106, §§13-14). However, Tesnière (ch.106, §§13-14) remarks that some 3-valency verbs have no third participant role, but two second participant roles, in languages such Latin or German: *Antonius docet pueros grammaticam* (‘Anthony teaches grammar to the children’), *Wer hat dich solche Streiche gelehrt?* (‘Who has taught you such tricks?’). In such cases, according to Tesnière, there are two second participant roles, and no third participant role. In this last case, therefore, Tesnière does not seem to identify the participant roles according to their function within the ‘little drama’ (i.e., as ‘actor’, or ‘undergoer’, or ‘beneficiary’ of the action described by the verb), but rather according to the morphosyntactic properties of the nouns or noun groups which represent them. Indeed, the statement that the Latin or German sentences quoted above contain two second participant roles is based on the fact that both *pueros* and *grammaticam*, or *dich* and *diese Streiche*, bear the accusative case and both can be made subject of the corresponding passive sentence. Their roles differ, however, with respect to the action described by the verbs meaning ‘learn’. Tesnière therefore identifies what could be called the ‘semantic role’, on the one hand, and the ‘grammatical relation’, on the other.

Besides participant roles, the sentence (or, more exactly, the verbal node) may also contain some ‘circumstantial roles’ (*circonstants*), which express the conditions of place, time, manner, etc., in which the process takes place. Participant roles are always substantives or equivalents of substantives; circumstantial roles are always adverbs or equivalents of adverbs (on the whole subject see Tesnière 1966[1959]:ch.48). Hence, if a circumstantial is expressed by a substantive, it has to be converted into an adverb by means of a preposition: *Alfred marche avec une canne* (‘Alfred walks with a stick’; ch.57, §2). Participant roles are obligatory; circumstantial roles are optional (ch.57, §3).

Substantival, adjectival and adverbial nodes are not described by Tesnière in terms of valency grammar, but only according to the subordinate nodes that each of them contains. The subordinates of the substantival nodes are the at-
tributive adjective (*épithète*, in French grammatical terminology) and the various categories transferred into an adjective (prepositional phrase with ‘of’, genitive phrase, relative clauses, etc.); cf. Tesnière (1966[1959]:chs.64-65).

The attributive adjective precedes the substantive in ‘centripetal’ languages, while it follows it in ‘centrifugal’ ones (see above:197). The normal subordinate of the adjective is the adverb. Besides adverbs proper, such subordinates may also be ‘adverbial formulas’, introduced by prepositions (cfr.ch.74, §10).

The only possible subordinate of an adverb is another adverb (cf. ch.76, §§2-3).

Tesnière’s analysis of syntactic structure may therefore be summarized as follows (see also 5.2.6, above): the main opposition is that between ‘governing’ and ‘subordinate’ elements, which together form ‘nodes’. Nodes are distinguished according to their governing element (Verbal Node, Substantival Node, Adjectival Node, Adverbial Node), which takes different kinds of subordinates. Verbal nodes differ according to the ‘valency class’ of the verb. Any syntactic category may be reduced to such a node by means of the ‘transference’ process.

2.2 *De Groot’s classification of word groups*

De Groot’s distinction between coordinative and subordinative groups has been introduced above (7.1.2). The structure of a subordinative word group is always binary for de Groot: it contains a determining and a determined (also called by the American labels ‘attribute and ‘head’, respectively). The determining as well as the determined member of a word-group can in turn be constituted by a word group, and so on. What is the determined and what is the determining member? The answer is given by the ‘omission test’: the member of the group which can be omitted is the determining, that which cannot is the head (cf. de Groot 1949b:148-149). In many cases, however, the analysis of the subordination relations is based on introspection and on the observation of word order in languages such as Dutch. The capability of the different word classes to function as head, as attribute, or as both, is called by de Groot (following A. Reichling) ‘syntactic valence’ (cf. de Groot 1948:437; 1949b:114-115; 190). In general, words and word groups can function as sentences, as heads or as attributes, in every language (cf. de Groot 1949b:264). Hence, ‘valence’ often means ‘distribution’: this can be clearly seen, for example, when de Groot (1949b:195) says that (the words for) ‘house’ and ‘houses’ have different valences, since we say ‘the house is burning’, but ‘the houses are burning’. In some other cases, valence is said to mean the ‘possibility of combination’ and is opposed to the ‘syntactic means’, which realize this possibility (p.241). Conjunctions, government and agreement are not syntactic means: these latter are word order, juxtaposition of words, and intonation (p.265).
Combinability of words is not restricted by meaning considerations: ‘a square circle’ is perfectly possible from a linguistic point of view (p.197).

‘Word class’ is not synonymous, in de Groot’s work, with ‘part of speech’: the latter term indicates what the majority of linguists would rather call ‘sentence member’ (subject, object, etc.; cf. de Groot 1949b:120-121). There is, however, a definite relation between ‘word classes’ and ‘parts of speech’ in de Groot’s sense: a part of speech is a kind of word “used” in a certain function, such as, e.g., determined, determining of X, etc. (p.193). The “general rules” which tie the different word classes to their respective functions in coordinative and subordinative groups are: “1. (...) any word and any word-group can be used in coordination. (...) 2. As a general rule, only syntactic units of the same class of use can be connected in a coordinative group” (p.219). In subordinative groups, the general rules which govern the possibility for a word or a word group to be used as a head are the following ones (pp.222-223): 1. all word classes except interjections and deictics can be used as heads. De Groot uses ‘deictics’ in the widest sense: they also include, e.g., ‘wh’-words used as determining and prenominal genitives. Some words, however, must be used as heads: pronouns in the nominative case (as opposed to pronouns in oblique cases), prepositions, subordinating conjunctions, imperatives. 2. “Word categories expressing a relation with something which in a certain language is named through a word belonging to a certain syntactic category (namely, transitive verbs, prepositions, subordinating conjunctions; G.G.), must be determined by such a word”. The general rules which govern the possibility for a syntactic unit (i.e., a word or a word group) to be used as a determining (‘determination’, in de Groot’s own words) are the following ones (pp.223-224): 1. In principle, any word can be used as a determining, except interjections and other words with attitudinal meaning, e.g. vocatives and imperatives. 2. “Words, which designate something and moreover a relation directed towards this something, must be used as determinations”. Such words are, in Dutch: finite verb; adjective and adverb; a noun in the genitive case (in Latin, any noun in an oblique case). One can see that the transitive finite verb appears twice in the above quoted general rules: as an obligatorily determined head (whose determining is the object), and as an obligatorily determining word (whose determined is the subject).

On the basis of these observations, de Groot (1949b:74) arrives at the following definition of word group:

7 “An attitudinal meaning is defined as the expression of an attitude of the speaker to something” (de Groot 1957a:135).
A word-group is a combination of words which has as function that of naming a state of affairs. Its phonological feature is: juxtaposition of such words in a sound unity. Its structure is coordinative or subordinative. It can be employed as word content of the whole sentence, or as member of a co-ordinative or a subordinative word group. In practice, it is sufficient to say: a word-group is a co-ordinative or subordinative combination of words.

So far de Groot's analysis of the structure of subordinative word groups has been described. His inventory of word groups starts from word classes, being based on a non-procedural approach. De Groot (1949b:ch.5) lists (for Dutch) the following word groups, according to their different heads: 1) substantive group; 2) adjective group; 3) numeral group; 4) article group; 5) relative pronoun group; 6) determinative particle group; 7) prepositional group; 8) conjunction group; 9) verb group. Each of this groups contains a determining member, besides the head member from which it gets its name; the actual existence of group 6 is put into doubt, since "determinative particles are probably not determinable" (p. 112). De Groot (pp.112-113 and passim) stresses that the preposition, conjunction and verb are heads of their respective group, since they are determined by the noun, the dependent clause and the direct object, respectively. That the conjunction is the head of the dependent clause is shown by the different word order which it brings about in such clause, with respect to the main clause. Hence the prepositional group and clause are considered endocentric constituents by de Groot, not exocentric, as by Bloomfield and post-Bloomfieldians.

The substantive group is divided into two main subgroups: a) groups with non-predicative determination; b) groups with predicative determination. The latter groups are those where the subject is the head of the whole sentence, which contains a 'predicative determining'. In non-predicative substantive groups, normally 1) stress is located on the last word and 2) the determining member precedes the head. Concerning the structure of verb groups, de Groot stresses that one has to speak not of 'predicate determinations', but of 'verb determinations', exactly as an adjective is an attribute of a substantive no matters whether the substantive is subject, or object, or prepositional object, or predicate noun. Analogously, a verb form (e.g., a participle) can be used non-predicatively and still have the same attributes as a predicatively used verb form (p.146).

Discussing the respective order of the different determinations of the verb with respect to each other and to the verb as well, de Groot (pp.156-157) introduces the notion of 'pure syntactic order': its only function is that of indicating the structure of the word groups. Pure syntactic order is not necessarily the normal order, nor the standard one. Pure syntactic order and other orders as
well may be ‘fixed’ or ‘rigid’. The order defined as ‘pure’ by de Groot corresponds, in Dutch, to that of the subordinate clause, where the determinings most strictly connected with the verb lie at the end of the clause, immediately before of the verb itself. De Groot, however, does not seem to pay any attention to the problem of Dutch word order, which, being so similar to that of German, could suggest something similar to ‘field analysis’ (see above:6.2.4). A good specimen of such an attitude is a chance remark about an instance of a ‘verb second’ phenomenon: *morgen komt hij* (lit. ‘Tomorrow comes he’, ‘He will come tomorrow’; cf. p.101). In his view, this construction only has the goal of “more strictly” expressing the determination relation between verb and adverb. De Groot’s relations are only binary: ‘determining’ vs. ‘determined’, ‘predicative’ vs ‘non-predicative’, ‘coordinative’ vs. ‘subordinative’; the notion of ‘field’, being not binary, cannot be made to fit into this system.

3. Looking for syntactic units: procedural approaches

3.1 Immediate Constituents analysis

As will be remembered (see above:185), Bloomfield (1933) did not work out any special procedure to delimit constituents: he mainly relied on intuition. Nida also (1966[1943]) follows this path: a variety of English syntactic structures are graphically represented by him in the form of immediate constituents (cf. pp.18-47), but no explicit argument is offered in order to justify such representations and not others. It is also important to note that all constituents are unlabeled in Nida’s diagrams. These features of the graphic representation of constituents did not change radically in the subsequent years. Wells (1947a) does not contain any diagram. Hockett (1958:147-156) represents immediate constituents with a system of cases successively embedded within each other: each case contains one immediate constituent. For instance, the sentence ‘England uses the foot-pound-second system’ is represented by Hockett as follows:

<table>
<thead>
<tr>
<th>Eng-</th>
<th>land</th>
<th>use-</th>
<th>-s</th>
<th>the</th>
<th>foot</th>
<th>pound</th>
<th>second</th>
<th>system</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As Nida, Hockett does not assign labels to the constituents. Another kind of diagram is found in Harris (1951:350):
This diagram has a different goal, which is not the representation of the structure of a given sentence, but of the several possible morpheme sequences (see below: 7.3.2) which can be mutually substituted after the first noun group of the sentence: i.e., a transitive verb (V) with a nominal (N) or a prepositional (PN) object, or a copulative verb (Vｂ) with a predicate adjective (A) or a predicate noun (N), etc..

All branchings in Nida (1966[1943]) are binary: cf. his representation of double object-constructions ('They gave him a watch'), p.29. ‘Gave him a watch’ is divided into the two constituents ‘gave him’ and ‘a watch’, which are in turn divided into ‘gave’ plus ‘him’ and ‘a’ plus ‘watch’. Nida (1948:171), however, does not assume the binarity of constituents as a principle: for example, constructions such as ‘foot-pound-second’, or ‘John, Bill and Dick’, would not be binary. These cases are quoted, however, as highly marginal. Wells (1947a: 103) admits the possibility of a non-binary analysis of a constituent ABC only “if no reason can be found” for a binary analysis AB|C rather than A|BC, or A|BC rather than AB|C.

The first scholar to stress the need of establishing an explicit procedure to divide constituents is probably Pike (1943). In reality, Pike’s criteria do not seem to be much more explicit than those of Bloomfield: Pike too sometimes appeals to intuition (“any well-organized description of syntactic structure should appeal, at most of its basic points at least, to the common sense of the naive speakers of the language”, p.81). The first two of Pike’s criteria concern the partition of the sentence (‘exocentric division’) and of endocentric constructions (‘head-modifier division’; cf. pp.74-75). Pike’s criteria for division of constituents as well as its results, therefore, do not seem to differ in any significant manner from Nida’s, except for the fact that Pike seems to hint at the possibility of non-binary divisions (which are not exemplified in the 1943 article). In general, Pike (1943) essentially limits himself to illustrate and clarify Bloomfield’s insights, as he explicitly admits (p.74).

A different way of analyzing the sentence into its immediate constituents is the one adopted by Bloch in his sketch of Japanese syntax (1946). Bloch’s aim is not dissimilar to that of the other post-Bloomfieldian syntacticians, but his methods and consequently his results are different. In fact, Bloch divides the Japanese sentence into major constituents which are named ‘clauses’. These divisions are not based on cooccurrence restrictions, or on substitution possi-
bilities, but on pauses which (may) occur inside the sentence. As a result of such a procedure, major constituents divisions are not binary (i.e., a sentence may be constituted by more than two clauses). Divisions are binary only at a lower level of analysis.

The first real systematic attempt to set up an explicit procedure to delimit constituents is probably Wells (1947a). The first explicit notions of ‘constituent’ and ‘constitute’ are to be found in it:

Let us call the I[mmediate]C[onstituent]s of a sentence, and the ICs of those ICs, and so on down to the morphemes, the constituents of the sentence; and conversely whatever sequence is constituted by two or more ICs let us call a constitute. [...] Every word is a constituent (unless it is a sentence by itself), and also a constitute (unless it is a single morpheme). (p.84)

Wells starts from recalling the original motivation for ICs analysis (“the constituents of a sentence should be those units in terms of which the sentence is most easily described”, p.85), which is that of Bloomfield and Pike, in its essence. He immediately adds, however (ibid.:fn.), that “the proposal is sound in itself but inadequate to exclude all wrong analyses, such as ‘the king of England’. Note that ‘the king of’ must be described as a constituent in certain other occurrences, e.g. ‘What country is he the king of?’”

Wells, like any other post-Bloomfieldian linguist, assumes that the basic division of the sentence is that into subject and predicate; his notion of ‘expansion’ gives a further support to such an analysis, which previously was mainly based on intuitive considerations:

If we analyze our sentence as ‘The || king || of ||| England | open ||| ed || Parliament’ so that the main break comes after ‘England’, we can explain the constituents as expansions down to the following point: ‘the king of England’ is an expansion of ‘the king’ (which in turn is an expansion of a proper name, say ‘John’) because ‘king of England’ is an expansion of ‘king’; ‘opened Parliament’ is an expansion of a past-tense intransitive verb like ‘worked’. The whole sentence, therefore, is an expansion of ‘John worked’, which is of a fundamental sentence-type because it is not an expansion [...] of anything shorter. (p.86)

Hence Wells’s basic principle of analysis essentially resorts to the analysis of occurrences:

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8 Wells’ notion of ‘expansion’ has little to do with Martinet’s (cf. above:5.3.3): the latter is indeed synonymous with the traditional ‘complement’, while the former means ‘string which can replace a shorter one in the same environment’. In Wells’ example discussed below, ‘opened Parliament’ is an ‘expansion’ of ‘worked’, whereas ‘Parliament’ would be an ‘expansion’ of ‘opened’, in Martinet’s sense.
This is the fundamental aim of IC-analysis: to analyze each utterance and each constitute into maximally independent sequences – sequences which, consistently preserving the same meaning, fit in the greatest number of environments and belong to focus-classes with the greatest possible variety of content. (p.88)

(On the notion of ‘focus-class’, see above: 7.1.1). Pursuing such an aim, Wells can argue for the analysis of the sequence ‘the king of England’ as ‘the | king of England’ rather than ‘the king | of England’:

Our principle directs us to analyze into constituents which are expansions; but at first sight the advantages of the alternatives appear to be about equal. ‘King of England’ is an expansion of ‘king’, but ‘the king’ is an expansion of ‘John’. In respect of their other ICs, ‘the | king of England’ is better than ‘the king | of England’, since ‘the’ is a single morpheme while ‘of England’ is neither a morpheme nor yet an expansion. But this is too slight to figure in the decision. As before, it is necessary to see how close to equivalence is the reciprocal substitutability of ‘king of England’ with ‘king’, and of ‘the king’ with ‘John’. It turns out that while the relation of ‘king of England’ to ‘king’ is almost absolute equivalence, the environment ‘poor ( )’ – ‘poor’ here being replaceable by any other non-pronominal adjective – differentiates ‘John’ from ‘the king’, for there is no ‘poor the king’. Rather, and instead, there is ‘the poor king’. (p.89)

Wells’ article essentially aims at establishing procedures which can delimit immediate constituents, but it does not especially treat the question of the mutual relationships of their members. Pittman (1948) is possibly the first systematic attempt to deal with such a question. Pittman (p.289) starts by the assumption that “the ICs have already been determined: the problem which will occupy us is their relative rank”; in other words, to determine which constituent is the ‘nucleus’ (or ‘central member’) and which one is the ‘satellite’ (or ‘lateral member’; these labels correspond to Bloomfield’s ‘head’ and ‘attribute’, respectively). To reach this aim, Pittman lists ten criteria (‘premises’, in his own words; cf. pp.289-291), some of which illustrate the guidelines which since then have been largely followed by every syntactician in her/his ‘practical’ work whatever her/his theoretical framework might be. Pittman also aims at extending the nucleus-satellite analysis even to constructions normally classified as exocentric, such as the subject-predicate one. So he represents the subject as the satellite and the predicate as the nucleus in Spanish, presumably, since the subject pronoun may be omitted in this language (cf. p.290). However, he is forced to admit that in English “to rank either subject or predicate as subordinate to the other might incur considerable controversy” (p.292).

Fries’ (1952) IC-analysis does not essentially differ from that worked out by the other American structuralists. His ICs are not labeled either, and the analysis is basically binary (cf. p.264). His procedure, however, seems to be part
bottom-up, and part top-down. He lists ten analytical steps (cf. pp.267-268), of which the first four are bottom-up, the last six top-down.

One of the results of the development of IC-analysis was to bring to light several cases of ambiguities. Pike (1943:78) firstly quotes cases such as \[\text{'do'sonr,rez'mijt}\], which may mean either 'the sons raise meat' or 'the sun's rays meet'. In such cases, Pike notes, "the problem is to determine the size of the modifier; when that has been done, the head is apparent". Furthermore, pauses can help solve the ambiguity. In some other cases, however, pauses cannot be of any help: e.g., in sentences such as 'The man paid for a bench in the park', where the two analyses 'paid for a bench | in the park' (i.e., the payment took place in the park) and 'paid for | a bench in the park' (i.e., he bought or rented a bench which was in the park) are both possible. Pike (p.79) suggests a practical principle to solve this kind of ambiguity:

In this particular choice, the stronger pressure seems to be towards choosing for the final phrase the potential head which is as close to it and as small as possible. If the context forbids this (e.g. if the listener knows of a certainty that the bench has never been in the park but that the man frequently does incidental business there) then one makes the second choice.

Pike seems therefore to propose a kind of 'processing strategy' subject to certain contextual conditions.

Wells (1947a:94) also notes several kinds of ambiguous sequences: (a) cases such as 'the king of England's people', which "are the same sequence of phonemes, yet they have two different meanings". They must be kept distinct from (b) ambiguities due the 'homonymy of morphemes', like the morpheme 'of' in 'the conquest of Pizarro' vs. 'the conquest of Peru', as well as from (c) cases "where two morpheme-sequences having the same sound belong to different sequence-classes", like, e.g., 'it's father' and 'its father'. Wells formulates the following principle:

When the same sequence has, in different occurrences, different meanings and therefore (provided that the meaning-difference cannot be ascribed to the morphemes taken separately) different construction, it may have different IC-analyses. (p.96)

Such cases are named by Wells (p.97) 'homonymous constructions'. He further distinguishes between 'wholly homonymous' and 'partly homonymous' constructions. An example of a wholly homonymous construction is a (hypothetical) case of compound-word like 'lady killer', which could also mean 'killer who is a lady', besides of 'killer of a lady'. The support for the former (unattested) meaning would lie in the fact that a compound like 'lady-friend', with the meaning 'lady who is a friend', does exist. If the meaning 'lady who is a
killer’ does not actually occur, “this fact is without grammatical significance”. From this discussion, it would seem that cases of constituent structure ambiguity would be always treated by Wells as ‘partly homonymous constructions’.

Examples such as ‘old men and women’ are discussed by Hockett (1958:153), who shows how the ambiguity is solvable through two different IC-analyses:

```
old men and women
```

\[ \begin{array}{c}
\text{old} \\
\text{men and women}
\end{array} \]

A few pages later (159), Hockett notes that the difference between the patterns of ‘fresh milk’ and ‘milk fresh’ cannot be adequately illustrated by an IC-analysis of the two constructions ‘She likes fresh milk’ and ‘She likes milk fresh’. Both ‘fresh milk’ and ‘milk fresh’ are analyzed as composed of two immediate constituents, but the former sequence can occur in many contexts (‘Fresh milk is good for you’; ‘Make it with fresh milk’) where the latter cannot. Hence, “our technique of diagramming cannot always be counted on to reveal the difference between obviously distinct patterns” (ibid.).

Hence the analysis of ambiguous constructions does not always give a satisfactory result in the post-Bloomfieldian framework, as Hockett explicitly admits. Harris’ transformational theory offered a more satisfying solution: each sentence can be decomposed into its forming kernel sentences, to which it is transformationally related (see above:224-225). This decomposition gives to each sentence its ‘normal representation’. Ambiguous sentences will have more than one normal representation. An example of such an ambiguous sentence is ‘They have shined shoes’, which then has two ‘normal representations’. The first one derives it from the two kernel sentences ‘They have shoes’ and ‘The shoes are shined’: they are connected by a ‘wh’-element (‘They have shoes which are shined’), and the ‘wh + are’ sequence is deleted, accompanied by the final permutation of words. The second normal representation is derived from the kernel sentence ‘They have shined shoes’ by means of a verb-operator ‘have + en’: ‘They have shined shoes’ (cf. Harris 1965:384-385). It is almost superfluous to mention that the phenomena of structural ambiguity was to be the starting point for many of Chomsky’s arguments. Furthermore, the criteria for delimiting Immediate Constituents presented in this section, such as expansion, substitution and coordination, became a basic analytical tool of generative grammar from its beginnings in the fifties, although couched in a very different theoretical framework (see below:8.4.2).
3.2 Harris' procedure ‘from morpheme to utterance’

Harris (1946:161) states that his method requires “no elements other than morphemes and sequences of morphemes, and no operation other than substitution, repeated time and again”. The basic principle is to establish equivalence classes of morphemes, where ‘equivalence’ means the possibility of substitution in the same environment (p.163). Harris (ibid.) specifies that “to occur in the same environments” means “to have the same selection”. Therefore, even morphemes which do not occur in the same positions belong to the same substitution class, if they select the same morphemes. Harris gives the example of the Moroccan Arabic morphemes \( n- \) and \( -t \), meaning respectively ‘future tense’ and ‘past tense’: they are added to the same verbal bases, although \( n- \) precedes them and \( -t \) follows them. Morphemes which show a slightly different distribution are also assumed to belong to the same class: for instance, ‘poem’ does not occur after ‘wire’, while ‘house’ does; on the other hand, ‘poem’, but not ‘house’, occurs after ‘write’; finally, both ‘house’ and ‘poem’ occur after ‘beautiful’. So, the (partial) difference of environments systematically correlates with the difference between the two morphemes: therefore, they can be grouped in the same class. Furthermore, morphemes which occur with the same morphemes in given environments but with different morphemes in other environments (e.g., ‘dress’ and ‘connect’, which both occur before ‘-ing’, whereas only ‘dress’ can be preceded by ‘un-’, and only ‘connect by ‘dis-’’) are equally grouped into the same substitution class. In some other cases, however, the occurrence in two different environments is a criterion for assuming that the same morphemes belong to two different classes: this is, typically, the case of English nouns homophonous with verbs (cf. Harris 1946:163-165).

With the same procedure, it is possible to substitute not only single morphemes but also morpheme sequences, which in turn can be grouped into substitution classes. Substitution classes of morpheme sequences belong to the same classes defined by the substitution of single morphemes (p.165). The possibility of substitution between morphemes and morpheme sequences is symbolized by Harris by means of a system of equations, of the type ‘\( BC = A \)’, where B, C, and A are morphemes (cf. pp.166-167). On the basis of these premises, Harris builds up (1) a list of English morphemes (cf. Harris 1946:167-170) and (2) a list of English sequences which, according to the above system of equations, can replace the single morphemes (cf. pp.170-175). He also applies his method to Hidatsa (a Siouan language of North-Dakota, pp.175-177), in order to show both the differences between the two languages as well as the general applicability of his method.

As a result of this procedure being employed, constituents are delimited ‘from the bottom up’ and their classes are defined on the basis of the mor-
pheme classes which they can substitute, or they can be substituted by: "AN = N means that ‘good boy’, for example, can be substituted for ‘man’ anywhere. If we write DA = A (‘quite old’ for ‘old’), then DA can be substituted for A wherever A appears" (p.170). The morpheme class is therefore basic for the definition of the morpheme class sequence. Harris notes, furthermore, that not every morpheme class can substitute any other in a given context:

For instance, N-s = N: ‘paper’ + ‘-s’ = ‘paper’; and ‘papers’ can be substituted for ‘paper’ in most environments. However, we cannot substitute N-s for the first N in this very equation: we cannot substitute ‘papers’ for the first ‘paper’ and then add ‘-s’ again (‘papers’ + ‘-s’), as this equation would seem to indicate. (ibid.)

Hence: (1) classes of sequences are defined on the basis of classes of morphemes; (2) substitutions are possible in certain environments, but not in others. These two provisional results led Harris to work out his system of ‘raised numbers’ to indicate the different types of sequences, which correlate with their substitutability vs. non-substitutability. So, for example, a sequence like ‘paper’ will have the symbol N₁, and ‘papers’, being formed by N₁ + ‘-s’, will be N₂. N₂ cannot substitute for any member of N₁, and this explains why we do not have ‘papers-s’. However, sequences which can substitute others are on the same level. This is the case, for instance, of the sequence adjective + noun, which can substitute noun: ‘old man’ for ‘man’, and furthermore ‘old, lonely man’ for ‘old man’. This can be symbolized by the equations AN₁ = N₁ (‘old man’ for ‘man’) and AAN₁ = N₁ (‘old, lonely man’ both for ‘old man’ and for ‘man’); cf. Harris (1946:170; 1951:265-267). Harris (1946:171-175) develops a system of equations which, among other things, defines the major constituents of English sentences. “Equations involving N₂ and N₃ develop the noun phrase [...] Equations requiring V₂ to V₄ develop the verb phrase” (p.172). Some examples of such equations, which exemplify the several levels of the raised numbers system, are the following ones (cf. Harris 1946:172-174):

N₁ -s = N₂: ‘papers’, substitutable for ‘paper’ in cases such as ‘I’ll get my — out’.
TN₂ = N₃: ‘the orchestra’, ‘these pointless, completely transparent jokes’ substitutable for ‘butter’ in ‘I don’t like —’. (T is the symbol for the class of determiners).
The noun phrase is completed with the introduction of N₄, N₃ N₄ V₄d = N₃ N₄ V₄e P = N₄: ‘the clock he fixed’ or ‘the house he slept in’ for ‘the clock’ in ‘— is all right now’. (V₄d: transitive verb; V₄e: intransitive verb).
‘have V₁ -en’ = V₂: ‘have eaten’ for ‘know’ in ‘I — it’.
V₁ N₄ V₃ = V₃: ‘make him vote’ for ‘vote’ in ‘We’ll — your way’.
\[ V^3 \cdot V^v = V^d \]; ‘walked’ or ‘walked off’ or ‘had eaten’ or ‘tried to escape’ for ‘walk’ or ‘have eaten’ in ‘I—alone’ (-\( V^v \): inflectional verb suffix).

Also equations involving whole utterances may be set up:

\[ P \ N^d, \ N^d \ V^d = N^d \ V^d, \ P \ N^d = P \ N^d \ N^d \ V^d = N^d \ V^d \ P \ N^d : \text{‘At night, it’s too hard’; ‘It’s too hard, at night’; ‘At night it’s too hard’; ‘It’s too hard at night’.} \]

(Note, by the way, that pronouns are made to coincide with the highest raised number). Harris’ raised number system, also called ‘superscript notation’, is the source of the ‘X-bar scheme’, developed by Chomsky and his followers from the late sixties onwards (see below:8.4.5; 10.2.3).

The conclusion that Harris derives from this procedure is that “all morpheme classes and all sequences of morphemes [...] occur in positions where they can be replaced by \( N^d \) or \( V^d \)” (p. 175). The only exceptions are what Harris (1946:169-170) calls ‘independent morphemes’: ‘then’ ‘now’, ‘thus’, ‘yes’, ‘no’, ‘hello’, ‘oh’. Therefore,

the great majority of English utterances are a succession of the following forms:

\( N^d \ V^d \) with /./, /?/, or other intonations [...]  
Independent morphemes and almost all others except affixes [...], with /./, /?/, /!/ or other intonations [...]. (p.175)

These two kinds of ‘succession of forms’ are rather close to, or indeed coincide with, the ‘favorite sentence types’ and ‘minor sentences’ of the Bloomfieldian tradition, respectively. Harris (1951:278fn.36) notes the closeness of his system of raised numbers and of equations to Bloomfield’s (1933:221-222) analysis of the ‘ranking’ of constructions and also to Jespersen’s notion of ‘rank’ (to which Nida also occasionally resorts; cf. 1966[1943]:82fn.67). Harris (ibid.) states that the IC-analysis is “the reverse” of his procedure from morpheme to utterance. Actually, the two procedures do not seem to totally coincide and in some cases they produce different results. First of all, Harris’ procedure avoids any reference, implicit or explicit, to a ‘subject-predicate’-like partition. Harris himself recognizes such a difference while discussing the possibility of some counter-intuitive results of his procedure. Harris (1946:166) notes that the substitution procedure would allow the replacement of ‘know John’ by ‘certainly’ in the sequence ‘I know John was in’ and to obtain the equally possible sentence ‘I certainly was in’: such a substitution, however, “conceals the fact that ‘I know John was in’ can be described as two sentences strung under one sentence intonation” (ibid.). This would be avoided if one resorted to immediate constituent analysis, which firstly divides the sentence into subject and predicate. But Harris explicitly refuses to resort to such a technique, saying that his own technique is different and “we must state other methods of excluding such
substitutions as ‘certainly’ for ‘know John’” (ibid. fn.9). He actually leaves such “other methods” unspecified.

Chatman (1955:380) says that Harris’ procedure “is not equivalent to IC analysis simply because it has nothing to do with the hierarchy of occurrence of morphemes and morpheme-sequences, but only with their rank of closure”. To prove his point, Chatman shows that the analysis given by Harris (1951:279) of the sequence ‘My most recent plays closed down’ would be different according to the principles of IC-division. Harris’ analysis is the following (cf. also Thümmel 1993b:296):

(2) My || most || recent || play || -s || close || down || +ed

IC-analysis would be the following:

(3) My || most || recent || play || s || close || ed || down

In both cases, the increasingly lower levels of analysis are indicated by the increasing numbers of vertical bars. It can be seen that the greatest difference lies in the position assigned to inflectional affixes ‘-s’ and ‘-ed’, which is much higher according to Harris than according to IC-analysis: for the scope of the nominal inflectional ending (‘-s’) extends over the whole nominal group, and that of the verbal ending over the whole prepositional verb ‘close down’. By contrast, IC-analysis strictly respects word boundaries: ‘-s’ is simply an affix to ‘play’, and ‘-ed’, to ‘close’. As Chatman (1955:381) remarks, “morphemic splits of necessity have a higher priority in IC-analysis than syntactic ones”. Chatman (ibid.) adheres to IC-analysis and rejects Harris’. Chatman’s (as well as IC-analysts’s) and Harris’ positions are up against a very important problem: are verbal inflectional morphemes to be considered as part of the verb or is their position ‘higher’ in the sentence? Harris’ view shows strong similarities with that of Hjelmslev and other European linguists concerning the analysis of nominal sentences: the morphemes in question do not belong to the verb, but to the sentence as a whole (cf. above:6.2.3). This position was also held in the transformational period of Harris’ linguistic research: the verbal affix is equated with the auxiliary verb in the representation of the ‘kernel’ structure (cf. above:5.3.6).

The different procedures used to divide constituents (or, respectively, to define classes of morphemes or of morpheme-sequences) lead the various post-Bloomfieldian syntacticians to set up partly different inventories of syntactic categories. Nida (1966[1943]) does not use the terms ‘noun phrase’ and ‘verb phrase’ to mean the major ICs of the sentence, but ‘subject expression’ and ‘predicate expression’. As was just said, such a distinction is not made by Harris, who instead opposes $N^4$ to $V^4$. To denote a noun phrase, Nida resorts to the term ‘substantive’: “by ‘substantive’ is meant a class of words that pattern with
determiners and bounded attributives, as distinguished from substitutes, which may have no bounded attributives". (Nida 1966[1943]:67fn.7). Pike (1943) uses the term ‘substantive expression’ with this same sense. ‘Noun phrase’ is used by Wells (1947a). Such a label indicates the category as taken in itself: when we have to denote its role within the sentence, Wells names it ‘actor’. Hence Wells’ position seems somewhat close to Nida’s: functional definitions of categories are independent from formal definitions, and sometimes the latter duplicate the former (‘the king of England’ in ‘the king of England opened Parliament’ would be both a subject and a noun phrase). Bloch (1946:223ff.) names ‘noun expressions’ what we would call ‘noun phrases’; the terms ‘subject expression’ or ‘actor expression’ do not occur in Bloch (1946), since his analysis of Japanese sentence structure assigns no special role to the subject.

All post-Bloomfieldian syntacticians use the label ‘verb phrase’: in most cases, it denotes the verbal complex, namely the verb plus its accompanying auxiliaries. Cf., e.g., Nida (1966[1943]:156) and Bloch (1946:234), who defines the (Japanese) verb phrase as “a verb preceded without pause by an inflected expression in a participial form”. Hockett (1958:212) still uses ‘verb phrase’ in the same sense as Nida: as examples of English verb phrases, he quotes ‘am loved’, ‘have loved’, ‘have been loved’. None of these linguists, therefore, assigns to ‘verb phrase’ the meaning of “phrase constituted by a verbal head plus its complements”. Such a meaning is instead assigned to ‘predicate expression’ by Nida and to ‘objective construction’ by Hockett.

Harris’ terminology is rather different. ‘Noun Phrase’ labels all sequences from $N^2$ to $N^4$ symbol, and ‘Verb Phrase’ all sequences from $V^2$ to $V^4$: as we have already said, they are defined in a fully independent way from subject and predicate. Insofar as the verb phrase is concerned, one can note that both intransitive verb construction and transitive verb plus noun phrase construction are labeled as $V^2$; cf. Harris (1946:173). Therefore it would seem that he also considers complements as belonging to the ‘verb phrase’. Harris (1951:350), however, seems to give ‘verb-phrase’ the standard meaning of his age. The structural equivalence of the transitive with the intransitive construction had already been stressed by Nida (1966[1943]:18), but Nida did not use the labels ‘verb phrase’ to refer to such constructions.

The most remarkable features of the analysis of syntactic structures by American structuralists seem therefore to be the following ones: 1) constituents are generally assumed to be binary, the only exceptions being co-ordinate structures. This view is not shared by Bloch, who arrives at different conclusions in his analysis of Japanese; moreover, the question of binarity has no special place in Harris’ bottom-up procedure. 2) The graphic representation of constituent structure is a frequently employed device, in forms of branching
diagrams (e.g., Nida) or of embedded cases (Hockett). Such representations do not bear labels indicating the different categories to which constituents belong; by contrast, a system of labels is basic in Harris' analysis, which does not normally resort to diagrams. 3) The inventory of word groups established by means of such procedural approaches does not contain the ‘verb phrase’ in the sense of a category containing both the verb and its complements; Harris’ position is a partial exception to this. Apparently, the currently standard meanings of ‘noun phrase’ and ‘verb phrase’ are established only with the rise of generative grammar (cf. below:8.4.2).

3.3 Glossematic procedures

The phrase ‘immediate constituent’ is found very seldom, if it occurs at all, in Hjelmslev’s work. By contrast, the notion of immediate constituents plays a key role in Togeby’s (1949:100) definition of word, which reads as follows: “a word is a syntactic unit which has as one of its immediate constituents one or more bound forms of the penultimate degree – or a unit at the same level”. Togeby (1965[1951]:17) expressly states that one first has to single out the immediate constituents, then the function existing between them. He also confronts the problem of the inner structure of constituents: is it necessarily dichotomic or not? His answer is largely empirical: if we have to do with a selection or a solidarity (in the glossematic sense), the analysis is by necessity dichotomic; if we have to do with a combination, constituents may be indefinitely many.

Togeby’s approach to syntax (and to language in general) is strictly procedural. The definition of syntactic units goes hand in hand with their effective discovery: this directly derives from his (and probably also Hjelmslev’s) view of language as an ‘infinite text’ (cf. Togeby 1965[1951]:6). Hence his method starts from the largest syntactic unit (the sentence) to reach the smallest ones (the elements). Such a method is labeled ‘analytical’ and is opposed to ‘synthetic’: Togeby states (p.61) that the analytical method, besides being typical of glossematics, is also adopted by many American structuralists, like Bloomfield, Bloch and Trager, Pike, and Wells. The most consistent application of the synthetic method is, according to Togeby, Harris’ procedure from morpheme to utterance. Togeby maintains that the analytical method is to be preferred, for a variety of reasons: (1) the synthetic method is insufficiently general, since the morphemes of the different languages are often more unstable than their syntactic units; (2) the synthetic method is hardly applicable to languages where morpheme and word do not coincide; (3) the morpheme is more difficult to

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9 This work, despite its title, is more a treatise about linguistic structure in general than about the structure of French.
delimit than the utterance; (4) the synthetic method can be interpreted as an analytical procedure: for instance, Harris’ scheme $N^4V^4$, which represents “the great majority of English utterances” (see above:290), can be divided into two constituents, $N^4 + V^4$, and $N^4$ can be further divided into constituents of a lower level (p.62).

The application of the analytical method is conditioned by the repeated application of two rules, which Togeby names ‘rule of transmission’ (règle de transmission) and ‘rule of recursion’ (règle de remise), respectively: the former rule states that, when a unit is discovered which is ‘not maximal’, its analysis is postponed to later operations. For example, when the analysis is faced with a sentence, this must be divided into main and subordinate clause(s): but if the sentence does not contain any subordinate clause, its analysis is postponed to a successive step (namely, the analysis of the clause in its immediate constituents; see below). The ‘rule of recursion’ comes into play when the procedure arrives at a unit which has already been discovered: for example, the analysis of a complex sentence singles out a clause as one of its constituents, through the operation of analysis of the predicate into verbal group and object. The analysis of such a clause has therefore to be sent back to a preceding procedure (cf. Togeby 1965[1951]:62-63).

Togeby’s analysis proceeds through the following steps:

(A) Expression plane and content plane

1°: sentence (phrase). The sentence is analyzed into ‘sentence+modulation’. Togeby (p.20) stresses the similarity of his view of the sentence with that of Bloomfield (1933:170): “sentences are marked off by modulation, the use of secondary phonemes”.

(B) Content plane (see pp.68-99)

2°: main clause (proposition principale). The ‘immediate constituents’ of a clause are further clauses connected by coordinating conjunctions. Since not all clauses are so constituted, the rule of transmission applies, and even structures discovered by later steps are classified as clauses. The iteration of this procedure allows Togeby to treat as main clauses even constructions like ‘yes’, ‘no’, or exclamative phrases.

3°: main clause: coordinating conjunction + clause. The relationship between the conjunction and the clause is, according to Togeby, a ‘solidarity’ (hence a mutual dependency).

4°: clause: circumstantial complement + core (noyau). Togeby differs from American structuralists by positing the first partition not between subject and predicate, but between circumstantial complement and core. This position is surely explained by his more abstract (i.e., not strictly based on surface word order) conception of ‘immediate constituents’. Note that, speaking of circum-
stantial complements, Togeby holds a view identical to that of Tesnière: he opposes them as 'complements of the whole clause' to complements of the verb. No mention of Tesnière's theory is made however, at least in this connection.

5°: circumstantial complement: preposition + object (régime); subordinating conjunction + clause.

6°: core of the clause: subject + predicate. On Togeby's analysis of the notions of subject and predicate, see above (6.2.2).

7°: subject: apposition + noun group.

8°: predicate: object, attribute + verb group. ‘Verb group’ is explicitly assigned the meaning of ‘verb phrase’ in American structuralist syntax (p.84).

9°: noun group: article + nominal member.

10°: verb group: clitic members (membres conjoints) + verbal member.

11°: nominal member: attribute (épithète) + substantive. No mention is made of noun complements: i.e., genitive phrases, etc.

12°: verbal member: finite verb + infinite verb.

13°: attribute: adverbial complement + adjective.

14°: verbal member: adverbial complement + verb.

15°: word: theme + inflectional element.

16°: theme: root + derivational element.

17°: group of elements: sequence of inflectional, derivational and root elements.

Togeby's procedure therefore appears very close to that of the American structuralists. Nevertheless, it is important to remark that his glossematic approach firstly defines which kind of function (‘selection’, ‘solidarity’, ‘combination’) connects the linguistic elements to analyze and then delimits immediate constituents. By contrast, American structuralists firstly delimit immediate constituents, and then state their structural properties: i.e., if they are ‘exocentric’ or ‘endocentric’, and which element is the ‘head’ and which one the ‘attribute’ within endocentric constructions.

3.4 ‘Syntagmatic’ procedures

In Frei's model (cf. above:5.3.1), syntagms are singled out through a technique of substitution. A ‘substitution class’ is defined as “the set of signs which can replace each other while preserving the same environment and the same syntactic relations” (Frei 1968:44). Substitution classes replace the ‘categories’ of traditional grammar (p.53). According to Frei's basic conception of syntagmatic structure as a relation between signs (see above:5.3.1), substitution classes have to be conceived of as classes of signs and not as classes of significants. Substitutions may occur between whole classes, or between a whole and a
part of one: in the former case, we get, in Frei's terms, 'toto-total' classes; in the latter case, 'parti-total' classes.

Toto-total classes are in turn divided into 'elementary' and 'global' classes. Elementary classes are formed by monemes: in a sequence such as \textit{le directeur de la banque est parti} ('the director of the bank left'), the substitution class of the moneme \textit{banque} is constituted by other monemes like \textit{fabrique} ('factory'), \textit{clinique} ('clinic'), \textit{troupe}, etc. Global classes contain monemes as well as syntagms, or syntagms of a different complexity: in the preceding example, the substitution class of the syntagm \textit{le directeur} is formed by a moneme like \textit{celui} ('this'), or by a syntagm like \textit{tout le personnel} ('all the staff'), etc.; cf. Frei (1968:45). Parti-total substitutions are brought about by the substitution between a syntagm and one of its terms: \textit{le directeur de la banque} may be replaced by \textit{le directeur} (p.47). Parti-total substitutions presuppose global substitutions, and especially those of the elementary subclass: if it is not possible to replace a moneme with another moneme, no given string could be analyzable as a syntagm (p.51).

According to Frei, the method of substitutions and the distributional method are "solidary", but they are not identical, although they are often "combined and confused" with each other. The former one replaces elements within a fixed frame; the latter investigates the different frames where a given form can occur. Hence they only differ for the fact that the roles of constant and variable are interchanged between them: in the method of substitutions, the constant is the frame and the variable is the class of signs (monemes, or syntagms) which can occur within it. In the distributional method, the constant is a given sign and the variable is the class of frames where it can occur. The distributional method shows, for example, that French pronouns and articles cannot be identified, contrary to what "has been pretended by a grammarian" (probably, Guillaume). Pronouns and articles are freely substitutable for each other in some frames, but not in all: \textit{celles qui étaient plus âgées} ('those who where older') is possible, \textit{les qui étaient plus âgées} ('the who were older') is not (cf. Frei 1968:54-55). On other applications of the distributional method, see below.

Frei (1968:42) maintains that the constituent structure of a syntagm can be represented by three different methods: 'concrete', 'geometric' or 'formulaic'. The concrete representation makes the constituent structure evident by 'reducing' the syntagms: this 'reduction' may be 'subtractive' or 'global'. The former kind of reduction deletes an unnecessary part of a syntagm: 'he drinks wine' → 'he drinks'. The latter kind replaces a syntagm with a substitute: 'he drinks wine' → 'he drinks it' (ibid.). The two methods of representation are plainly connected to the distinction between toto-total and parti-total classes.
Geometric representation in Frei's sense is realized by means of tree-diagrams. Commenting upon the tree-diagrams of American structuralism and of the generative grammar of the sixties, Frei maintains that they are not able to show the different relations that may exist between the members of a syntagm, namely if they are mutually dependent, or one-side dependent, or coordinated. For this reason, he works out a diagrammatic representation of his own, which is based on four symbols: the 'pole' (poteau: | ) indicates a sentence which does not show an Aristotelian structure, i.e. is not partitioned into a subject and a predicate (cf. Frei 1967:688). The 'pinion' (∧) represents the mutual dependency relation, i.e. Bloomfield's exocentric structures. Frei therefore opposes phrases poteaux ('pole sentences') to phrases pignons ('pinion sentences'; ibid.), namely one-member sentences vs. subject-predicate sentences. Imperative sentences are instances of pole sentences: their pretended subject is only a modifier of the verbal head (ibid.; see also (4), below). Dependency structures are symbolized by 'deviation', which can be 'right' or 'left', according to the respective order of the head and of the attribute. Coordinate structures are represented by the symbol of the 'balance'; cf. Frei (1966:44-47). (4) and (5) are examples of Frei's diagrams, representing a 'pole sentence' and a 'pinion sentence', respectively, both with 'right' and 'left' deviations:

(4)

(You) go out

(5)

Elle a une belle voix
Even geometric notation may sometimes be inadequate to express some relations, such as, for example, the difference between participants and circumstantialss, or, especially, the relationships between ‘tactic’ and ‘non-tactic’. In these cases, formulaic representations must be resorted to. For example, if ‘gentle’ would not be included in ‘gentle voice’ (non-tactic relation), ‘gentle’ would not be the attribute of the head ‘voice’ in the syntagm ‘gentle voice’ (tactic relation). This relationship is illustrated by the following formula:

\[(6) \, (sn \subset n) \supset (s)n\]

In (6), ‘n’ means noyau, and ‘s’, satellite: they respectively correspond to head and attribute (or modifier) of American structuralism; in ‘gentle voice’, ‘gentle’ is the satellite and ‘voice’ the noyau. \(\subset\) is the symbol of inclusion; \(\supset\) the symbol of material implication (cf. Frei 1966:49)

Frei’s technique of syntagmatic analysis therefore shows several similarities with the ICs analysis of American structuralists: nevertheless, it often reaches different conclusions. For example, Frei (1968:48-53) takes up the opposition between exocentric and endocentric constructions, but the results of his classification are not the same as those of Bloomfield’s or of post-Bloomfieldian linguists. For Bloomfield, all sentences are exocentric; while it has just been seen that, for Frei, imperative sentences are endocentric constructions, whose head is the verb and whose attribute is the subject (cf. (4), above). Hockett (see above:267) defines the verb + object construction as exocentric, while for Frei (as for many American linguists) it is endocentric: the verb is the head, and the object is the attribute. Frei’s most original analyses, however, are those dealing with coordination, determiner + noun and preposition + noun (cf. Frei 1968:50-52). Frei’s arguments are based on the techniques of substitution and of distribution.

Substitution classes show that coordinations have not to be analyzed in the traditional Bloomfieldian way, which states that the immediate constituents of a string like ‘boys and girls’ are ‘boys’, ‘and’, and ‘girls’. Since in a sequence like ‘boys and girls and dogs’, ‘and girls’ is replaced by ‘girls’ (‘boys, girls and dogs’), this means that ‘girls’ and ‘and girls’ belong to the same substitution class: hence ‘and girls’ is the second immediate constituent of ‘boys and girls’.

The head of a determiner-noun construction was assumed by Bloomfield to be the noun. By contrast, Frei states that the head is the determiner. This is proved by the technique of reduction: ‘this milk is spoilt’ can be reduced to ‘this is spoilt’, and not to ‘milk is spoilt’. Hence ‘this’, and not ‘milk’, is the necessary constituent of the syntagm. Of course, the substitution test is possible only if the pronominal adjective and the pronoun are homophones, but the result can be extended to other determiners as well (such as the article): in this
last case, one has to do with ‘non-operational’ classes (Frei 1968:52). Remember that, according to Frei, distributional considerations prove that articles and pronouns, while being both heads, nevertheless belong to different classes (see above). A similar procedure also applies to the analysis of the sequence preposition + noun. Certain prepositions only occur before nouns (As-tu vu le scooter de Paul?, ‘Did you see Paul’s scooter?’), but they can be replaced by other prepositions (pour, devant, derrière, etc.) which may also occur alone: As-tu vu le scooter devant? (‘Did you see the scooter in front?’). Since devant belongs to the same class of de, this indirectly proves that de is the head, and Paul the attribute, of the syntagm de Paul.

Let us now turn to Mikus’ syntagmatic analysis of syntactic units. Mikus assumes the binarity of constituents as a principle: hence syntagmatic analysis must partition each sequence into successive binary constituents (analyse binaire continue). It is important to note that this analysis does not stop at the word level, but it extends to the morphological. As a matter of fact, binary analysis is a key principle of morphology, in Mikus’ view: he states that ‘reformers’ has to be analyzed as {{(re-form)-er}-s} and ‘unthinkingly’ as {{un-think-ing]-ly} (brackets are Mikus’); cf., on the whole topic, Mikus (1972:39-42). Mikus also offers a graphic representation of syntagmatic structure, in the form of embedded rectangles (rectangles emboîtés; cf. p.51).

The arrangement of signs into syntagms brings about a meaning which is novel with respect to that of the isolated signs: in other words, a ‘surplus of meaning’ (excédent de valeur) is produced (Mikus 1972:77). This surplus is of three kinds: 1) ‘semiotic-functional’; 2) ‘functional’; 3) ‘semiotic’. One gets a semiotic-functional surplus when the syntagm brings about a new function and a new ‘comprehension’ (compréhension, in the traditional logical sense). For example, a syntagm like ‘his father’ has both a function and a comprehension different from that of ‘his’ and that of ‘father’: the different comprehension is given by the overlap of two meanings, the different function by the fact that the distribution of ‘his father’ is different both from that of ‘his’ and of that of ‘father’. Also the syntagm ‘his father has arrived’ brings about a surplus of meaning with respect both to ‘his father’ and ‘has arrived’ (ibid.). The surplus is only functional when the syntagmatic arrangement brings about a new function but not a new comprehension: dominum (Latin ‘Sir’, accusative case) has a different function from dominus (nominative case), but their comprehension is the same (p.78). The surplus is only semiotic when the syntagmatic arrangement brings about no novel function for the Ti (terme d’identification, see above:201): for instance, ‘water’ and ‘clear water’ both have the same function (p.79).
On the basis of these three syntagmatic types, three kinds of syntagmatics have to be distinguished: 1) 'hierarchic' syntagmatics; 2) 'exponential' syntagmatics; 3) 'completive' syntagmatics (cf. Mikus 1972:79). 'Hierarchic syntagmatics' corresponds to Bloomfield's exocentric constructions and 'completive syntagmatics' to endocentric constructions. Mikus (p.80fn.1) explicitly recognizes these similarities, as well as those with the glossematic notions of 'selection', 'combination' and 'solidarity': he adds, however, that neither Bloomfield and post-Bloomfieldians, nor glossematicians recognize 'exponential syntagmatics'; they also have an "essentially false" conception of coordination. 'Exponents' of exponential syntagmatics are the traditional inflectional endings, some suffixes, prepositions, and subordinators (p.150). The exponent is Ti of the exponential syntagm: e.g., the subordinator is the determined, and the rest of the subordinate clause is the determining, in the classical sense of European structuralism.

3.5 The representation of discontinuous constituents

Post-Bloomfieldian syntacticians became aware, very early on, of the problem represented by elements which "go together" in some sense, but which do not occur in an immediate sequence: the so-called 'discontinuous' constituents. Such a problem was particularly acute to these linguists because of their procedural approach and distributional method. However, it was not so serious for linguists following non-procedural approaches, nor for those who, although being "proceduralists", nevertheless did not follow a strictly distributional method. This is, for example Togeby's case: following Hjelmslev's suggestions, Togeby considers word order as a phenomenon belonging to the expression plane (cf. Togeby 1965[1951]:65-66). This means that his analysis can in principle disregard word order in delimiting what he calls 'immediate constituents'. In reality, his analyses only seldom resort to this possibility, and discontinuous constituents are scarcely investigated by him; e.g., interrogative sentences are not even discussed, except for their intonation phenomena.

The problem of discontinuous constituents is raised (possibly for the first time) by Pike (1943:77), who remarks that "sometimes an immediate constituent of a construction lies within the non-contiguous parts of the other constituents". Pike refers, first of all, to infixes in morphology and to parenthetical constructions in syntax; he also quotes cases such as 'Give them up' or 'Elect us a good man president', whose constituents are, in his analysis, 'Give ...up + them' and 'Elect...a good man president + us'. Pike then discusses cases such

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10 Bear in mind that for Mikus 'syntagmatics' means both the syntagmatic structure as well as its analysis (cf. Mikus 1972:21).
as 'a building which you must pay to enter', 'who did he send?' and 'has he gone?', and suggests a couple of alternative analyses: 'which...to enter you must pay' vs. 'which / you must pay to enter', 'he + who did send' vs. 'who / did he send', 'has / he gone' vs. 'he + did...go' (slashes and plus-signs are Pike's, who does not explicitly explain their respective meanings). He opts for the former analysis in the first two cases, and for the latter one in the last case. Apparently, these different options are led by the same criterion, namely to delineate those constituents which are identical to the standard ones. This result is obtained by splitting, e.g., 'who did he send' into 'who' and 'did he send', whereas splitting 'has he gone' into 'has' and 'he gone' "would necessitate a rather complicated description of constituents such as 'he gone', and hence of the basis of convenience (...) one would probably prefer to treat 'has ...gone' as noncontiguous members of a single constituent" (p.78).

Wells (1947a:104) proposes the following criterion for recognizing discontinuous constituents:

A discontinuous sequence is a constituent if in some environment the corresponding continuous sequence occurs as a constituent in a construction semantically harmonious with the constructions in which the given discontinuous sequence occurs.

This principle is illustrated by means of some examples. Given a noun-modifying construction like 'a better [movie] than I expected', 'better than I expected' may be considered a discontinuous constituent since it can occur as a constituent in a copular construction like 'the movie was better than I expected', whose meaning is "harmonious" with that of the other construction.

Nida (1948:172) maintains that discontinuous constituents "are rare, since for the most part immediate constituents are determined primarily on the basis of succession". Even a quick survey of the "outline of structures" (i.e., the graphic representations of English syntactic constructions) contained in Nida (1966[1943]:17-47) shows, however, the cases of discontinuous constituents are actually not so rare. Besides the structures such as 'did you go?', namely yes-no questions (p.28; 40), the following instances of discontinuous constituents are represented: parenthetical constructions, both clausal and adverbial (p.21; 32); 'duplicative parataxis', e.g. 'It (seemed to me) that he left too soon', where the bracketed sequence is represented as breaking the constituent formed by the other words (p.22); intensifiers separated from the adjective they refer to by a determiner, e.g. 'quite (a) large house' (p.24); quantifiers not contiguous to the noun phrase they relate to, e.g. 'We (will) both try' and emphatic reflexives, e.g. 'They (were involved) themselves' (p.27); resultative predicates, e.g. 'He pushed (the door) open' (p.31); clausal modifiers of the predicate, e.g. 'If we can help, (we) will try it', 'John being gone, (we) finished it early', 'This done,
(we) can leave’, ‘This being so, (I) am through’ (p.32; 33; 34; 37); prepositional phrases as modifiers of the predicate, e.g. ‘At home (she) was quite well’ (p.36); ‘wh’-constructions (p.27; 30; 41-42). (Bear in mind that, with the exception of ‘duplicative parataxis’, the names used here for these constructions do not correspond to Nida’s headings: e.g., ‘yes-no’ questions are to be found under the heading ‘predicate expression - single frames’ (p.28) and ‘dependent-form clauses’ (p.40).)

To represent discontinuous constituents in his trees, Nida resorts to a symbol which he does not explicitly define, and which could be named a ‘curl’, or an ‘arch’: the two parts of the discontinuous constituent are connected by a ‘subtree’ as if they were contiguous, and the element breaking their sequence is connected to the rest of the tree by a branch which crosses that subtree showing a curl at the crossing point. For instance, ‘wh’-constructions (e.g., indirect ‘wh’-questions, or relative clauses: cf. p.27; 30) are represented in this way. It can therefore be concluded that Nida, unlike other American structuralists, implicitly recognizes the ‘wh’- syntactic dependency: one has however to remember that no specific treatment is devoted by him to interrogative clauses.

Hockett (1958:154-155) proposes two different ways of representing discontinuous constituents. In the sequence ‘Is John going with you?’, the constituent ‘Is...going with you’ is discontinuous. One can diagram the sentence by putting ‘(John)’ at the beginning, but within brackets “to indicate that it is not actually spoken there; the empty parentheses after ‘is’ indicate the position it actually occupies in the sequence”.

Alternatively, “we avoid the duplication, but place a heavy line below the entry ‘John’, and mark with a dotted arrow the connection between ‘John’ and the larger form of which it is one IC”:
As can be seen, the second alternative rather closely resembles Nida's way of representing discontinuous constituents.

Among European structuralists, the problem of discontinuous constituents was treated by Frei, whose tree diagrams may represent these kinds of structures. Branches of Frei's trees can freely cross each other, hence a dependency between two or more non-adjacent elements is easy to sketch. What is needed is only a device to show that line crossing is not a node. Frei (1966:46) represents the difference between nodes and 'pseudo'-nodes by marking the former ones with a black dot (cf. also Frei 1967:688):

(7)

A similar device is also employed to represent syntactic relations within sentences named 'partitioned' by Bally (phrase segmentée; cf. Bally 1965[1932]: §§79-99). In this case, the further device is added of indicating the relations between Bally's 'theme' and its resumption within the sentence through a dotted line:

(8)

Frei's (1970) treatment of 'wh'-questions (interrogations partielles, in his terminology), however, does not involve any assumption of a discontinuous constituent. The notion of the 'pole sentence' (see above: 7.3.4) is central in this new analysis. The 'wh'-word of a 'wh'-question is an instance of a psychological predicate, even when its grammatical function is that of subject. If it were a subject, it would belong to the same substitution class as the subject of the corresponding declarative sentence, but this is impossible; the technique of substitutions requires that the prosodic type remain constant, and the subject of an
interrogative sentence and that of a declarative one do not belong to the same prosodic type (p.104). Hence the relationship between the declarative and the interrogative mode is not a substitution, but a ‘transposition’: Frei prefers this term to that of ‘transformation’, which runs the risk of “renewing the confusion between synchrony and diachrony” (ibid. fn.1). The ‘wh’-word is the head of a ‘pole sentence’, as is shown by the fact that it can replace such a sentence as a whole: Qui est malade? can be replaced by Qui?. The consequence is that a sentence like Combien ça a coûté would not be represented as a ‘pinion’ (cf. Frei 1968:105fn.3), but as a ‘pole’:

(9)

(9), in contrast to (7), does not contain any representation of discontinuous constituents.

The discussion so far can be summarized by saying that Pike’s or Wells’ main concern is to define and to discover discontinuous constituents, while that of Nida, Hockett, and also Frei (1996) is to represent them visually. Harris’ approach is more penetrating: he attempts to explain the nature of such constituents. For him, not only constituents, but also morphemes as well, may be discontinuous: in certain cases, it is possible “to set up morphemic segments consisting of non-contiguous phonemes, i.e. consisting of phonemes not in unbroken succession but interrupted by the phonemes of other morphemic segments” (Harris 1951:165). Instances of such kinds of morphemes are a) the vowel morphemes of Semitic languages, which are inserted between the consonants of the root to indicate several inflectional categories (e.g., the vowels -a- inserted in the root k-t-b give the form kataba ‘he wrote’), b) the non-contiguous sequences “like the Yokuts na’as...al dubitative (with the verb morpheme coming between the two parts)”, c) the repetitive sequences like Latin filius bonus ‘good son’, filia bona ‘good daughter’, where the feminine

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11 Frei (1968:56-58) states that transformational theory is just a “rediscovery” of the theory of transposition by American linguists. The only novelty of transformational theory would lie in its capacity to aid at building a theory of grammatical relationships.
morpheme appears both in the adjective and in the noun and d) “partially de-
pendent non-contiguous sequences”, like, for example, the agreement suffixes
of the English verb, which depend on the number (singular vs. plural) of the
subject (pro)noun and can therefore be treated as forming a broken morpheme
together with it (e.g., he...-s, Fred...-s); cf. pp.165-167 and Harris (1946:162);
cf. also Harris’ analysis of sentence structure reproduced in (2), above.

Strict contiguity is therefore no longer considered a necessary condition to
define a language unit. This step could easily be extended to units larger than a
morpheme, but Harris’ solution is different: discontinuous constituents may be
explained as variant constructions of continuous constituents, the variance be-
ing due to a transformation. See Harris in the following passage:

In general, we can express certain dependent occurrences within a construc-
tion by a single discontinuous morpheme: Given ‘this book’ but ‘these books’,
[...] we can say that there is a discontinuous ‘-s’ ‘plural’ which occurs after
both A and N of the AN construction [...].

In contrast, when we find dependent occurrence between two neighboring
constructions, it may be more useful to say that a given element has occurred
twice (i.e. that the two constructions have an element in common), than to say
that a single element extends discontinuously over both constructions. (Harris
1957:294)

Thus a ‘wh’-construction such as ‘I saw the doctor whom you by-passed’ is a
variant of ‘I saw the doctor. You by-passed the doctor’, where ‘-om’ is a
‘positional variant’ of ‘the doctor’ after the ‘wh’-element (cf. ibid.). Analog-
gously, a double-object construction such as ‘give the fellow a book’ is a vari-
ant of ‘give a book to the fellow’ (cf. p.309). All discontinuous constituents are
therefore reduced to contiguous constituents of transformationally related sen-
tences: this solution was to be exactly followed by Chomsky, although the lat-
ter’s overall framework was different, as will be seen in the following chapters.
PART III

THE AGE OF SYNTACTIC THEORIES
CHAPTER 8
THE SHAPING OF SYNTACTIC THEORIES

0. Introduction

The amount and the variety of syntactic research developed enormously in the second half of 20th century. A simple look at the index of Linguistic Bibliography from the mid-fifties onwards makes such a development very easy to recognize. Until 1961, Linguistic Bibliography did not contain any section especially devoted to syntax, while two distinct sections were devoted to phonetics and phonology: Chomsky’s Syntactic Structures (1957) is entered under the section ‘General Linguistics’. In 1962, a section for ‘Grammar (Morphology and Syntax)’ began to appear. Since 1973, this section has been split into two distinct subsections, ‘Morphology’ and ‘Syntax’. If, with a little exaggeration, the 19th century has been called “the century of historical-comparative grammar” and the first half of the 20th century, “the age of phonology”, one could, with no greater exaggeration, call the second half of this same century “the age of syntax”, or “the age of syntactic theories”.

Linguists of the second half of the 20th century have shown a steadily increasing interest in the theoretical foundations of their discipline. The phrases ‘syntactic theory’ and ‘linguistic theory’ seldom appeared in the American structuralist works. The situation was different in Europe. For example, the occurrence of ‘linguistic theory’ throughout Gardiner’s work will have been noticed (cf. above:5.1.2) and Hjelmslev’s (1961[1943]) major work is devoted to the ‘theory of language’, as is clear from its title. ‘Syntactic theory’ as such does not seem to occur frequently even in writings by European structuralists: one can notice, however, the use of ‘theory’ with reference to some specific syntactic domains, especially (but not exclusively) with linguists belonging to the Swiss or French traditions. Thus the first part of Bally (1965[1932]) is named Théorie générale de l’énonciation; as early as 1929, Frei speaks of a ‘theory of syntagms’. Several chapters of Tesnière (1966[1959]) deal with the ‘theory of transference’ (théorie de la translation). Among the linguists belonging to the Copenhagen school, Uldall (1949:71) speaks of the “new theory”
which captures the differences between junction and nexus (cf. above:269); and Diderichsen’s *Feldertheorie* has been discussed in detail (cf. 6.2.4). A concern for theory seems therefore to be felt more by European structuralists than by American ones: nonetheless even the former did not plead for a theory of syntax proper. Indeed, ‘theory’ swings in meaning between “theory of language in general” and “generalities about a particular syntactic topic”. ‘Theory’ as used by linguists did not consistently have the meaning it has when one speaks of mathematical, or physical, or chemical theories, etc. Things began to change in the early sixties, when, for example, Harris (1965) entitled a paper “Transformational Theory”, and one finds, in a paper belonging to the proceedings of a conference which will often be referred to in what follows (Osgood 1966[1963]:300), the statement that “an impressive structure of empirical functions invites interpretation - theory”. Osgood adds that linguistics has not yet been able to develop a theory, but “it now seems well on the way” (ibid.). And just around this time, in 1962, *Linguistic Bibliography* starts a subsection ‘Linguistic theory and method’ within the main section ‘Bibliography and general’: Chomsky’s (1965) *Aspects of the Theory of Syntax* is entered in this section. This increasing interest in syntax and for syntactic theorizing has brought about a rather complex situation over the decades: a recently published reference book (Brown & Miller eds., 1996) refers to not less than twenty different syntactic theories. Historiographical work must ask how and why this “theory-proliferation” occurred, and also what its consequences have been for the treatment of syntactic phenomena.

Section 1 of the present chapter will sketch a preliminary classification of the different theories according to their origin and development. Subsequently, three main trends in syntactic research will be dealt with. First, the approach by some logicians to natural language analysis (including the beginnings of Categorial Grammar), which had an impact, even if often indirect, on the development of many syntactic theories (8.2.). Second, some syntactic approaches which originated before and/or independently of Chomskian grammar will be presented: tagmemics (8.3.1) and Greenberg’s typological syntax (8.3.2). They are examined in this context, since their goals and also research methods differ largely from those of their source, namely American structuralism. Other theories which are chronologically more or less contemporary with Chomsky’s, but are still linked to structuralist methods and concerns, have already been touched in the preceding chapters: this is the case, for example, of Frei and Mikus’ syntagmatics, or of Martinet’s syntax. Finally, the early period of Chomskian syntax (or ‘generative syntax’ in the strictest sense), which extends from the mid-fifties until the end of the sixties, will be introduced. After a section dealing with Chomsky’s scientific formation (8.4.1), the different stages of
the building of the so-called ‘standard theory’ will be investigated, from *The Logical Structure of Linguistic Theory* until *Aspects of the Theory of Syntax* (8.4.2-8.4.3). The most significant works elaborated in the ‘standard’ framework will be presented in 8.4.4; 8.4.5 discusses some theoretical innovations regarding the standard theory, brought forward by Chomsky and by other scholars, especially J. R. Ross, which anticipate some important developments in generative syntax during the seventies.

1. A genealogical classification of syntactic theories

It may be useful to sketch a kind of genealogical tree of syntactic theories of the second half of 20th century, i.e., to indicate which of them are in some sense the “roots” and which ones are more or less direct offshoots of these. For many syntactic theories, it is obvious that their roots can be found in Chomsky’s generative grammar, but some theories developed independently from and even before the advent of this framework. These are the syntactic theories (or approaches) which have been presented in the preceding chapters: American structuralist syntax and the several European structuralist frameworks. Chomsky’s Generative Grammar itself is partly an offshoot of American Structuralism; Pike’s Tagmemics is another descendant of American Structuralism. Among European syntactic theories, Prague School functional syntax and Tesnière’s Valency Grammar were especially seminal in the second half of the 20th century; by contrast, Martinet’s and Hjelmslev’s theories did not essentially spread outside the circle of their founders and their strictest associates, a possible exception being Mulder & Hervey’s ‘Axiomatic Functionalism’ (see, e.g., Mulder & Hervey 1980). Another syntactic theory which antedates generative grammar is Categorial Grammar, whose first systematic formulation can be found in an article by the Polish logician Kazimierz Ajdukiewicz of 1935, but whose roots go back to Stanisław Leśniewski and Edmund Husserl. Finally, typological syntactic studies initiated by Greenberg (1966[1963]), while subsequent to Chomsky’s early work is essentially independent from it.

Several of these latter approaches did not cease to exert their influence on the development of syntactic research. One can think of the “logic based” theories of syntax, such as Categorial Grammar, whose most direct offshoot is Montague Grammar. This is also the case of Greenberg’s insights into language typology and language universals and (although to a lesser extent) of tagmemics. Moreover some schools stemming from structuralist roots went on to play an important role, especially Prague functionalism and Tesnière’s Valency Grammar. It is also important to bear in mind that the different theories, in most instances, did not develop in isolation from each other. Actually, contacts and reciprocal influences have been numerous. For example, Valency Grammar
became an essential component of Prague school syntax from the 1960s, and it also deeply influenced several other theories, such as Dependency Grammar and Word Grammar (see, e.g., Hudson 1984). Some of its basic concepts are also shared by Fillmore’s Case Grammar, which can therefore be considered as an offshoot of both Generative Grammar and Valency Theory. Prague School syntax, in turn (especially as far as the ‘Functional Sentence Perspective’ is concerned), essentially inspired several different ‘functionalist’ approaches, like those developed since the sixties mainly by European scholars: think, for example, of Halliday’s ‘Systemic Functional Grammar’ and of Dik’s ‘Functional Grammar’. Greenberg’s (1966[1963]) essay initiated a line of research into word order typology, instances of which are works such as those by Lehmann (1973; 1978b), Hawkins (1983), or Vennemann (1976). More recently, typologically-oriented syntax combined with functionalism: frameworks such as those of Comrie (1989[1981]), or of Givón (1979; 1984; 1991), or Role and Reference Grammar (see, e.g., Foley & Van Valin 1984) are instances of such a combined approach.

The present chapter, as was said in the introduction, deals with the early phase of generative grammar and with syntactic approaches more or less contemporary with it: the logically based theories of syntax, tagmemic syntax and Greenberg’s typological syntax. In chapter 9, I will present syntactic theories which explicitly developed as alternatives to Chomsky’s. Some of them originally derive from Chomskian roots, even if they took directions and shapes which are often very different from each other: e.g., Generative Semantics, Relational Grammar and Lexical-Functional Grammar. Some other theories have essentially different sources, such as the various functionalist and/or typological theories, on the one hand, and the most direct descendent of grammars based on formal logic, namely Montague Grammar, on the other. The development of the research program worked out by Noam Chomsky since the early seventies will be the subject of chapter 10.

2. Syntax and the logical analysis of language

It has been said above (2.2.2) that the new trend of logic, namely symbolic or mathematical logic, later also called ‘logistic’,¹ which was initiated by Boole around 1850 and was especially developed by such scholars as Frege or Russell from the last decades of 19th century onwards, was totally ignored by linguists of the psychologistic age, and that such an ignorance also characterized the first structuralist linguists at least until the 1930s. Even Brondal, who was deeply interested in logic and in its relationships with linguistics (cf. above:5.2.4), did

¹ Such a term is expressly used as synonymous with ‘mathematical logic’ or ‘symbolic logic’: cf., e.g., Tarski (1965[1941]:18).
not refer to the logicians of the second half of the 19th century or of the first half of the 20th century, but essentially to Leibniz. Moreover, such logicians showed very little interest in grammatical models and in the study of natural language in general. A good example of such a ‘lack of communication’ between logicians and grammarians can be found by comparing the respective positions of a logician (Næs 1932) and of a grammarian (Tesnière 1966[1959]) concerning the notion of subject. Næs (p.27) maintains that the subject has no privileged status with respect to other grammatical functions and criticizes Jespersen and grammarians in general for holding the opposite position. Now, it will be remembered (cf. above:7.2.2) that Tesnière (1966[1959]:ch.49, §§1-6) states that the analysis of the sentence into subject and predicate derives from an unwarranted transfer of logical categories to grammar: subject and object, indeed, should be ‘participant roles’ on the same plane. The situation is therefore totally paradoxical: the analyses of both logicians and linguists agree, and nevertheless they accuse each other of holding the wrong position.

Moreover, the founders of modern logistic, namely Frege, Russell and the so-called “first” Wittgenstein, show an attitude of “low evaluation” of natural language, viewed as the source of many philosophical puzzles, or “pseudoproblems”. In a fragment of his Logik (brought to my attention by Picardi 1994:113fn.4) Frege says that it is “the logician’s task” to struggle against “language and grammar, insofar as they do not purely express the logical element”. Russell considers natural language “imperfect”, and therefore in need of “correction” through the language of symbolic logic (cf. e.g., Russell 1919:172).

Russell’s position was endorsed by Wittgenstein in his Tractatus (1922), where one can read the following proposition (4.0031): “Russell’s merit is to have shown that the apparent logical form of the proposition need not be its real form”. Note in this passage the occurrence of the phrase ‘logical form’. It has a mainly corrective meaning: one of the faults of natural language is to “hide” the real nature of our thoughts with the often related consequence of bringing about flawed arguments and invalid deductions. The logician’s task is to discover the “real” Logical Form which is hidden and to describe it through a formal/symbolic language. As will be seen in a later chapter (10.2.2), this same phrase ‘logical form’ will again appear in the last decades of the 20th century, no longer with such a corrective meaning, but with a descriptive one: it will be used to refer to one level of linguistic representation.2 This shift of meaning is at least in part the reflex of a different attitude towards natural language by

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2 On these topics, I refer to an earlier essay of my own (Graffi 1999).
such logicians as Ajdukiewicz or Reichenbach, which will be discussed in a moment.

In the first half of 20th century, investigations of natural language phenomena within the framework of modern symbolic logic are rather rare. Carnap’s Logical Syntax of Language (1937) seems to lay a bridge between logic and syntax, by stating that “logic will become a part of syntax, provided that the latter is conceived in a sufficiently wide sense and formulated with exactitude” (p.2). The only difference between “syntactical rules in the narrower sense” and “the logical rules of deduction” would be the difference between ‘rules of formation’, on the one hand, and ‘rules of transformation’, on the other (cf. ibid.): the former kind of rules establishes the ‘well-formed expressions’ of a given language system, the latter which expressions are deducible from which other, and which not. These statements, however, directly apply only to symbolic languages. Carnap (pp.6-8) suggests that symbolic languages can serve as “reference systems” for the analysis of natural languages (‘word languages’, in his own terminology), but such a program was not implemented by him, not even in later works. Moreover, the idea that symbolic languages can function as a “reference system” for natural language still betrays a “low evaluation” attitude towards the latter. Carnap sketches an analogy between the actual procedure of the physicist or of the cartographer with what would be the expected procedure of the natural language analyst: “natural things - trees, stones and so on” and “the complicated configurations of mountain chains, river frontiers, and the like” bear the same relation to the laws of physics or to the geographical maps, respectively, as natural language to symbolic languages (cf. p.8). Therefore, symbolic languages would be the idealized model, and natural language the complicated reality. Carnap’s analogy was explicitly rejected by Chomsky (1955): symbolic language are not models or reference systems for natural languages; each language system has its own structure and rules, which cannot be reduced to those of other systems.

There were, however, exceptions to such an attitude of “low evaluation” of natural language. The most significant of them is the first proposal of ‘Categorial Grammar’ put forward by the Polish logician Ajdukiewicz (1935) and ch. 7 of Reichenbach (1947), which deals with ‘conversational language’, i.e. with natural language. Reichenbach was one of the leading figures of Logical Positivism, on a par with Carnap. Both Ajdukiewicz and Reichenbach conceded the difficulty of analyzing natural language and its apparent logical ‘inconsistencies’ (cf., e.g., Ajdukiewicz 1935:6-7; 1967:212; Reichenbach 1947:298): after all, they were both logicians and shared the worries and the interests of their confreres. Unlike other logicians, however, they (tacitly) assumed that natural language and symbolic languages are built on the same basis. As De Palma
(1974:7) writes, for Ajdukiewicz, such a basis was the categorial structure of natural language; for Reichenbach, the notion of ‘propositional function’. Let us therefore investigate some aspects of both Ajdukiewicz’s and Reichenbach’s approaches to syntactic analysis.

Ajdukiewicz’s main concern is the notion of ‘syntactic connection’: a ‘word pattern’ is ‘syntactically connected’ when it is meaningful, formed by meaningful words, and its meaning is the result of the combination of the meanings of the words forming it (cf. Ajdukiewicz 1935:1; 1967:207). For example, a word pattern such as ‘John loves Ann’ is syntactically connected; a word pattern such as ‘perhaps horse if will however seem’, is not (cf. ibid.). The last word pattern is an instance of what Husserl would have called ‘nonsense’, opposing it to ‘countersense’, exemplified by such sentences as ‘this square is round’ (cf. above:2.4.3). And, indeed, Ajdukiewicz was surely influenced by Husserl’s ideas about the combinability of word categories, which had been developed by another Polish logician, Stanislaw Leśniewski. One could also hypothesize that Ajdukiewicz’s different attitude (with respect to such scholars as Carnap) towards natural language was due to the fact that he was influenced not only by logistic, but also by Husserl’s philosophical logic. But one can also speculate that the assumptions of another of Brentano’s followers, namely Marty (cf. above:2.4.2) inspired Ajdukiewicz’s system of Categorial Grammar to a certain extent. For such a system is based on the opposition of two kinds of syntactic categories: ‘basic’ categories and ‘functor’ categories (cf. Ajdukiewicz 1935:3-4; 1967:209). ‘Basic’ categories are the sentence and the name; the other categories are ‘functor’ categories.

The great novelty introduced by Ajdukiewicz was the ‘arithmetical notation’ of categories. It consisted in assigning to the two basic categories ‘sentence’ and ‘name’ the ‘simple’ index $s$ and $n$, respectively, and to the functor categories a ‘fractional’ index. The numerator of the fraction is the category which results from the combination of the functor with its arguments, and its denominator is the sequence of indexes of such arguments (cf. p.5; 210). So, for example, the fractional index $s/n$ would indicate the functor category which takes one noun as argument and gives a sentence as a result: e.g., intransitive verb. Since any category, be it a basic or a functor, can occur as an argument, one can obtain more complex functions, whose numerator and denominator are both fractions: e.g., $s/n//s/n$ would be the symbol of an adverb which modifies an intransitive verb, taking an $s/n$ argument to obtain a verbal expression. Given such an arithmetical notation, a sentence such as ‘John runs fast’ would be represented as follows:³

³ For reasons of typographical convenience, I do not reproduce Ajdukiewicz’s original fractional notation exactly, which puts the numerator above the fraction sign and the latter above
The arithmetical notation provides us with a mechanic procedure to establish if a given expression is syntactically connex or not. This procedure simply consists in the multiplication operation: e.g., one can multiply the indexes \( s/n//s/n \) and \( s/n \) in (1), and one obtains \( s/n \); then this \( s/n \) is multiplied by \( n \), and the result is \( s \), which is called the ‘exponent’ of the whole expression. The exponent is always a single index and it “gives the semantic category to which the whole composite expression belongs” (p.13; 218): in the example (1), such a category is the sentence.

Actually, Ajdukiewicz’s procedure is slightly different from that just described, which has been introduced to make exposition simpler. In his system, the derivation of a syntactically connected expression is not implemented by taking words in their actual order (as has been done above), but in their abstract ‘proper word sequence’ (eigentliche Wortfolge; cf. pp.8-9; 213-214). The assumption of such a ‘proper sequence’ is necessary since natural (‘ordinary’, gewöhnliche) languages do not always put functors and their arguments in the desired sequence, namely with the functor immediately preceding all its arguments. This only occurs in symbolic languages and “in some ordinary languages” (p.6). Hence the ‘proper word sequence’ of a sentence like (1) would be (1’):

\[
(1') \text{fast runs John } \\
 s/n//s/n \quad s/n \quad n
\]

To (1’), the multiplication operation described above still applies, but “rightwards” and not “leftwards” as above. Seen in detail, the exponent of the involved expression would be reached through the following derivational steps:

\[
(2) \quad s/n//s/n \quad s/n \quad n \quad (\text{Proper index sequence'}) \\
 s/n \quad n \quad (\text{First derivative'}) \\
 s \quad (\text{Second and final derivative'}; \text{'exponent'})
\]

By means of the notion of ‘proper sequence’, Ajdukiewicz was able to avoid some typical problems of natural language analysis, first of all that of discontinuous constituents (cf. above:7.3.5): indeed, such constituents could be easily made continuous in the ‘proper word sequence’. On the other hand, the idea itself of a ‘proper sequence’ clearly referred to symbolic language as a referen-
ence system for natural language: and, in fact, Ajdukiewicz applied his notation both to natural and to symbolic languages (on the latter, see especially pp.15-23; 220-227). Bar-Hillel’s (1953) revision of Ajdukiewicz’s notation aimed, among other things, to make it more immediately applicable to natural language. Before discussing Bar-Hillel’s proposals, however, let us deal with Reichenbach’s (1947) “analysis of conversational language”.

It has already been seen that Frege considered the struggle against “language and grammar” as one of the logician’s tasks. For Reichenbach, the only enemy is grammar, or, more exactly, traditional grammar. Traditional grammar is unable to identify the logical structure of natural language. One of its greatest inadequacies, according to Reichenbach (cf. pp.251-253) is to have neglected the fact that many linguistic expressions are ‘functions’ in the logical sense. For example, natural language shows many cases of the ‘converse’ relation, which traditional grammar is unable to grasp: e.g., ‘shorter’ is the converse of ‘taller’, ‘child’ the converse of ‘parent’; and the passive voice is the converse of the active one. On this subject, Reichenbach (ibid.) literally speaks of the ‘transformation’ of a passive structure from the corresponding active one.

Hence Reichenbach completely destroys the system of parts of speech as given in traditional grammar and replaces it with a classification of linguistic expressions based on the notions of ‘arguments’, ‘functions’, and ‘logical terms’ (p.255; a detailed list of parts of speech according to this new classification is given on pp.352-354). Examples of arguments are proper names or what one would call today deictics, and Reichenbach calls ‘token-reflexive descriptions’: first and second person pronouns, space-time adverbs such as ‘now’, ‘yesterday’, ‘there’. Functions are cross-classified according to several properties. With regard to the ‘type’, ‘functions of the first type’ (which can indifferently be nouns, adjectives, or verbs: e.g., ‘house’, ‘taller’, ‘give’) are opposed to ‘functions of higher type’ (which can again be instances of several traditional parts of speech: a noun like ‘color’, or adverbs like ‘slowly’ or ‘beautifully’). This last distinction is necessary to account for sentences such as ‘John is a slow driver’: differently from ‘Royce Hall is a red building’, which can be paraphrased as ‘Royce Hall is red and Royce Hall is a building’, such a sentence cannot be paraphrased into ‘John is slow and John is a driver’. The reason of this is that adjectives like ‘slow’, in this case, are not functions of the first type, but of a higher type: they do not denote properties of things, but properties of properties (cf. pp.301-303).

Turning now to ‘logical’ terms, the first thing to note is that this name does not mean that they are opposed to ‘non logical’ terms in the sense that only the former, but not the latter, follow the standard imposed by symbolic logic. In
Reichenbach's system, those terms which are non logical are called 'denotative'. Denotative terms, in Reichenbach's own words, stand "in the place of an argument variable, or a functional variable, or a propositional variable" (p.319). Those terms which are not denotative are 'expressive'. For example, the copula is an expressive sign: "Because it portrays the function-argument relation, it will express it; i.e., it will remind us of this relation." (p.320). What are, then, such 'logical' terms? "We shall call a term logical when it is merely expressive and indispensable, or when it is definable by means of such terms alone" (p.323). Reichenbach classifies logical terms into 'terms in a syntactical [sic] capacity', 'terms in a semantical capacity' and 'terms in a pragmatic capacity'. The copula is an instance of a logical term in a syntactical capacity; operators such as 'all' or 'there is', are instances of logical terms in a semantic capacity; the interrogative pronouns are examples of the third class of logical terms, namely those in a pragmatic capacity. Their representation by Reichenbach is a good example of his way of analyzing natural language. Reichenbach symbolizes the meaning of a 'wh'-question as follows:

(3) (?x) (fx)

Reichenbach explains this formula by saying that "in conversational language, the question-mark operator is expressed by an interrogative pronoun or interrogative adverb" (p.341). Thus 'wh'-questions are treated as operator-variable structures. As will be seen (cf. below:10.2.2), this is a cornerstone of the treatment of Logical Form in the framework of generative grammar.

Reichenbach's investigations did not raise any special interest in the years immediately following neither among logicians nor among linguists. Bar-Hillel (1970:292) blamed Reichenbach's "linguistic innocence", shown, among other things, by the fact that the only linguist quoted by him was Jespersen. Today, the situation has changed slightly: Reichenbach is a source for many linguists as far his treatment of the tense system is concerned (cf. Reichenbach 1947:287-298), but the rest of his more than 100 pages devoted to natural language are still somewhat unknown. What are the reasons for this lack of impact? One possible explanation is the absence, throughout Reichenbach's investigations, of any hint of rules describing natural language phenomena, be they 'rules of formation' or 'rules of transformation' in Carnap's sense (see above; cf. also De Palma 1974:6). It is reasonable to suppose that this fact could deter logicians, who presumably wanted to follow 'Carnap's program'; but linguists, in the forties and the fifties, were also looking for a more formalized approach, as Harris' efforts especially demonstrate (see above:5.3.6.; 7.3.2). The champion of this search for formalization of linguistics and, espe-
cially, of syntax, was a logician and philosopher of science especially ac-
quainted with linguistic research, namely Yehoshua Bar-Hillel.

Bar-Hillel’s (1953) essay explicitly attempted at developing a method of
syntactic analysis combining Ajdukiewicz’s insights with the procedures of
American structural linguistics (cf. Bar-Hillel 1964[1953]:61). The aim of this
new method was not “to arrive at an analysis of a linguistic corpus”, but “to
present the results” of the linguist’s investigations. It would “enable us to
‘compute’ the syntactic character of any linguistic string (sequence of one or
more elements) in its context” (ibid.).

Bar-Hillel therefore developed a system of Categorial Grammar which
shared the essential features of Ajdukiewicz’s, while revising it in some as-
pects. As has been said above, such revisions aimed at making Categorial
Grammar more directly applicable to actual natural language sentences. Just
like the Polish logician, Bar-Hillel started from the idea that syntactic connec-
tion derives from the combinability of the different word categories occurring
within a sentence. Unlike in Ajdukiewicz’s work, however, such combinability
was no longer seen in the meaning of such categories, but in their purely formal
nature. Just like Ajdukiewicz, Bar-Hillel also distinguished ‘basic’ from
‘functor’ (which he renamed ‘operator’) categories and assumed that basic
categories are ‘sentence’ (s) and ‘noun’ (n) (cf. p.66). Bar-Hillel’s main revi-
sions of Ajdukiewicz’s original system of Categorial Grammar may be summa-
rized by the following points (cf. also Casadio 1987:40-47). 1) Words of the
same form (‘equiform’, in Bar-Hillel’s terminology) can belong to more than
one category: this solves the problem of homonyms, which are widespread in
natural language (cf. p.64). 2) ‘Operators’ may apply to arguments both to their
right and to their left: remember that in Ajdukiewicz’s original system ‘func-
tors’ only apply to arguments to their right. 3) As a consequence, ‘multiplica-
tion’ rules can also operate ‘leftwards’. Given these premises, a sentence such
as ‘Poor John sleeps’ is represented by means of the following ‘index-
sequence’:

\[
\begin{align*}
\text{(4) Poor John sleeps} \\
\quad n/[n] \quad n \quad s/(n)
\end{align*}
\]

Square brackets indicate that the argument of the operator lies to its right;
round brackets, that it lies to its left. The derivation of (4) will therefore be the
following:

\[
\begin{align*}
\text{(5) } & n/[n] \quad n \quad s/(n) & \quad \text{('Proper index sequence')} \\
\quad & n \quad s/(n) & \quad \text{('First derivative')} \\
\quad & s & \quad \text{('Second and final derivative'; 'exponent')}
\end{align*}
\]
Bar-Hillel was therefore able to abandon Ajdukiewicz’s notion of ‘proper word sequence’ and to analyze natural language sentences in their actual form: on the other hand, this step was not exempt from problems. How was it possible to deal with discontinuous constituents? Bar-Hillel himself raised such a problem at the end of his essay, remarking that it was due to his “deliberate restriction of the range of arguments to the immediate environment of the operators” (p.73). Bar-Hillel’s provisional solution (p.74) was to allow that, in some cases, constituents could be interpreted as lying in “some other position” with respect to the actual one. It was clear, however, that such a solution was unsatisfactory and that the problem of formulating an adequate set of formation rules for natural language was still open.

Bar-Hillel’s uncertainties on the whole matter are shown by the fact that he published an essay, in the following year, which essentially restated ‘Carnap’s program’ (Bar-Hillel 1954): it maintained that any adequate theory of natural language must not only state its ‘rules of formation’, but also its ‘rules of transformation’, namely those “that would mirror the so-called logical properties and relations of sentences and of other expressions” (Bar-Hillel 1964[1954]:38). Bar-Hillel (p.46) also criticized Harris for having attempted “to reduce the transformational part of syntax to its formational part”. In other words, he was arguing against Harris’ use of the expression ‘transformational rule’, since in fact it refers to another kind of formation rule, in Carnap’s sense. Bar-Hillel’s proposals were totally rejected by Chomsky (1955): he maintained that logical syntax and semantics (in the sense of Tarski’s logical semantics, to which Bar-Hillel referred) have no real impact on the analysis of natural language. His criticism of Carnap’s proposal to treat symbolic languages as reference systems for natural language, which has been discussed above, was just stimulated by this discussion of the linguistic relevance of the methods of symbolic logic. Chomsky closed his reply to Bar-Hillel by stating that formal logic should be applied in the construction of linguistic theory, and not conceived of as a model for any actual linguistic behavior.

The debate between Bar-Hillel and Chomsky did not go on. Some years later, Bar-Hillel (1970[1963]:142), referring to Chomsky (1955), admitted that “a good part of Noam Chomsky’s defense of Harris’ position [...] was well taken and that many more linguistic facts than I had originally thought of can be adequately described with the help of rules of formation”. Bar-Hillel therefore recognized that the real issue was the formulation of an adequate set of formation rules for the syntax of natural language: this was Chomsky’s main concern in the first period of his scientific work, which will be investigated in part 4 of the present chapter.
3. Beyond American structuralism

3.1. Tagmemics

Tagmemics, the linguistic theory worked out by K. Pike and his associates and students, is an offspring of American structuralism which, on the one hand, combines both Bloomfield’s and Sapir’s insights; on the other hand, it trespasses the boundaries of American structuralism in many respects. The Bloomfieldian side of tagmemics lies in its analytical techniques, which resume, deepen and modify Bloomfield’s. On the other hand, Pike’s approach to language is decidedly and explicitly Sapirean (Pike 1967[1954-60] is dedicated to Sapir’s memory): language is seen as a cultural phenomenon, strictly tied to other cultural manifestations of human life and even unseparable from them.

Pike’s conception of language and linguistic theory opposes the standard assumptions of post-Bloomfieldian linguistics on several points. One of them is Pike’s denial that linguistic descriptions can be successfully accomplished without any resort to meaning. In fact, he remarks (see e.g. Pike 1967[1954-60]:60), even linguists who affirm that their procedures are purely distributional (like Harris) cannot avoid resorting to meaning considerations. A further aspect of Pike’s work that marks his distance from post-Bloomfieldian standards is his engagement in methodological discussions (see especially Pike 1960:68-72). He is well aware of the deductive-nomological approach to scientific explanation (Carnap, Hempel, Braithwaite and other philosophers of science are quoted and discussed by him). Nevertheless, he is sympathetic to a “pragmatic view of philosophy of science”, which does not strictly follow (so it seems, at least) the standards of deduction and does not assign any special importance to ‘theoretical constructs’.

Let’s now turn to some basic notions of tagmemic syntax. They are ‘tagmeme’, ‘construction’, and ‘level’. Tagmemes form constructions; constructions and tagmemes are different for each level. ‘Tagmeme’ was originally dubbed ‘grameme’ and referred to the minimal unit of the grammatical hierarchy, just as phoneme is the minimal unit of the phonological hierarchy and morpheme the minimal unit of lexical hierarchy. Later, Robert Longacre (cf. Jones 1996:326; Pike 1967[1954-60]:449) developed a new conception: tagmemes are defined in relation to the different levels (‘tagmemes-on-a-level’). The notions of level and construction therefore become inseparable from that of tagmeme.

The term ‘tagmeme’ is borrowed from Bloomfield, but it takes on a rather different meaning in Pike’s work. A tagmeme “represents the integration of a point or place in grammatical syntagmatic function with the class of alternatives comprising a distribution class occurring at that place” (Pike 1966:381). Hence the tagmeme in Pike’s sense is a syntagmatic position, or a class of ele-
ments, plus the elements which may fill it. In later approaches (cf., e.g., Pike 1975:22-23), not only the ‘slot’ and the ‘class’ are taken into account in the definition of tagmemes, but also their ‘role’ and their ‘category’. For example, ‘subject-as-actor’ and ‘subject-as-undergoer’ are two different tagmemes (see below): they occupy the same slot, but are distinguished by their ‘role’. Tagmemes do not only have ‘actual’ occurrences, but also ‘potential’ occurrences, i.e. they can occur in new utterances. On this basis, new utterances can be predicted (cf. Pike 1967[1954-60]:280-281).

Constructions (or ‘syntagmemes’ in Longacre’s 1965 and Pike’s 1967 [1954-60] terms) are formed by tagmemes and fill a grammatical function as wholes. The relation between tagmemes and constructions is a hierarchic one: units which are tagmemes at a given level, are constructions at a lower level. For example, the morpheme sequence ‘the old man’ may occur in the subject tagmeme slot or in the object tagmeme slot at the clause level, while it is a construction (specifically, a ‘modified noun phrase’) at the phrase level. In a given construction, a tagmeme may be obligatory or optional. These possibilities may combine, in any possible way. Thus, given two tagmemes in a string, they may be: (1) both obligatory; (2) one obligatory and one optional; (3) either or both may occur, but one must occur; (4) both are optional, one or the other must occur but not both. Further possibilities are given when strings are formed by more than two tagmemes (cf. Elson & Pickett 1967:60). These relationships are the only necessary ones in the tagmemic model. Notions such as ‘attribution’, ‘direction’, etc., of American structuralism are not on the same plane of abstraction and generality: they rather express the relation that a particular tagmeme has to another tagmeme. Also the distinction between endo- and exocentric constructions is not particularly important for tagmemics. Only the opposition between ‘head’ and ‘modifier’ seems to preserve a role in tagmemic syntax, where it is reformulated as the opposition between ‘nuclear’ and ‘satellite’ tagmemes. Normally, but not always, nuclear tagmemes are obligatory; moreover, nuclear tagmemes are formed by larger classes than satellite tagmemes (cf. Elson & Pickett 1967:61-63). The opposition between nucleus and satellites (or ‘margins’) is what allows us to single out a ‘level’ (cf. Pike 1967[1954-60]:468). The list of levels does not coincide throughout the works of the different ‘tagmemicists’. The universally recognized levels are: word, phrase, clause and sentence (cf. Pike 1967:437). All tagmemicists also stress the need of recognizing units above the sentence level.

Tagmemic definitions of ‘word’, ‘phrase’ and ‘sentence’ differ from Bloomfield’s:

A word is not simply ‘a minimal free form’ (Bloomfield 178), but it is required to have syntagmemic structure [...] A phrase is not required to be a group of
two or more words; rather a minimal phrase may be manifested by a single word provided it also occurs with other words in a phrase. A sentence is not altogether an ‘independent linguistic form’ [...] for it may figure in the structure of a paragraph. (Longacre 1965:74fn.20)

Bloomfield’s opposition between ‘full sentences’ and ‘minor sentences’ (see above:6.1.3) is reformulated in the tagmemic framework as an opposition between ‘independent’ vs. ‘dependent’ sentences (see Waterhouse 1963). Independent sentences are therefore full sentences without sequence tagmemes; dependent sentences are Bloomfield’s minor sentences plus sentences containing sequence tagmemes. Independent sentences are classified into three types: (1) simple independent sentences, (2) coordinate sentences and (3) ‘subordinating’ sentences. A conditional sentence is an instance of a subordinating sentence: its protasis is a dependent clause which functions as a tagmeme on the sentence level. Dependent sentences are subdivided into (1) response sentences (‘Who arrived? -John’), (2) addition sentences (‘I’d like this one. The little one’), (3) sequence sentences (‘In addition, she likes piano’), (4) interrupted sentences, i.e. sentence fragments, false starts, etc. (cf. Elson & Pickett 1967:124-126).

Regarding the notion of ‘clause’, Pike (1967[1954-60]:486) stresses that it occurs in Bloomfield (1933) without any explicitly defined meaning: it has therefore been a substantial achievement of tagmemic syntax to give to such a concept a definite role in the overall system of syntactic concepts. Pike (p.441), mainly relying on Longacre’s (1964) work, lists the following distinctive properties of the clause: (1) it has a place between phrase and sentence; (2) it is (a) non-coordinate (‘John and Bill’ is a phrase and ‘John came and Bill stayed’ is a sentence’) and (b) “may have various structural patterns such as ‘non-centered, centered or relator-axis’”; (3) “it typically has an over-all structural meaning of predication, or equation, or query, or command, or related type”; (4) for a particular language, the internal organization of clauses may differ sharply from that of phrases in terms of their constituent tagmemes; (5) if a transformation changes the clause structure, the structure of the constituent phrases may remain unchanged (‘My great big John saw Bill’ vs. ‘Bill was seen by my great big John’).

In the tagmemic framework (cf., e.g., Elson & Pickett 1967:64), the essential concept identifying a clause is the predicate: in many languages, clauses may lack the subject. A predicate may be a verb or an expression equivalent to a verb. When a clause is complex, it does not contain more than one predicate: only the embedded clause, not its predicate, is a tagmeme of the main clause. A clause either will or will not need to contain additional tagmemes, other than
the predicate, depending on the language. For example, in a language like Isthmus Zapotec (Mexico), subject and object are both obligatory.

It is not the case that grammatical levels are always constituted by units of the immediately lower level: they can be sometimes ‘skipped’ and sometimes ‘loopbacked’. Level skipping occurs when the tagmemes at a certain level (e.g., the clause) are not manifested by a construction at the immediately inferior level (i.e., a phrase), but by constructions from lower levels (e.g., words or affixes). The classic English example ‘the king of England’s hat’ can be considered an instance of skipping: the possessive suffix ‘-’s’ (a stem-level tagmeme) is attached directly to a phrase (Elson & Pickett 1967:84). Loopbacks occur when units of a higher level occur as tagmemes of a lower level: e.g., when a clause is embedded in a phrase (the typical example is that of relative clauses: ‘The man who was there left after’; cf. Longacre 1960:87). An alternative analysis of ‘the king of England’s hat’ may be given in terms of a loopback: ‘king of England’s’ can be considered a “phrase filling the nuclear slot of the word” (Elson & Pickett 1967:85; cf. Longacre 1960:86). As can be seen, tagmemics resumes both analyses that were stigmatized by Wells as “offending common sense” (see above:215). Certain levels may also be simultaneous (‘portmanteau levels’, in Pike’s terminology). This occurs when two or more different levels are manifested by the same morpheme or sequence of morphemes (Pike 1967[1954-60]:440). For example, in a sentence like ‘John hit Bill’, ‘John’ simultaneously manifests tagmemes on three levels: (1) word-head tagmeme; (2) phrase-head tagmeme and (3) subject-as-actor tagmeme (cf. Pike 1967[1954-60]:455; the two last tagmemes are named ‘hypertagmemes’ by Pike).

Tagmemics also developed procedures for singling out units. Unlike the standard IC-analysis, tagmemic analysis of constituents does not proceed dichotomically, but looking “for meaningful groupings at any given level” (Elson & Pickett 1967:61). Such groupings may be more than two (sometimes they may reach a dozen). Strings singled out by tagmemic analysis are dubbed ‘string constituents’ (cf. Longacre 1960; Pike 1967[1954-60]:244 in this connection speaks of ‘serial expansion’). Pike (1967[1954-60]:477-478) also finds some principled differences between tagmemic string constituent analysis and IC-analysis. The latter proceeds ‘downwards’, namely by singling out units through successive ‘cuts’; the former proceeds ‘upwards’, starting from units and determining the slots where such units occur.

In general, it is not advisable to assume two discontinuous constituents as forming a tagmeme: this often occurs as a result of IC-analysis, which is bound to a dichotomistic procedure. So, for instance, a bipartite subject-predicate structure is even assumed for those languages where the subject lies between the
verb and the object: consequently, a predicate tagmeme which is always formed by two discontinuous parts would also be assumed. Sometimes, however, discontinuous tagmemes have to be assumed, as in the case of the progressive tagmeme ‘to be’ plus ‘-ing’ in English interrogative structures (‘is he going?’).

Tagmemics proved to be successfully applicable to a variety of languages: therefore, syntactic studies within a tagmemic framework were (and are) numerous. Pike’s arguments against the prohibition of ‘mixing levels’ (see above:215) were very close, in essence, to Chomsky’s assumption that elements of one level are not literally ‘constituted’ by elements on lower levels (see below:337), and possibly suggested it. Hence tagmemics has certainly represented a rather major innovation in respect of American structuralist assumptions and methods.

3.2 Syntax, linguistic universals and typology

The history of psychologistic and structuralist syntax sketched in two first parts of the present volume should have shown a progressive skepticism towards the inquiry into language universals, since the beginning of 19th century: it is not the case that every syntactic theory denied the existence of rules or patterns available for all languages, but, in point of fact, the attention was centered more on intralinguistic phenomena than on crosslinguistic ones. The general topics were, for example, the definition of the proper tasks of linguistics (think, e.g., of Hjelmslev’s work) or the working out of appropriate analytical methods (as in the case of American structuralism). It was seen in chapter 2, above, that a new branch of crosslinguistic investigation originated in the 19th century, namely linguistic typology: but even this branch (at least with scholars such as Steinthal or Gabelentz) seemed more interested in stating the differences across linguistic groups than in defining the universal standards against which such differences can be measured. All in all, therefore, both psychologistic and structuralist syntax showed little interest in linguistic universals.

In the tradition of *grammaire générale*, the root of linguistic universals was seen in the universal nature of human mind: the anti-universalistic attitude of 19th century linguistics expressed itself by creating the notion of *Völkerpsychologie* (see above:2.2.3; 2.3.3), which is intrinsically relativistic. Given the strongly anti-psychologistic attitude of structuralism, *Völkerpsychologie*, along with any other kind of psychology, was wiped out. As a consequence, American structuralism was mainly anti-psychologistic and relativistic; European structuralism was equally anti-psychologistic, while it possibly showed a slightly greater interest in universal features of language (think, for example, of Brøndal, or De Groot).
Such a picture began to change radically in the early fifties. 1953 was the birth year of psycholinguistics: linguists, psychologists and anthropologists met at a conference at Indiana University expressly devoted to such a topic, whose proceedings were published as Osgood & Sebeok (1954). Eight years later, Osgood was to be one of the authors of the “Memorandum concerning language universals” presented to the Conference on Language Universals held in Dobbs Ferry, N.Y (Greenberg, Osgood & Jenkins 1966[1963]). The revival of psychological concerns in linguistics is therefore strictly linked to the renewed interest in language universals: and in fact language universals are conceived as manifestations of “underlying psychological principles” (Greenberg, Osgood & Jenkins 1966[1963]:xv; Osgood 1966[1963]:301-305).

It is therefore not surprising if some papers collected in the proceedings of the Dobbs Ferry conference (Greenberg 1966[1963]) open with a critical reassessment of Bloomfield’s positions. Hockett (1966[1963]:1) quotes Bloomfield’s statement (1933:20) that “the only useful generalizations about language are inductive generalizations”, but he immediately adds: “This admonition is clearly important, in the sense that we do not want to invent language universals, but to discover them”. Osgood (1966[1963]:299), after having recalled Bloomfield’s views, says that “pendulums have a way of reversing their direction” and stresses the necessity of theory. On the next page, Osgood explicitly connects psycholinguistics to linguistic universals: “the psychology of language behavior can be useful only in terms of universals”. And he also quotes Bloomfield’s passage quoted by Hockett, but in a more critical vein:

(...) he [sc. Bloomfield] was telling only one part of the story of science; the other part is the hypotetico-deductive system in which inductive generalizations are organized into predictive theory.

The notions of ‘psychology of language’, ‘linguistic universals’ and ‘theory’ (all of them in general mistrusted by the Bloomfieldian tradition) seem therefore to go hand in hand. The notion of ‘typology’ is revived: however, contrasting with 19th century views, it is conceived of as strictly connected to language universals research. Hockett (1966[1963]:4) states:

*The search for language universals cannot be usefully separated from the search for a meaningful taxonomy of languages. (Here taxonomy refers to what might also be called “typology”, not to genetic classification).*

Analogous statements can be found in Saporta (1966[1963]:61ff.) and in Jakobson (1966b[1963]:263-265; 275). The following statement by Jakobson (p.264) is especially clear: “typological confrontation of diverse languages reveals universal invariants”.
If language typology is implemented by taking language universals as ‘standards’ against which diverse languages are confronted, language universals are no longer conceived of only as features that every language must possess. Indeed, Greenberg, Osgood & Jenkins (1966[1963]:xix ff.) list six types of linguistic universals, the first three of which are “universals which concern existence” and the remaining three are “universals which concern probabilities”. The features shown by all languages, namely linguistic universals in the traditional sense, are called by Greenberg et al. ‘unrestricted’ universals. The other universals “which concern existence” are ‘universal implications’ (“if a language has a certain characteristic, (φ), it also has some other particular characteristic (ψ), but not vice versa”; p.xix) and ‘restricted equivalence’ (“mutual implication between characteristics which are not universal”; p.xx). The three universals “which concern probabilities” are ‘statistical’ universals, ‘statistical correlations’ and ‘universal frequency distribution’. The widening of the inventory of language universals is therefore achieved in two ways: on the one hand, by opposing “universals concerning existence” to “universals concerning probabilities”; and on the other, by adding ‘implicational’ universals to ‘unrestricted’ universals. It is highly probable that Greenberg and his colleagues borrowed the notion of ‘implicational universal’ from Jakobson’s studies about child language and aphasia. Jakobson (1941) had investigated the acquisition of sounds by the child and the loss of sounds by the aphasics and he was able to state some universal rules of implicational form. For example, just as the child acquires fricatives after stops and the aphasic loses stops after losing fricatives, there exists no language which has fricatives without having stops; analogously, just as the child acquires velar stops after labial stops and the aphasic loses velar stops before losing labial ones, there exists no language which has velar stops without having labial stops. In his report held at the 1957 International Congress of Linguists, Jakobson explicitly presented an implicational conception of typology, stating that “typology discloses laws of implication which underlie the phonological and apparently the morphological structure of languages” (Jakobson 1958:20). Greenberg recognizes his debt towards Jakobson’s work on implicational universals in the first footnote of his essay on ‘basic order typology’ (Greenberg 1966a[1963]).

This essay was to exert an enormous influence on many linguistic theories in the subsequent decades. Hence it is convenient to sketch here its main results, especially those concerning syntactic matters. Greenberg (1966a[1963]) assumes as the bases of his language classification three possible choices of the linear ordering of elements. (1) Whether a language has prepositions or postpositions (‘prepositional’ vs. ‘postpositional’ languages). (2) The position of the verb with respect to the subject and to the object. Of the six theoretically possi-
ble positions (SVO, SOV, VSO, VOS, OSV, OVS), only three, according to Greenberg (p.76) “normally occur as dominant orders”. They are labeled, respectively, I (=VSO), II (=SVO), III (=SOV). (3) The order of the adjective with respect to the noun it modifies: A (=AN) vs. N (=NA) (pp.76-77). Greenberg also remarks that “type II is more strongly correlated with Pr-N than with Po-A” (p.77) and that “(...) the nominal subject precedes the verb in a large majority of the world’s languages” (ibid.).

Universals 1-7 state the systematic correlations between the three bases of classification taken together, and with the genitive position, namely the order G(enitive)-N(oun) vs. N(oun)-Genitive. Universal 3 states that VSO languages are always prepositional. Universal 4 states that “with overwhelmingly more than chance frequency, languages with normal SOV order are postpositional” (p.79).

Universals listed as pertaining to syntax go from 8 to 25 (pp.80-91). The remaining universals (26-45) are listed under the heading ‘Morphology’ (pp.92-96). Universals 8-12 concern interrogative sentences; universals 13-15 the respective order of the main and subordinate verb; universal 16 the position of the verb and the auxiliary; universals 17-20 the position of adjectives, numerals and demonstratives with respect to the noun; universal 21 the position of the adverb with respect to the adjective it modifies; universal 22 the respective position of the comparative and of the standard; universal 23 the order of elements in an apposition construction (‘Mr. Smith’); universal 24 the position of the relative expression with respect to the noun it modifies; universal 25 the position of pronominal and nominal object. Among other things, it is noted that question particles (if they occur) are initial in prepositional languages and final in postpositional ones (universal 9); that if the nominal object precedes the verb, the subordinate verb also precedes the main verb (universal 13); that the inflected auxiliary always precedes the main verb in VSO languages and always follows it in SOV languages (universal 16); that VSO languages “with overwhelmingly more than chance frequency” put the adjective after the noun (universal 17); that if in comparisons of superiority the order is standard-marker-adjective, the language is postpositional, while if the order is adjective-marker-standard, the language is prepositional, “with overwhelmingly more than chance frequency” (universal 22); that if the relative expression precedes the noun it modifies, “either the language is postpositional or the adjective precedes the noun or both” (universal 24); that “if the pronominal object follows the verb, so does the nominal object” (universal 25).

It will have been noted that some universals (e.g., 4, 17, 22) are statistical (“with overwhelmingly more than chance frequency”). However, many others are not statistical: i.e., they are not qualified by such expressions as “almost
always”, “with overwhelmingly more than chance frequency”, etc.. This is the case, among the first 25 universals, of universals 3, 5, 6, 7, 8, 11, 12, 13, 14, 15, 16, 19, 20, 21, 24, 25. Hence it is plain that Greenberg would label such universals as “concerning existence”, and not as “concerning probabilities”, to use the terminology of Greenberg, Osgood & Jenkins (1966[1963]) referred to above. The widespread opinion (possibly originating in a remark of Chomsky 1965:118) that Greenberg’s (1966a[1963]) universals are uniformly statistical is therefore to be rejected. The real distinctive feature of Greenberg’s universal is rather their form, which is almost always implicational, and not ‘unrestricted’.

The closing section of Greenberg’s essay seeks to find some principles which could account for the observed correlations. In this section, two pairs of key notions are discussed: that of ‘dominant’ vs. ‘recessive’ and that of ‘harmonic’ vs. ‘disharmonic’ (pp.97ff.). Dominant, for Greenberg, does not mean ‘more frequent’, nor ‘stylistically unmarked’ (pace Jakobson 1966b[1963]:268-269): dominant simply means ‘unconditioned’. Hence VO order is said to be dominant over OV “since OV only occurs under specified conditions, namely when the nominal object likewise precedes” (p.97). Prepositions are dominant over postpositions (p.98), since they are found in all three types of language (VSO, SVO, SOV), while postpositions are never found within VSO languages. The ‘recessive’ order “occurs only when a harmonic construction is likewise present” (p.97). Therefore prepositions are dominant over postpositions, even if SOV languages are postpositional “with overwhelmingly more than chance frequency”.

The notions of ‘harmonic’ and ‘disharmonic’ are “very obviously connected with the psychological concept of generalization” (p.97). For example, the harmonic relations NG/Preposition vs. GN/Postposition are accounted for by assuming that “the relation of possession is assimilated to other relational notions, for example, spatial relations” (p.99). Analogously, the harmonic correlation NG/NA is assumed to be due to the fact that “both the genitive and qualifying adjectives limit the meaning of a noun” (ibid.). The harmonic correlation between NG vs. GN order, and VO vs. OV, is explained by speaking of a ‘transformation’ which connects the clausal elements to the elements of the noun phrase (p.99). In general, the harmonic correlations are Prepositions, NG, VS, VO, NA, (“modified before modifier”, p.100; note that by so doing the verb is assumed to be modified both by the Subject and by the Object), on the one hand, and Postpositions, GN, SV, OV, AN, on the other. By contrast, correlations such as NG/Postpositions, or AN/Prepositions are ‘disharmonic’. The order NA is assumed to be dominant over AN (and in fact it also occurs across type III languages). Orders of genitive and of adjective are strictly harmonic
with each other, and, when one of them is disharmonic with Pr/Po, so is the other (cf. p.101). Greenberg’s essay also introduces the notion of ‘hierarchy’ (to account for the fixed order of the various classes of modifiers with respect to the center; p.102) and of what will be later called ‘iconicity’ (“the order of elements in language parallels that in physical experience or the order of knowledge”, p. 103; the term ‘iconic’ was introduced by Jakobson 1966b [1963]:p.269, to refer precisely to this observation by Greenberg).

The impact of Greenberg’s essay did not lie so much in his explanatory proposals as in the neatness of its stated correlations. It will be remembered that such word order correlations had already been remarked by other scholars: e.g., by Schmidt (1926; cf. 4.2.4), or Tesnière (1966[1959]; cf. 5.2.6), or Trubekoj (1939b; cf. 7.1.2), of whom only the first mentioned scholar was quoted by Greenberg. Greenberg’s presentation was however more detailed, and, especially, more systematic; furthermore, it appeared in a period of strong revival of interest in language universals. Therefore it represented a very apt starting point for whoever was interested in finding principles of word order deeper than the simple assumption of ‘generalizations’: and, as a matter of fact, ‘Greenberg’s universals’ became the starting point not only of explicitly typologically oriented syntax, but also of a good deal of research undertaken in the formal framework of generative syntax (see below:9.3.2; 10.3.2).

4. The emergence of generative syntax

4.1 The birth of generative syntax

To illuminate the roots of generative syntax, it may be useful to survey the scientific formation of its founder, Noam Chomsky, with special attention to the scholars, be they teachers or fellow students, who exerted an influence on him.4

The first one of these scholars was undoubtedly Harris. Chomsky obtained his BA in 1949 and his MA in 1951 at the University of Pennsylvania with a thesis supervised by Harris (and published almost three decades later as Chomsky 1979), mainly dealing with phenomena of morphophonemic alternation in Modern Hebrew. Within such a work, as Chomsky himself says (1975b:26), “the syntactic component of the grammar was rudimentary. It consisted of phrase structure rules modeled on Harris’s morpheme-to-utterance formulas”. The main features of Harris’ procedures have been discussed above (7.3.2); their differences as well as their analogies with the Chomskyan system will become apparent as the present discussion proceeds. For now, we pass to the

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4 For the material discussed in this section, I mainly rely on Bar-Hillel (1964:1-16; 185-218), Chomsky (1975b) and Newmeyer (1986:28-30).
presentation of other scholars with whom Chomsky came into contact during his formative years.

In 1951, Chomsky obtained a Junior Fellowship in the Society of Fellows in Harvard, and then he moved to Cambridge, where in the years between 1951 and 1955 he met people who, as he himself has admitted, greatly influenced the course of his thinking and of his research: Roman Jakobson, Nelson Goodman and W.V.O. Quine among the staff, and Yehoshua Bar-Hillel, Morris Halle and Eric Lenneberg among the graduate students. The views of Jakobson, Goodman and Quine never fully coincided with those of Chomsky, and the differences became greater as the years elapsed. On the other hand, it cannot be denied that the work of Quine, Goodman and Jakobson had a considerable influence on Chomsky’s thought. Therefore, they must be added to Harris in the list of his “intellectual parents”. But possibly a still greater influence was exerted on Chomsky by his fellow graduate students. Let’s examine all such influences in detail, beginning with the logicians and the philosophers (Goodman, Quine, Bar-Hillel), and then passing to the linguists (Jakobson, Halle) and to the psycho-biologist (Lenneberg).

Goodman’s and Quine’s exact contribution to Chomsky’s intellectual formation is not easy to ascertain: Chomsky (1957:6) maintained that his research was influenced by them “in less obvious ways” than by Harris. Chomsky (1975b:33) seems to see it mainly in their criticism of induction (Goodman) and of the “dogmas of empiricism” (Quine). Let’s now sketch Bar-Hillel’s contribution to the shaping of Chomsky’s ideas. Chomsky (1975b:29) assigns a very important role to the advice of the Israeli logician and philosopher of science. Referring to the system of underlying forms which he had tentatively proposed in his work about Hebrew morphophonemics (Chomsky 1979[1951]) and the status to assign it, he declares: “In 1951, Bar-Hillel suggested to me that I [...] postulate something very much like the reconstructed historical forms on the abstract morphophonemic level”. We will turn in a moment to the role which studies in historical grammar had in framing Chomsky’s conception of linguistics. But for what reason should a philosopher like Bar-Hillel have been the sponsor of an “abstract morphophonemic level”? The answer lies in his methodological concerns. Bar-Hillel, before going to Harvard University, had been for several years in close contact with Rudolf Carnap, whom he finally met in Chicago during the winter 1950/51 (cf. Bar-Hillel 1964:4). Among the many facets of Carnap’s scientific work, the most important to quote here is his insistence on the need of ‘abstract concepts’ in science: these concepts are abstract in the sense that they are not wholly reducible to the entities observable, either directly or by means of instruments. Carnap was thinking especially of physics, but his assumptions aimed at having a general epistemological value.
He argued for the creation of a ‘unified science’, i.e. for the establishment of a unique methodology both in the natural and in the so-called human sciences (he was also the associate editor, together with Charles Morris, of the \textit{International Encyclopedia of Unified Science}, initiated by Otto Neurath). The need for abstract concepts, or ‘theoretical constructs’, in science was also stated by other philosophers of science in the 1940s and the 1950s: think especially of Carl G. Hempel’s work (see, e.g., Hempel 1952). As Bar-Hillel himself (1970:296) stated some years later, Chomsky had “certain reservations” towards views such as Carnap’s or Hempel’s; nevertheless, the distinction between ‘theoretical constructs’ and ‘observable events’ occurs as early as in his first systematic work about syntax and linguistic theory (Chomsky 1975a[1955-56], henceforth quoted as LSLT). The observable events “are that such and such is an utterance of the language” (LSLT:77); the hypothetical constructs are notions such as ‘phoneme’, ‘word’, ‘phrase’, etc. (ibid.). Exactly as in natural sciences, a single observable event can be explained as a consequence of a general law, likewise a single concrete utterance can be shown to conform to the general rules of grammar. The ‘generation’ of utterances by means of law-like rules of the combination of elements may be seen as an analogue of what occurs in chemistry: all possible compounds may be described on the basis of theoretical notions such as ‘valence’, ‘electron’, and so on (cf. pp.77-78). The parallelism between linguistics and the natural sciences and the labeling of the basic terms of linguistics (phoneme, morpheme, phrase, etc.) as ‘theoretical (or hypothetical) constructs’ were restated in Chomsky (1957:49) and Chomsky (1964d[1962a]:223).

The comparison sketched by Chomsky between abstract forms and the reconstructed forms of historical grammar brings to light a further vein which inspired his thought, namely historical linguistics. Underlying abstract forms played a role analogous to that of reconstructed forms in historical grammar (think, for example, of the postulation of an unattested form ‘*foti’ to explain the vowel fronting of O.E. ‘fet’, Mod. E. ‘feet’). Chomsky (1975b:25) quotes as the source of his interest in historical linguistics the work of his own father, William Chomsky, on Medieval Hebrew Grammar, as well as the lectures in Arabic by the Italian Semitist Giorgio Levi della Vida, which he attended at the University of Pennsylvania. It is moreover highly probable that a further influence in this domain came to him from Jakobson and from Jakobson’s pupil Morris Halle. Jakobson’s studies in diachronic phonology are well known; and one may also note that Chomsky specifies his views when stating that his model of grammar does not correspond “to a model of historical change in full generality, but to a model of historical change (if this were possible) in terms of universal laws of development” (LSLT:204). Now, something similar to uni-
versal laws of development is exactly the ‘general sound laws’ (allgemeine Lautgesetze) of Jakobson (1941).

Lenneberg’s influence became explicit only somewhat later. Chomsky (1975b:35) maintains that the “psychological interpretation” of his grammatical model, while not asserted in LSLT, was however lying in the “immediate background of his own thinking”. However, “to raise this issue seemed to me, at the time, too audacious”. However things may be, Chomsky’s concerns with the psychological problems connected with linguistic behavior manifested themselves as early as 1959, with the publication of Chomsky’s review (1959c) of Skinner (1957); cf. Newmeyer (1996:180fn.12). Despite the highly polemical tone of this review, Chomsky’s statements of his innatistic and anti-behavioristic views are rather cautious. The importance of “reinforcement, casual observation, and natural inquisitiveness” in the process of language acquisition (note, however, that the term ‘acquisition’ and not ‘learning’ is used) are not denied (cf. p.563): it is also stated that some factors such as “the remarkable capacity of the child to generalize, hypothesize, and process information (...) which may be largely innate” must be taken into consideration (ibid.). However, some pages later (576) one can find the statement that it “is entirely pointless and empty” to explain humans’ capability of producing and understanding new sentences never before heard in terms of ‘generalization’. Reference to a still unpublished article by Lenneberg (which later appeared as Lenneberg 1960) is made on p. 564fn.31. Chomsky says that this article “presents a very interesting discussion of the part that biological structure may play in the acquisition of language, and the dangers in neglecting this possibility”. A further reference to Lenneberg’s article can be found in footnote 48, where Chomsky maintains that

the fact that all normal children acquire essentially comparable grammars of great complexity with remarkable rapidity suggests that human beings are somehow specially designed to do this, with data-handling or ‘hypothesis-formulating’ ability of unknown character and complexity.

Summarizing so far, one can recognize (at least) four different “veins” within Chomsky’s intellectual formation. 1) American structural linguistics, essentially represented by Harris. 2) Contemporary logic and philosophy of science, owing to the direct influence of Bar-Hillel and the indirect influence of Carnap, mediated by Bar-Hillel himself. One can also note here Chomsky’s investigations in the late 1950s and the early 1960s into the field of ‘recursion theory’, a branch of mathematical logic especially developed between 1930s and 1940s by Emil Post and Alan M. Turing. 3) European structural linguistics in its most advanced formulations, which also dealt with diachronic matters, and familiar to Chomsky mainly through Jakobson and Halle. 4) A ‘mentalistic’ approach to
the problems of language and knowledge, probably not only due to Lenneberg’s influence, but certainly encouraged by it.

4.2 The syntactic model of The Logical Structure of Linguistic Theory

The phrase ‘generative grammar’ in a technical sense gradually emerges throughout Chomsky’s early works; possibly, its first definition is found in Chomsky (1965:8), and reads as follows: “by a generative grammar I mean simply a system of rules that in some explicit and well-defined way assigns structural descriptions to sentences”. Some pages later (15-16), it is said that “a generative grammar must be a system of rules that can iterate to generate an indefinitely large number of sentences”. Nevertheless, the basic concepts of Chomsky’s syntactic theory had already been formulated in his early works: this must be kept in mind, despite some terminological uses which can confuse the issue.

It has become almost a commonplace in recent years to define the theory presented in Syntactic Structures (Chomsky 1957) as the ‘first model’ of generative grammar and that of Aspects of the Theory of Syntax (Chomsky 1965) as its ‘second model’. This terminological use (whether felicitous or not) must not induce one to think that the two models need to be viewed as opposed to each other: rather, they represent the initial and the final stage of the construction of the same syntactic theory. Of course, this progressive construction shows several changes both in the technical apparatus and in the choices of the topics to investigate, as will be seen throughout this presentation. One has also to add that it is inappropriate to consider Chomsky’s (1957) book as the formulation of the ‘first model’: it had been conceived by its author essentially as “a sketchy and informal outline of some of the material in LSLT” (Chomsky 1975b:3), since the latter work was rejected by the publisher to which it was sent for potential publication (cf. ibid.). It is therefore necessary to start from LSLT in order to give an adequate picture of the early phase of Chomsky’s thought about syntax, as well as about linguistics in general.5

LSLT being one of the earliest Chomsky’s works, it is not surprising that it shows the coexistence of wholly new insights with concerns typical of structuralist syntax, which was the immediate forerunner of the Chomskian frame-

5 LSLT first version dates back to spring 1955; one chapter of it (namely, chapter 9 of the printed 1975 edition) was Chomsky’s Ph. D. dissertation, entitled Transformational Analysis. LSLT underwent several revisions by Chomsky between 1955 and 1956: chapters 1-8 of the printed edition correspond to a spring 1956 version, while chapters 9 and 10 come from the 1955 version. In the years between 1955 and 1975, several copies of such different versions circulated in mimeographed form or in microfilm. In the present volume, reference will be mainly made to the printed edition. For more detail on the history of LSLT, see Chomsky (1975b:2-3).
work (see the preceding section). A good example of such a coexistence is given by Chomsky’s treatment of the notions of ‘grammaticalness’ and ‘corpus’. ‘Grammaticalness’ must not be identified with ‘significance’: because a sentence such as

(6) colorless green ideas sleep furiously

although without meaning, is felt by a native speaker of English as ‘grammatical’, while a sentence such as

(7) furiously sleep ideas green colorless

is not. The feeling for such contrasts may be explained by saying that “the speaker has ‘an intuitive sense of grammaticalness’” (LSLT:95); see also Chomsky (1957:13). Hence, Chomsky continues, “the set of grammatical sentences cannot be identified with the linguist’s corpus of observed sentences. [...] Thus we must project [footnote omitted] the class of observed sentences to a larger, in fact, infinite class of grammatical sentences” (LSLT:129). Such a projection from the corpus corresponds to the speaker’s ability to project his past linguistic experience to form new sentences (cf. p.132). A first approximation to the account of this projection mechanism is obtained by building a system of classes of words based on the sentences contained in the corpus. Sequences of symbols of such classes may represent sentences of the corpus: for example, ‘John saw Bill’ can be represented as NVN (cf. p.132). They can also represent new sentences, not belonging to the corpus. Concern for the corpus rather quickly diminished in the decade 1955-1965, and the notion of the corpus itself disappeared from generative studies.

Let’s now turn to what decidedly detaches Chomsky’s approach to syntax and to linguistics in general from the preceding structuralist framework. The fundamental role which Chomsky assigns to such typical notions stemming from the methodology of science as ‘theory’ and ‘theoretical construct’ (or ‘abstract term’) has been stressed in the preceding section. But also other notions of this kind play an equally important role, such as ‘metalanguage’ and ‘simplicity’. Hence one can note the following major differences between the view of linguistics presented in LSLT and that held by structural linguistics: 1) a sharp distinction between ‘linguistic theory’ on the one hand and ‘grammar’ on the other; 2) the reference to general scientific standards in order to choose between different grammars and different linguistic theories. Individual grammars are each a particular example of the general linguistic theory. “Linguistic theory is thus constructed in a meta-meta-language to any natural language, and a metalanguage to the language in which grammars are constructed” (p.116). Theory can provide neither ‘practical discovery procedures’ to obtain grammars from raw data, nor ‘practical decision procedures’ to show that a given gram-
mar is actually the best one for a given language. All that linguistic theory can do is to provide an ‘evaluation procedure’, which, given two proposed grammars, is able to show which is the better of the two (cf. p.79; cf. also the discussion in Chomsky 1957:50-54). Chomsky remarks (ibid.) that even such a requirement is much stronger than those employed in natural sciences, where it is impossible to devise a mechanical method for deciding between two theories (cf. also Chomsky 1957:53). In this context, the key concept is that of ‘simplicity’. “The simplicity of linguistic theory is a notion to be analyzed in the general study of philosophy of science; the simplicity of grammars is a notion defined within linguistic theory” (LSLT:119). Hence the philosophy of science is related to the different sciences (physics, chemistry, linguistic theory, etc.) in a way analogous to the way in which linguistic theory is related to the different grammars. Philosophy of science attempts to establish criteria for choosing among conflicting theories; linguistic theory seeks criteria for choosing among conflicting grammars (cf. ibid.). So, the general standards of philosophy of science will dictate that the best linguistic theory must have “internal systematic motivation for its constructions” and “predictive power” (ibid.). Linguistic theory is based on a ‘distributional’ conception of language, i.e. the notions that underlie it have to do with the physical properties of utterances, the formal arrangement of their parts and the formal properties of grammars (cf. p.127): in this aspect, therefore, Chomsky’s links with the tradition of American structural linguistics are still strong, as they remain throughout his entire scientific activity.

What, then, are the ‘linguistic facts’ that linguistic theory must account for? In the initial pages of the 1955 version of LSLT the ‘observable events’ (hence, presumably, the facts) are identified with the grammatical sentences of a language. In the last chapter of the 1955 version of LSLT, many other kinds of linguistic facts are listed; an analogous discussion can be found in Chomsky (1957:§8). They are all related with the speaker’s intuitions: perceptions of phonemic contrasts (“‘keep’ and ‘coop’ begins with the same ‘sound’, ‘keep’ and ‘top’ (despite demonstrated acoustic similarity) do not”, LSLT:62); lexical derivability (“see” is related to ‘sight’, but not to ‘seat’; LSLT, ibid.); the relations which are intuitively felt between sentences expressing different modalities and showing a different grammatical form (“did they come?” is the question corresponding to ‘they came’, not to ‘they did come’; ‘did John read the book?’ and ‘who read the book?’ are perceived as belonging to two different sentence subtypes of the same sentence type, etc.; LSLT, ibid.).

On the other hand, sentences which look very different both on the phonemic and on the morphological levels are understood as being similar on a higher level, namely that of ‘phrase structure’ (see below): think of such cases
as ‘John played tennis’ and ‘my friend likes music’, both of which are analyzed as NP-Verb-NP (Chomsky 1957:86). By contrast, morphological similarity does not always imply an analogy of structure: sentences such as ‘the children laugh at the clown’ and ‘John worked at the office’, or ‘the picture was painted by a new technique’ and ‘the picture was painted by a real artist’, “despite superficial similarities”, have a very different structure (cf. LSLT:62; Chomsky 1957:89). Many phrases and/or sentences, while identical at a given level, are nevertheless ambiguous on another; these are the so-called cases of ‘constructional homonymy’: this may occur on the morphological level (the phonemic sequence /әneym/ can mean either ‘a name’ or ‘an aim’; Chomsky 1957:85). Constructional homonymities on the level of phrase structure are exemplified by sentences such as ‘old men and women’, or ‘they are flying planes’ (LSLT:62; Chomsky 1957:87); another kind of constructional homonymity is that illustrated by cases such as ‘the shooting of the hunters’, which can mean either that the hunters shot at someone or that they were shot by someone else. In conclusion, the empirical domain of linguistic theory appears to have been considerably enlarged, and, especially, it appears essentially different in nature with respect to that of structuralist syntax: linguistic facts have essentially a psychological, introspective nature.

During the preceding discussion, the term ‘level’ has been repeatedly employed. ‘Linguistic level’ is defined by Chomsky (1957:11) as “the central notion in linguistic theory”. Linguistic levels are different systems of representation of sentence tokens: “a sentence token can be represented as a sequence of phonemes; but it can also be represented as a sequence of morphemes, words, and phrases” (LSLT:99; cf. also Chomsky 1957:87). The linguistic levels are the following ones, ranking from the lowest level to the highest:

(a) the level of phonetic symbols (Pn);
(b) the phonemic level (Pm);
(c) the word level (W);
(d) the level of syntactic categories (C);
(e) the level of morphological representation (M);\(^6\)
(f) the level of phrase structure (P);
(g) the transformational level (T).

Elements on a given level are not literally constituted by elements on lower levels: for instance, “a morpheme need not have any specific sequence of phonemes (or set of such sequences) as its phonemic content” (p.100). Chomsky’s

\(^6\) Chomsky (1975b:6), in his introduction to the published version of LSLT, distinguishes the ‘morphemics’ from the ‘morphophonemics’ level. Actually, morphophonemics is explicitly quoted just once throughout LSLT (p.165), and this level does not have any symbol of its own, unlike to the other levels.
conceptual view of levels was therefore different from those of American structuralists, but the levels (a)-(f) of the above given list did not need any special justification: as a matter of fact, all of them were recognized, more or less explicitly. By contrast, the level (g), the ‘transformational’ one, was an innovation originally proposed by Harris (see above:5.3.6) and not yet accepted by the majority of linguists; either American or European. Therefore, the main effort of Chomsky’s earliest works (see especially LSLT; Chomsky 1957; 1964d [1962a]) was to show the necessity of a transformational level for an adequate treatment of natural language. Hence such works at first glance seem to follow the same path as Harris’: both scholars center their attention on the notion of ‘transformation’, and they do not bother, initially, to compare their respective views.

Since Chomsky motivated the need for transformations by showing the impossibility of adequately representing the syntactic structures of natural language on the level of phrase structure only, it is first necessary to investigate the properties he ascribed to such a level. Chomsky’s analysis of phrase structure represents at the same time his greatest link with the structuralist tradition and his point of departure from it. Let’s therefore examine these aspects in detail.

Phrase structure is described by a formal system of rules which is dubbed ‘Phrase-Structure grammar’ (henceforth PS-grammar). Chomsky considers the construction of PS-grammars as the way to make explicit the methods of what he calls “familiar linguistic theory”, namely American structuralist syntax (cf., e.g., LSLT:64). On this subject, references to Wells, Hockett, and other American structuralists are frequent throughout Chomsky’s early works; but the example of Immediate Constituent analysis closest to PS context-free grammars is said by him to be that contained in Harris (1951:ch.16). Hence Chomsky is apparently not concerned with the difference between Immediate Constituent Analysis and Harris’ procedure ‘from morpheme to utterance’ (see above:7.3.1-7.3.2). Within LSLT, no explicit tests for delimiting constituents are proposed; only four ‘criteria’, namely: 1) conjunction; 2) intrusion of parenthetical expressions; 3) ability to enter into transformations; 4) intonational features (cf. pp.210-211). Actually, the first two criteria are later shown to reduce to the third one. But the conjunction criterion is transformational, since conjunction is a transformational operation. These topics will be dealt with later.

Unlike what happened in the Immediate Constituent analysis of American structuralism, the categories of PS-grammar are not arrived at by means of any

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7 PS rules were given several different names during the fifties and the sixties (see Bach 1964:35fn.): ‘constituent-structure rules’, ‘IC rules’, ‘immediate constituent structure expansion rules’, ‘rules of formation’.
procedure, be it top-down or bottom-up, but are simply assumed as primes of the relevant level \( P \): they are, for English, categories such as ‘Sentence’, ‘Noun Phrase’ (NP), ‘Verb Phrase’ (VP), ‘Noun’ (N), ‘Verb’ (V), etc., and the inflectional morphemes as well. Being in a sense axiomatically given, such labels are arbitrary, but they are chosen “so as to suggest their customary names (e.g., \( NP \), \( V \), etc.)” (LSLT:223). As will be noted, many categorial names are taken over from the structuralist tradition (especially from Harris), but some of them are given a new meaning. To the first class of categorial names belong symbols such as \( NP \), \( V \), but also \( D \) (to denote adverbs) and \( T \) (to denote determiners); a typical instance of the second class is \( VP \), which now takes the meaning of ‘verb + object(s)’ instead of that of ‘auxiliary + main verb’, which it had with the American structuralists (see above:292). Furthermore, the \( NP \) and \( VP \) labels did not immediately come into general use, even among the generativists: for instance, both Lees (1968[1960]) and Fillmore (1963) resorted to ‘Nom’ and to ‘MV’, respectively. The major differences between the post-Bloomfieldian and Chomskian descriptive apparatus, therefore, lie in the meaning of categorial labels and in the way they are established.

In LSLT, the ‘basic analysis of the sentence’ is said to be \( NP + VP \).\(^8\) This analysis is mainly supported by the use of the ‘conjunction criterion’. So, for example, a sentence such as

(8) my friend liked the play and enjoyed the book

suggests that ‘liked the play’ and ‘enjoyed the book’ belong to the same category, since they can be conjoined.

Rules of PS-grammar are named ‘Phrase Structure rules’ (henceforth ‘PS-rules’). The notion of ‘representation’ and ‘concatenation’ are the basic ones on which PS-rules are built: if a given category is represented by the concatenation of two or more categories, these relations are symbolized by means of a ‘rewriting rule’ which puts on the left of an arrow the ‘represented’ symbol and on the right of the arrow the concatenation of the ‘representing’ ones. Hence, the following rewriting rule illustrates the representation and the concatenation relation between the categories ‘S(entence)’, ‘N(oun) P(hrase)’ and ‘V(erb) P(hrase)’:

(9) \( S \rightarrow NP + VP \)

The converse of the representation relation is the relation ‘is a’. An element which is represented by a given phrase structure category ‘is a’ constituent be-

\(^8\) The plus sign is the symbol for ‘concatenation’, introduced in Chomsky (1957), whereas an arc was used in LSLT. For reasons of typographical convenience, we will use the plus symbol throughout the present work.
longing to such a category. The constituent analysis of a sentence is represented by its P(hrase)-marker. Phrase-markers are the set of strings generated by the successive applications of PS-rules. Constructionally homonymous sentences have two or more phrase-markers. Chomsky (1956:§3.2) introduced the tree diagram representation in order to show the equivalence of given derivations, i.e. their phrase-markers. Hence a sentence such as ‘the man hit the ball’ receives the following interpretation (cf. Chomsky 1957:27):

(10)

```
      Sentence
        /\  \
       /   \  \
      NP   VP
       /\   /\  \
      /   /   \
     T   N   Verb
    /\     /\    /\  \
   the man hit T N
```

The notion of ‘constituent’ can be defined on the basis of diagrams such as the above one: a sequence of words within a sentence “is a constituent of type Z if we can trace this sequence back to a single point of origin in (15) [= (10) above], and this point of origin is labeled Z” (Chomsky 1957:28). In (10), ‘the man’ is a constituent of the category NP, ‘hit the ball’ a constituent of the category VP, etc.; by contrast, ‘man hit’ is not a constituent, since it cannot traced back to a single point of origin. In subsequent works, constituent labels inside phrase markers will be called ‘nodes’.

One can immediately grasp the difference between the tree diagrams of Chomsky’s and those of structuralist syntax: the former are labeled, the latter not; and a given label is what defines a constituent and its category. Since every label represents a given constituent and constituents cannot overlap, the branches of a phrase-marker in a tree form such as (10) cannot cross each other. This is a further difference with respect to apparently analogous devices employed in structuralist syntax: for instance, Frei’s tree diagrams (cf. 7.3.5) show crossing branches. Since representation by means of crossing branches was the way in which structuralist syntax represented discontinuous constituents, it was mandatory for Chomsky to choose another device to account for such a phenomenon. This was a further motivation for the introduction of transformations.
A special kind of PS-rule are lexical rules, i.e. those rules which introduce such elements as ‘the’, ‘man’, ‘hit’, etc. in phrase markers like (10). In LSLT, these rules are simply a subclass of PS rules. Lexical rules were to be dealt with in a rather different way in Chomsky (1965), as will be seen in the next section (see p.351).

PS-rules are subject to several restrictions, whose precise definition was the main concern of several works by Chomsky in the fifties and sixties (see especially Chomsky 1956; 1957; 1959; 1963; Chomsky & Miller 1963; for a concise formulation see Postal 1964:10ff.). These restrictions are as follows: (i) PS-rules cannot rewrite more than one symbol at once; (ii) PS-rules cannot delete elements; (iii) the elements on the right of the arrow must be different from those on the left. Let’s investigate the motivations for the first restriction, since it will be especially useful in what follows. If a PS-rule were allowed to rewrite more than one symbol at once, “we will not be able to recover properly the phrase structure of derived sentences” (Chomsky 1957:29). For instance, in the diagram (10) above the string ‘T + N+ Verb + NP’ was obtained by applying the two rules

(11) (i) NP → T N
(ii) VP → Verb NP

If such rules would have been conflated into a single one, like

(12) NP VP → T N Verb NP

one would not be able to decide, for example, which elements on the right of the arrow have to be traced back to NP and which ones to the VP on its left. Hence, there would be no possibility of delimiting the constituents.

A specimen of PS-rules as they are given in LSLT is the following one (cf. p.239):

(13) (i) Sentence → NP VP
(ii) VP → VP_A VP_1
(iii) VP_A → VP_{A1} (VP_{A2})

Hence the verb phrase (VP) is analyzed into auxiliary verb phrase (VP_A) and verb plus object (VP_1). VP_A more or less corresponds to ‘verb phrase’ in the old structuralistic usage. Once again, the conjunction criterion is the basis for this analysis, since we have (13) and not (14):

Keep in mind that the asterisk does not occur in LSLT as symbol of ungrammatical strings; this symbol is not introduced into Chomsky’s works until possibly Chomsky (1968). I will use it, however, even in this anachronistic way.
(14) my friend has been reading the book and smoking a cigar
(15) *my friend has been reading and has been enjoying the book

Hence the analysis of ‘my friend has been reading the book’ into ‘has been’ as $V_P$ and ‘reading the book’ as $V_P^1$ is favored over that which treats ‘has been reading’ as a constituent (cf. LSLT:226-227).

This analysis of $V_P$ was to become a cornerstone of the whole empirical apparatus of LSLT, and, in general, of the whole early phase of Chomsky’s syntactic research. $V_P$ is firstly analyzed as a string of the following formatives (braces indicate alternatives, brackets optional elements; in LSLT, the symbols ‘<’ and ‘>’ are used for opening and closing brackets, respectively):

$$V_P \rightarrow \{ed\} \ (M) \ (have + en) \ (be + ing) \ (be + en)$$

‘ed’ means past tense; ‘C’ singular or plural number in present tense; M the modal verbs (‘will’, ‘shall’, ‘can’, may’, ‘must’). A further analysis of $V_P$, based on the fact that ‘have’, ‘be’, and the perfect and durative forms also occur with infinitival verbs, whereas ‘ed’, ‘C’ and ‘M’ do not, splits it into two categories, namely:

$$V_P \rightarrow V_P^1 (V_P^2)$$

The actual aspect of the sentence, however, does not show the morphemes of the auxiliary in the order given in (16) above. A further rule which reorders them is therefore necessary:

Let $Y$ be any one of ‘ed’, ‘C’, ‘en’, ‘ing’ (i.e., $Y$ is any affix), and let $Z$ be a prime. Then $X \ Y \ Z \ W \rightarrow X + Z \ Y + W$, where + is the marker of word boundary, i.e., it is the concatenation operation of the level $W$. (LSLT:233)

Such a rule is called a ‘mapping’, in the technical terminology of LSLT, namely an operation which relates elements of one level to elements of another level (cf., e.g., LSLT:117). Its effects are, for example, that of converting ‘C + have’ into ‘has’, ‘en + be’ into ‘been’, ‘ing + read’ into ‘reading’, etc. This mapping belongs to the set of mappings relating the $P$-level to the $W$(ord)-level. It is called ‘auxiliary transformation’ in Chomsky (1957) and in subsequent years it was to be given the name of ‘Affix-hopping’. It is introduced in the same section of LSLT which analyzes $V_P$ (cf. p.233-238), but it would be later proved that it is not a PS-rule, but a transformational one. Indeed, it does not obey one of the restrictions to which PS-rules are subject: for it replaces more than one symbol at once. To perform such an operation, it must refer to the ‘history’ of the derivation, since it must know which elements are affixes (i.e., ‘en’, ‘ing’) and which are not (cf. LSLT:283).
In the overall architecture of LSLT, this analysis of the auxiliary verb phrase and several arguments of the same kind (see especially pp.254-291) pave the way to the statement that a further level of representation, the transformational one, must be introduced. Indeed, this necessity is systematically restated in the following chapter (the ninth one, in the 1975 edition). PS-rules are deemed inadequate from several points of view, since they cannot account for a variety of speaker’s intuitions: for example, PS-rules cannot explain why ‘lions’ is understood as the subject (here plainly taken in the meaning of ‘actor’) in ‘the growling of lions’, while ‘good literature’ is understood as the object in ‘the reading of good literature’; nor can they explain the ambiguity between a subject and an object interpretation of ‘the hunters’ in ‘the shooting of the hunters’ (pp.296-297). For other instances of inadequacy of PS-rules, cf. LSLT (295-296; 297-298; 449). A further limitation of PS-grammars was seen by Chomsky in their inability of showing the relatedness between the different sentence types (declarative, interrogative, imperative). Such arguments were gradually to become standard in all works aiming at showing the need for a transformational treatment of syntax; and the solution of the problems they raised was a major concern of the work of the early generative period. A grammar containing only PS-rules is dubbed ‘taxonomic’ in the early generative works, but the word ‘taxonomic’ is also used to mean ‘classificatory’. The former use can be found, for example, in Chomsky (1964b); the latter in Postal (1964:2). Hence, American structural linguistics was considered taxonomic in the sense of being both ‘non-transformational’ and ‘classificatory’ (that is, non-generative); in the early phase of generative grammar, the first feature is especially criticized, while in the subsequent phases the second one would be.

The inadequacy of the PS-rules system requires the introduction of the transformational level T. Transformations will be able to account both for cases of ambiguity such as those noted above and for the relations between different sentence types, which are inexpressible in terms of PS-grammars. The ‘kernel’ of a language is defined as the set of sentences that are produced after the application of the rules of PS-grammar and of ‘mappings’ (cf. LSLT:377; 402). The kernel is assumed to contain simple declarative sentences (cf. LSLT:568). The fact that the kernel of English grammar contains only simple, declarative and active sentences is not assumed in principle, but it is presented as a consequence of the choice of the ‘simplest grammar’ (cf. Chomsky 1957:80). ‘Recursion’, namely the possibility of embedding an indefinite number of dependent clauses into a main clause, is limited to the T-level. This has as a consequence the fact that the kernel, being nonrecursive, is finite (cf. LSLT:516-517). By contrast, the process of transformational derivation is recursive: “from a sentence we can form a ‘that’-clause which replaces a noun in a second sen-
tence, giving a more complex sentence from which we can form a ‘that’-clause, etc.” (p.518).

Chomsky (1964d[1962a]:223fn.) recognizes that the terms ‘kernel’ and ‘grammatical transformation’ are Harris’, but he adds that they are used “in a sense somewhat different from his and in a different general framework”. The first detailed comparison of the two meanings of ‘transformation’ can be found in Chomsky (1964b:83fn.29), where a grammatical transformation in Harris’ sense is defined “as a (symmetrical) relation holding between two sentence forms if corresponding positions in the two forms are filled by the same n-tuples of expressions”. One consequence of the different meanings that ‘transformation’ has in the two different frameworks is that the problem of the order of the application of transformations, which was fundamental in Chomsky’s framework (see below:350), has no sense in Harris’. “Furthermore” - Chomsky goes on - “co-occurrence is a relation defined on actual sentences, while generative transformations apply to abstract structures that often bear no close relation to actual sentences”. One can also add that the distinction between ‘obligatory’ and ‘optional’ transformations (see below) seems to have no meaning in Harris’ framework.

Let’s now come back to our major topic, i.e. Chomsky’s arguments for the need of transformations. When dealing with the problem of the auxiliary verb phrase, it was seen that PS-rules cannot take into account the ‘history’ of the derivation. By contrast, transformations not only can, but they also must. For example, Chomsky (1964c[1961]: 130) remarks that ‘wh’-question transformation “requires knowledge of the constituent structure”, in order to derive from the string underlying (18) the grammatical sentence (19) and not the ungrammatical one (20):

(18) The man who was here was old
(19) Was the man who was here old?
(20) *Was the man who here was old?

This property of transformational rules, namely their ‘structure-dependence’, was to become one of the key arguments resorted to by Chomsky since the 1970s to prove the essential difference of human languages from other symbolic systems (cf. below:10.2.1).

Transformations (T) therefore apply to a given string Z generated by the PS-rules and transform it into a new string. They are subject to some conditions: (a) their result must be unambiguous, i.e. the transformed string must be one and only one; (b) transformations apply to strings having a specified structure. In more formal terms, “this limitation can be effected by associating with each T a finite restricting class Q of sequences of strings” (LSLT:311). Such a restricting class was named ‘structural analysis’ in Chomsky (1957), and ‘struc-
tural description' in Chomsky (1964d[1962a]): both terms alternate freely throughout the subsequent literature. Transformations effect a ‘structural change’ on any string they apply to. For instance, consider the passive transformation. It applies to a string whose structure is (21) (where VP₁ = ‘auxiliary verb phrase’ and VT = ‘transitive verb’) and changes it into (22) (cf. LSLT:450):

(21) NP₁ - VP₁ - Vₖ - NP₂
(22) NP₂ - VP₁ - be + en - VT - by + NP₁

Empirical evidence represented by complex sentences suggests that transformational operations are not limited to a single string: sentences such as, for example, ‘that John was unhappy was quite obvious’, ‘the men who lost their jobs were bitter’, etc., ‘are evidently instances of sentences constructed transformationally from a pair of kernel sentences’ (LSLT:383). Hence it is necessary to ‘generalize’ the notion of transformation “to include transformations defined on n-ads of sentences” (ibid.). The distinction between ‘generalized’ and ‘singular’ transformations remained a basic one throughout the whole early period of transformational grammar, until it was obliterated by Chomsky (1965). The introduction of the notion of generalized transformations had as one of its effects the problem of determining the order in which several transformational operations have to apply. Such a problem, by Chomsky’s own admission, did not receive any adequate solution in LSLT (cf. p. 395). The first real solution to it will be hinted at in Fillmore (1963) and subsequently taken up by Chomsky (1965; 1968) by means of the notion of ‘cycle’, to which we will return in the next section.

Chomsky (1957:45) also introduced the distinction between ‘obligatory’ and ‘optional’ transformations, which had not occurred in these terms in LSLT, but which was rapidly adopted by generative grammarians: as a matter of fact, obligatory transformations are called ‘mappings’ in LSLT (more exactly, they are a special kind of mappings). Obligatory transformations must apply whenever their structural description is met, to obtain a grammatical sentence; other transformations are optional. Hence, for example, the ‘auxiliary transformation’ presented above is obligatory, while the passive transformation is optional.

Transformations also became the basic empirical test for determining the actual constituent structure of sentences: i.e., the constituent structure of a given sentence can be detected by observing its behavior with respect to transformations. For example, its transformational behavior allows us to maintain that a sentence like ‘John came home’ cannot be analyzed as NP - V - NP: indeed, it is not passivizable (‘*home was come by John’ is not a grammatical sentence of English) and therefore it has to be analyzed as NP - Verb - Adverb
(cf. Chomsky 1957:81-82). Another example is offered by the ‘so’-transformation, which allows one to ascertain if elements as ‘have to’, ‘ought to’, or ‘use to’, are auxiliaries or main verbs. ‘So’-transformation distinguishes auxiliaries from main verbs: cf. ‘John is coming and so is Bill’ vs. ‘John tries to come and so does Bill’. One can easily see that ‘use to’, ‘have to’, etc., show identical behavior to that of main verbs: ‘John has to come and so does Bill’; ‘John used to come and so did Bill’ (cf. LSLT:560-561). One can therefore observe that Chomsky assigned transformations both a theoretical and an empirical role: on the one hand, they were assumed as necessary formal tools in order to give an adequate description of any human language; on the other, they assumed the function of delimiting constituents which was assigned in structuralist syntax to tests such as substitution and expansion.

So far the general aspects of the notion ‘transformation’ have been reported: they are mainly dealt with in chapter 9 of LSLT (1975 version). Chapter 10 is devoted to the transformational analysis of English. LSLT does not contain any explicit list of transformations, which can be found instead in the two other works of the earliest phase of Chomskian syntax: Chomsky (1957) and Chomsky (1964d[1962a]), the composition of the latter actually dating back to 1958. From the collation of such works, it appears however that the phenomena described in transformational terms and the proposed transformations largely overlap: in other words, each grammatical construction is accounted for by means of a specific transformation. Many such transformations were given up during the development of generative syntax, and they were replaced by PS-rules or by lexical rules. Nevertheless, the phenomena investigated remained essentially the same. With a little (but not excessive) exaggeration, one could say that the whole history of (the Chomskian version) of generative syntax is a series of (partly) different solutions to the same problems. It is therefore necessary to investigate the path which led to such different solutions.

4.3 From The Logical Structure of Linguistic Theory to Aspects of the Theory of Syntax: towards the ‘standard theory’

In the decade 1955-1965, the LSLT model of syntax underwent some changes, made either by Chomsky himself or by some of his early associates. In my view, such changes did not alter its essential lines: rather, some admittedly unsatisfactory solutions were modified, some simplifications (both conceptual and notational) were introduced, and, what is most important, the ‘realistic’ interpretation of linguistic theory, explicitly defined as ‘part of theoretical psychology’, was maintained and argued for in detail. The importance of this last innovation lies in the fact that the realistic view of linguistic theory became the leading idea of the whole subsequent development of Chomsky’s thought.
One of the major differences between the syntactic models of LSLT and of Chomsky (1965) is the effacement, in the latter, of the opposition between singular and generalized transformations, on the one hand, and of that between obligatory and optional transformations, on the other. Let’s therefore survey the works containing the motivations which led to such an outcome. Among such works, Lees (1968[1960]), Klima (1964) and Katz & Postal (1964) must be especially remembered.

Lees’ book was very important in the history of generative grammar: we will return to it on several occasions. It was reprinted a number of times (1960, 1962, 1964, 1965) and one can follow the development of the generative model through the different prefaces to these different editions. Starting with the first edition it contained several important proposals. One important terminological innovation which was to become pervasive in the transformationalist framework was the pair ‘matrix sentence’ vs. ‘constituent sentence’. What it is meant by these labels is the two ‘source sentences’ of a generalized transformation: the ‘constituent-sentence’ is the sentence which replaces “some predecessor constituent of the matrix sentence” (Lees 1968[1960]:54). In traditional terms, one would say that the matrix sentence is the main clause and the constituent sentence is the dependent clause. Note, however, Lees’ generalized use of ‘sentence’ instead of ‘clause’. This use is due to the fact that Lees considers the sources of complex sentences in their original nature as autonomous sentences.

From a conceptual point of view, one novelty over Chomsky (LSLT; 1957) is the ordering of all optional simple transformations before obligatory rules (cf. Lees 1968[1960]:32). Not especially stressed but equally important are some other innovations that Lees introduces in his system of PS-rules, one of which is that negation and emphasis are generated by PS-rules (cf. pp.18-19), while they were transformationally inserted in LSLT and in Chomsky (1957). This is a first step towards the elimination of the distinction between obligatory and optional transformations.

In the 1964 preface (p.xxxvii), Lees wrote that he had tried to reformulate transformations such as “Passive, Imperative, Interrogative, and others”, as obligatory transformations triggered by “certain optionally chosen constituents”. This last suggestion was deepened in Klima’s (1964) article. The first rewriting rule has the following format (cf. p. 250):

\[
S \rightarrow (wh) (neg) (Adv(neg)) (Adv) Nominal-Predicate
\]

Newmeyer (1986:35-36) states that it “was to linguistic analysis what Syntactic Structures was to linguistic theory”. This statement may surely be subscribed to, although it would be better to replace Syntactic Structures with LSLT.
In addition to the element ‘neg’, as already suggested by Lees, the element ‘wh’ is also inserted by the PS-rules. It indicates not just the morphological interrogative elements, but in general the interrogative modality, which is therefore no longer generated by a transformational operation. Klima’s (1964) list of PS-rules also contains many lexical insertion rules. It is interesting to note that the lexical items are introduced as feature complexes rather than unanalyzed items. The first complex is constituted by ‘grammatico-semantic features’ (GSF); the second by phonological features. GSF features specify the word class of the item, its inflectional properties, and, in cases of verbs like ‘doubt’ or ‘think’, their complementation type: ‘that’ or ‘-ing’. In this way, Klima anticipated Chomsky’s (1965) treatment of lexical insertion (see below:351).

Possibly the most important contribution by Lees and Klima to the development of generative grammar was their analysis of the reflexivization transformation (Lees & Klima 1963). Informally speaking, their ‘rules for English pronominalization’ stated that: A) a noun phrase is transformed into a reflexive pronoun if it is an element of a simple sentence which is identical to the subject of that sentence; B) a noun phrase is transformed into a personal (i.e., non-reflexive) pronoun if it is contained in a constituent sentence and it is identical to a noun phrase in the matrix sentence. Apart from some minor exceptions, these rules are able to account for the distribution of English reflexive vs. personal pronouns in a wholly adequate and very elegant way. Hence Lees & Klima’s empirical results became the obligatory starting point of any further research into pronominalization, even when this phenomenon was no longer dealt with in transformational terms.

In these same years, Fillmore (1963) had worked out the first real solution to the problem of the order of the application of generalized transformations. He introduced a distinction between ‘systems of rules’ and ‘sets of representations’. Systems of rules are: (1) ‘constituent-structure’ rules (i.e., PS-rules); (2) ‘simple transformation rules’, which are subdivided into ‘preliminary simple transformations’ and ‘final simple transformations’: they delete, transpose or add elements; and (3) ‘embedding transformations’, “which embed one sentence into another” (p.209). Another system of rules is that of ‘conjoining transformations’: unlike embedding transformations, their result does not pass to the preliminary simple transformation component (cf. ibid.).

Representations are (a) terminal strings generated by PS-rules, (b) ‘pre-sentences’ and (c) ‘sentences’. As can be seen, the new level is that of ‘pre-sentences’. They are strings of symbols which are generated by what Fillmore names ‘Preliminary Simple Transformations’ (PST). A pre-sentence so generated can expand some given symbols in the terminal strings (Nom, C, R), which can be substituted by replacing them by another pre-sentence (so getting,
for example, a nominal or a relative clause). A PST can apply to a pre-sentence and be later ‘re-cycled’ (the term is Fillmore’s) when this pre-sentence is embedded in another terminal string.

A good deal of the topics investigated by Lees, Klima, Fillmore, and other scholars as well were resumed by Katz & Postal (1964), which is surely the most thorough revision of the LSLT model before Chomsky (1965). Its main thesis was to become known as the ‘Katz-Postal Hypothesis’ and reads as follows:

The meaning of every sentence is determined uniquely by the operation of projection rules on underlying P-markers. Transformations would be without semantic effects. (Katz & Postal 1964:46)

To prove the correctness of their hypothesis, Katz & Postal had to show 1) that singulary transformations only have the function of relating structures which are paraphrases of each other; 2) that embedding generalized transformations insert the constituent phrase-marker in a specified position of the matrix phrase-marker, i.e. the position which is occupied in the underlying phrase-marker by a ‘matrix dummy’ element (this solution is also said to be applicable to conjunction transformations; cf. p.47).

Regarding 1), Katz & Postal assumed that different sentence types (active vs. passive, declarative vs. interrogative, etc.) are not transformationally related, since each of them has a different underlying phrase marker. Interrogative sentences contain the element ‘Q’, passive sentences the element ‘Adverb (manner)’, which dominates the constituent ‘by + Passive’, etc. So the relationship between, for example, a declarative sentence and an interrogative one is explained by means of the notion of ‘similarity’ and by assuming a rather indirect relationship between them. For instance, the English native speaker’s intuition that (24) and (25) are related is explained by assuming that the underlying structure of the latter corresponds to (26), which contains the former as one of its components (cf. Katz & Postal 1964:118-119).

(24) John is a doctor
(25) Is John a doctor?
(26) Either John is a doctor or not

To prove point 2), Katz & Postal started from the distinction they had drawn between ‘morphemes’ and ‘formatives’ (p.8); the former are terminal elements of underlying phrase-markers, the latter of derived phrase-markers. Hence some morphemes can never become formatives and some formatives do not correspond to any morpheme. The latter is the case, for example, of elements like ‘do’ in questions and in negative sentences. The matrix dummy element is a morpheme which never becomes a formative. The major categories to which
matrix dummies belong are ‘Rel(ative)’ and ‘Comp(lement)’ (cf. p.49). The final step made by Katz & Postal was the notion of ‘generalized phrase-marker’ (they referred to it as “presently being developed, by Chomsky and others”; p.67; 70fn.22): it would consist of all the underlying phrase-markers of a complex sentence and would be the “input to both the semantic component and the transformational subcomponent of the syntactic component” (p.172).

Chomsky (1965) summarized the work of the decade between the mid 1950s and mid 1960s and reshaped it in a very systematic model. It was natural to call it ‘standard’ also because it caught the attention of many scholars even outside the generative field (see below:9.1.1). Within such a model, the distinctions between the different kinds of transformations disappear. There are no longer singulary transformations vs. generalized ones since the task of generating strings of unlimited length (i.e., the ‘recursive’ property of natural language) is no longer assigned to transformations but, rather, to PS-rules. In other terms, a complex sentence is no longer generated by means of the transformational embedding of one sentence into another but by means of rewriting as many S symbols as clauses as this complex sentence contains. The result is the ‘Generalized Phrase-Marker’, which “contains all of the information contained in the basis, as well as the information provided by the generalized embedding transformations” (p.134).

The distinction between obligatory and optional transformations disappears in Chomsky (1965) since the latter ones are triggered by abstract underlying symbols (e.g., NEG for the negative transformation, PASS for the passive transformation, etc.) which are introduced by PS-rules and which cannot be phonetically realized. Therefore, if no transformation intervenes to delete such symbols (for the negative transformation the symbol NEG, for the passive transformation the symbol PASS, etc.), the resulting structure is not a well-formed sentence. As a consequence, all transformations become obligatory.

The problem of establishing the order in which transformations apply was solved by relying upon Fillmore’s proposals. Such proposals, and the term itself of ‘recycling’, had rather close similarities to a notion, also called ‘cycle’, which Chomsky, Halle & Lukoff (1956) had earlier applied in phonology. Hence Chomsky extended the principle of the cyclic application of rules to syntax. Transformational rules apply “from the bottom up”, i.e. firstly to the most embedded one of \( n \) clausal units of a complex sentence, then to the unit immediately dominating it, and so on, until they reach the main clause (cf. Chomsky 1965:143). “If none of the transformations blocks, we derive in this way a well-formed surface structure” (ibid.).

The topic of transformations and their ordering is not, however, that which occupies most space in Chomsky (1965): the central topic of this work is rather
the discussion of lexical rules, which assume a form rather different from that of LSLT or Chomsky (1957). Chomsky (1965) introduced the notion of ‘base component’, which is formed in turn by a ‘categorial component’ and a ‘lexicon’. “The categorial component consists solely of branching rules” (p.120). Branching rules are PS-rules, as defined in LSLT and subsequent works, and generate ‘preterminal strings’. They have the following format (cf. Chomsky 1965:106-107; I quote only a few rules):

(27) \[ S \rightarrow NP + \text{Predicate-Phrase} \]
(28) \[ \text{Predicate-Phrase} \rightarrow \text{Aux} + \text{VP} \text{ (Place) (Time)} \]
(29) \[ V \rightarrow \text{CS} \]
(30) \[ N \rightarrow \text{CS} \]

CS means ‘complex symbol’. Terminal strings are obtained by substituting the CSs by means of ‘lexical entries’. Each lexical entry is a pair of phonological features \( D \) and a “collection of specified syntactic features” \( C \) (cf. Chomsky 1965:84). When the lexical entry is ‘non-distinct’ from the complex symbol (namely, it contains the same values, + or −, for the same features), a ‘lexical rule’ substitutes the lexical entry for the complex symbol. Syntactic features of lexical items are subdivided into two major sets: ‘inherent features’ and ‘contextual features’. Contextual features in turn are divided into ‘selectional features’ and ‘strict subcategorization’ features. Both kinds of features specify the syntactic frame where a given lexical item may occur: if this syntactic frame is specified in terms of other syntactic features, the feature is selectional; if it is specified in terms of category symbols, the feature is a strict subcategorization. So, for instance, the fact that the object of a verb like ‘frighten’ must be animate is expressed by the selectional feature \([−\text{Det} [+\text{Animate}]]\), or \([+[\text{Animate}]-\text{Object}]; \) the fact that the same verb is transitive, i.e. that it must be followed by an NP, is expressed by the strict subcategorization feature \([−\text{NP}]\). Rules which refer to selectional features are named ‘selectional rules’; those which refer to strict subcategorization features, ‘strict subcategorization rules’ (cf. pp.94-95). Lexical rules are not PS-rules, but transformational rules (specifically, ‘local’ transformational rules), since they refer to the analysis of the phrase-marker into segments of different categories, hence to its ‘history’ (cf. p.98). Chomsky’s conclusion (p.99) was therefore that the early version of transformational grammar, which considered its base component as solely consisting of PS-rules, was erroneous: the base component contains PS-rules and transformational rules as well. The role of PS-rules is “that of defining the grammatical relations that are expressed in the deep structure and that therefore determine the semantic interpretation of a sentence” (ibid.). The overall structure of the ‘standard’ model was therefore the following one: PS-rules and lexi-
cal insertion rules generate the ‘deep structure’ both of simple and of complex sentences. The application to deep structure of transformational rules produces ‘surface structures’. The working of transformations is conditioned by the presence of abstract markers in the deep structure.

Let’s now turn to the ‘realistic’ (i.e., psychological) interpretation of linguistic theory: it was extensively argued for in chapter 1 (“Methodological preliminaries”) of Chomsky (1965) and it had already been defended in previous works as well. The beginnings of Chomsky’s concerns with psychological problems related to language (due perhaps, among other things, to Lenneberg’s influence) have been examined in the preceding section, and date back to the late 1950s. The first papers which systematically present the realistic view of grammar date from the early 1960s. Chomsky (1962b:533) defines grammar as an ‘explanatory model’, that is to say “a theory of the linguistic intuition of the native speaker”. In Chomsky (1965:4), the “linguistic intuition of the native speaker” is defined as “the speaker-hearer’s knowledge of his language” and is dubbed ‘competence’. It is opposed to ‘performance’, which is defined as “the actual use of language in concrete situations” (ibid.). The linguist has to discover “the underlying system of rules” (i.e., the competence) “from the data of performance”. “Hence (...) linguistic theory is mentalistic, since it is concerned with discovering a mental reality underlying actual behavior” (ibid.).

A grammar which correctly describes the competence of a native speaker of a given language is said to be ‘descriptively adequate’ (cf. Chomsky 1965:24). A linguistic theory is said to be ‘explanatorily adequate’ if it “succeeds in selecting a descriptively adequate grammar on the basis of primary linguistic data” (p.25). The task of linguistic theory then becomes that of accounting for the properties of the LAD (‘Language Acquisition Device’), i.e., the device which allows the child to construct his/her grammar from among a set of possible alternatives. What motivates the opposition between ‘descriptive’ and ‘explanatory’ adequacy is therefore the view of generative grammar as a theory of language acquisition.\(^{11}\) On a given level, different descriptions of linguistic facts can be equivalent: namely, it is often possible to build two equivalent grammars accounting for the same set of intuitions of grammaticality, of paraphrase relations, etc., by native speakers of a given language. This equivalence would lie in the fact that the speakers’ intuitions are correctly accounted for and the proposed grammars are not falsified by the generation of ungrammatical sentences. On this level, therefore, grammar is justified on “external” grounds.

\(^{11}\) Chomsky (1964b:29) distinguishes three levels of adequacy, called ‘observational’, ‘descriptive’, and ‘explanatory’ adequacy. The aim of ‘observational adequacy’, according to Chomsky (loc. cit.), is “to give an account of primary data (e.g., the corpus) that is the input to the acquisition device”. ‘Observational adequacy’ is not referred to in Chomsky (1965).
(cf. Chomsky 1965:26-7). On a "much deeper" level, the 'explanatory' one, two descriptively equivalent grammars may not be equivalent, since one of them may conform more with the general principles of human language: it is justified on "internal" grounds (cf. ibid.). Such general principles would be those governing human language acquisition. Hence the basic problem of generative grammar becomes that of constraining the class of attainable grammars (cf. Chomsky 1965:35). Actually, the effort of constraining the class of possible grammars was not systematically pursued in the technical chapters of Chomsky (1965). The main aim of these was to better define the ordering of transformational rules and their relationship with the output of PS-rules. Hence the subsequent development of Chomsky's research program was guided more by the "Methodological preliminaries" of Chomsky (1965), than by the bulk of the work.

Such a program was therefore centered around the idea of the 'psychological reality' of grammar. It will be investigated in detail in chapter 10, below; for the time being, it may be useful to sketch the main features of Chomsky's view of the relationships between linguistics and psychology, to illustrate its analogies to as well as its differences from former and contemporary psychologistic approaches. For example, while 19th-century psychologistic syntax tried to trace syntactic phenomena back to the action of general psychological laws, Chomsky assumes that language and language acquisition are governed by specific rules (in later works, 'rules' will be replaced by 'principles'; see chapter 10, below). Chomsky rejected the standard assumption that analogy could account for the creative aspect of language, namely for the possibility for the speaker to produce new sentences never heard before – the explanation that had been resorted to by several earlier scholars such as Paul or Bloomfield (see above:49-50; 182). An argument against analogy as the explanation of the creative power of language can be found in Chomsky (1986a:8), where the following pairs of sentences are compared:

(31) a. John ate an apple  
  b. John ate  
(32) a. John is too stubborn to talk to Bill  
  b. John is too stubborn to talk to

Chomsky's argument runs as follows: (31b) is interpreted as (31a), namely in the sense that John ate something; the only difference is that what John ate is left unspecified. Then, if the mechanism producing new sentences were led by analogy, (32b) should have the same relationship to (32a) as (31b) to (31a), namely it should mean that John will not speak to some unspecified person. The meaning of (32b) is, however, plainly different: it means that John is too stubborn for any unspecified person to talk to him. According to Chomsky,
therefore, the speaker’s capacity to produce and understand new sentences never heard before cannot be explained by resorting to analogy, but by assuming that s/he is endowed with a highly specific mechanism with guides her/his language acquisition.

From such an assumption, Chomsky draws the consequence that to do linguistics (or, better, to do generative syntax) is to do psychology. On this point, Chomsky’s position is essentially different from that of other scholars who, more or less at the same time, adopted a psychological approach to linguistics, such as many of those participating in the Dobbs Ferry conference on language universals (cf. above:8.3.2). They wanted to explain linguistic universals by means of “psychological principles (...) which do not specifically involve linguistic predicates and which serve as explanatory principles for a much wider variety of phenomena, for example, the behavior of rats in mazes” (Greenberg, Osgood & Jenkins 1966[1963]:xxvi). This quite different interpretation of the relationship between linguistics and psychology was to be at the center of the linguistic debate for many years, and it is still today. Such topics will be taken up again in chapters 9 and 10; the rest of the present chapter will be about the further revision of Chomsky’s model of generative syntax up until the end of the sixties.

4.4 The standard theory becomes standard practice

Shortly after Chomsky (1965), a variety of works appeared, which described the syntactic phenomena of English and other languages by explicitly adopting its framework. A Chomskian scholasticism had been initiated, and this may seem surprising, given the largely programmatic and even partly sketchy character of Chomsky’s book. As a matter of fact, that success of the ‘standard theory’ was also due to some works written in the framework of Chomsky (1965), that offered a systematic analysis of the syntax of English and of other languages as well. Among such works, Rosenbaum (1967) and Ross (1967a) appear to be especially important. Ross (1967a) also contained the germ of many subsequent developments of generative grammar, both in its Chomskian version as well as in other versions: it will therefore occupy an outstanding place in the next section too.

As Newmeyer (1986:81) has remarked, Rosenbaum’s analysis of complement clauses, developed in his 1965 doctoral thesis and published as Rosenbaum (1967), was to Chomsky (1965) what Lees (1968[1960]) was to Chomsky (1957). Dependent clauses had been already dealt with by Lees, but in a framework that opposed singulary to generalized transformations: Rosenbaum started from Chomsky’s (1965) assumption of a generalized phrase-marker and resorted to PS-rules in order to illustrate the different kinds of constructions
(see below). Rosenbaum also stressed the different perspective under which his analysis is worked out as opposed to the traditional one: it aims at “explaining” the structure of complement clauses rather than simply at “describing” them (Rosenbaum 1967:109). The ordering of transformational rules and the distinction between obligatory and optional transformations were also absolutely central in his framework. Especially important are some empirical analyses, such as that concerning the verbs of the ‘believe’-class: these had already been sketched in Chomsky (1965), but they were systematically worked out by Rosenbaum and became the starting point of many subsequent studies. One could even say that every investigation on sentential complementation in the generative grammar framework is in fact based on Rosenbaum’s book.

Rosenbaum opposes two kinds of sentential complementation: ‘noun phrase complementation’ and ‘verb phrase complementation’. To show the difference between these two different types of complementation, Rosenbaum resorts to a test which is distributional in its essence and transformational in its procedure: noun phrase sentential complements are those which can appear in noun phrase positions, verb phrase ones those which cannot. Hence the former kind of complement may undergo passive transformation and ‘pseudo-cleft’ transformation, like any NP, while the latter kind cannot. ‘Prefer’ is an instance of a verb which takes noun phrase complementation, while ‘condescend’ is an instance of a verb which takes verb phrase complementation, as the following examples show (cf. Rosenbaum 1965:93):

(33) a. Bill prefers to stay here
    b. What Bill prefers is to stay here
    c. to stay here is preferred by Bill
    d. What is preferred by Bill is to stay here

(34) a. Bill condescended to stay here
    b. *What Bill condescended was to stay here
    c. *To stay here is condescended by Bill
    d. * What was condescended by Bill was to stay here

Rosenbaum especially stresses the importance of the concept of noun phrase complementation. Many sentences are objects of verbs since they are dominated by NPs which are themselves objects of verbs. This fact was not captured by the traditional analyses of Jespersen and Poutsma’s (cf. pp.113-114); and even the early generative works analyzed too many sentential complements as VP, instead as NP complements (cf. pp.114-115). Nonetheless, the idea that many embedded sentences are nominal categories is rather traditional: it corresponds to Tesnière’s idea of ‘transference’ (see above:7.2.1) and it can even be traced back to the classification of dependent clauses into substantival, adjectival and adverbial (see above:4.1.2).
The different surface structures which sentential complements may take are explained by means of a battery of transformations. The first of these is the ‘complementizer placement transformation’, which inserts a ‘complementizer’ in front of each complement sentence. These complementizers belong to three types: ‘that’, ‘for - to’ and ‘POSS(essive) - ing’. Not all verbs select all three complementizers (actually, only a minority of verbs have this capacity). Moreover, surface sentences often do not show complementizers in the same form as described above; in (35), the POSS element is missing, and in (36), ‘for’ is missing:

(35) I dislike arguing about silly matters
(36) The king ordered the proclamation to be read

Note, furthermore, that many of ‘POSS-ing’ (cf. (35)) and ‘for to’ (cf. (37)) complement sentences lack a surface subject:

(37) I love to play the piano

These and other surface phenomena are accounted for by means of several other transformations. The lack of a subject in cases such as (35) or (37) is due to the transformation called by Rosenbaum ‘Identity Erasure’ and later (after Ross 1967a) dubbed ‘EQUI NP Deletion’. Informally speaking, this transformation states that the NP subject of the embedded sentence introduced by ‘for - to’ or ‘POSS - ing’ complementizers is deleted if it is identical to another NP contained in the matrix sentence (cf. Rosenbaum 1967:49-51). In order to generate the grammatical surface structure, transformations must be applied in the correct order. Rosenbaum started from Chomsky’s principle of the ‘cycle’ (see above:350), and showed that transformations must also be ordered within each cycle (cf. his discussion on the respective ordering of the transformations ‘Extraposition’, ‘Passive’ and ‘Pronoun Deletion’; pp.35ff.).

Chomsky (1965:22) noticed the different behavior of verbs such as ‘believe’ or ‘expect’ from ‘persuade’ etc. and admitted that he himself had missed this “fundamental distinction” up to that moment: both constructions were previously treated by him as ‘complements’, and by Lees as ‘infinitival nominals’. Rosenbaum gave them a more complete explanation, which was also extended to verbs like ‘seem’ in the domain of subject sentential complements. Rosenbaum starts by noting that infinitives selected by ‘believe’-type verbs do not show the behavior of noun phrase sentential complements:

(38) *What I believe is for John to have convinced Bill

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12 Rosenbaum (p.32fn.1) also recognizes the existence of other complementizers, namely ‘wh’, ‘if’ and ‘whether’, but he states that his study will not deal with them.
However, they are not analyzable as verb phrase complements. The synonymy of (39a-b) vs. the non-synonymy of (40a-b), which are clear cases of verb phrase sentential complementation, is a proof of this:

(39) a. I believe John to have convinced Bill
    b. I believe Bill to have been convinced by John

(40) a. I compelled a doctor to examine John
    b. I compelled John to be examined by a doctor

Rosenbaum's solution (cf. pp.60ff.) is to derive (40) by means of the 'Identity Erasure Transformation' (i.e., EQUI NP Deletion), which differentiates (40a) from (40b), since the identical NP would be 'a doctor' in the first sentence and 'John' in the second one. By contrast, sentences (39a-b) would derive from the same deep structure, to which 'Passive' has applied in the lowest cycle, namely that of the embedded clauses. Such an identity of deep structure accounts for the synonymy of (39a) and (39b). The surface forms of these sentences are generated by means of a transformation which replaces the deep pronoun 'it', which is the head of the noun phrase sentential complementation, with the subject of the embedded clause ('John' in (39a) or 'Bill' in (39b)). This transformation was called by Rosenbaum 'Pronoun replacement'; Kiparsky & Kiparsky (1970) named it 'Raising', and it has been known by this label since then. 'Raising' destroys the structural configuration of the noun phrase complementation, which therefore 'is no longer' an NP: this explains why infinitival structures governed by 'believe'-type verbs do not behave as NPs, and therefore sentences such as (38) are ungrammatical.

Raising also accounts for subject complementation. For example, a sentence such as (41a) would derive from a deep structure such as (41b), by means of the replacement of the pronoun 'it' by the NP 'John' and the subsequent deletion of the element 'for' (cf. pp.78-79):

(41) a. John happened to find gold
    b. It happened for John to find gold

Rosenbaum's analysis of 'raising' phenomena represented the starting point for much of the subsequent research in generative syntax.

Ross's (1967a) contribution to the establishing of the 'standard theory' takes place on several levels. First of all, it contributed to the creation of a
standard list and a standard jargon of transformations: a list of transformations was missing in Chomsky (1965), which dealt with only a handful of transformational operations. By contrast, Ross quoted a large number of transformations, many of which were also stated in formal terms, namely with a ‘Structural Description’ and a ‘Structural Change’. Also many of the labels of these transformations were to become standard: EQUI NP Deletion has already been quoted (see Ross 1986:60); one can add, among others, ‘Particle Movement’ (p.32), ‘Complex NP Shift’ (p.37), ‘Dative rule’ (p.42), ‘Gapping’ (p.105), ‘Topicalization’ (p.129), ‘Extraposition of PP’ (p.176), ‘Adverb Preposing’ (p.181), ‘Tough-Movement’ (p.249), ‘Left Dislocation’ (p.253; this label is credited by Ross to M. Gross), ‘Right Dislocation’ (p.257).

Ross’s (1967a) contribution to the creation of the ‘standard model’ is not limited to an inventory of labels. His proposals for the analysis of several constructions also gained acceptance with transformational grammarians. Among them, one should note that concerning relative constructions: they are analyzed as NP → NP S (p.2fn.4); in other words, the relative clause is considered to modify the head noun phrase rather than its determiner, as was assumed in earlier transformational treatments (such as Smith 1964).

One of the trademarks of the standard generative syntax was undoubtedly the implementation of the notion of cycle. It had been formulated in abstract terms by Chomsky (1965): subsequent studies aimed at showing how it could solve several empirical problems. Ross’s (1967b) analysis of English pronominalization is a good example of such studies. It showed that the cyclic principle could offer an elegant solution to a puzzling linguistic phenomenon: the behavior of English personal pronouns. The ‘rules for English pronominalization’ had been formulated by Lees & Klima (see above:348). Ross noticed a restriction on the operation of such rules: pronouns cannot precede their antecedents unless they are in a sentence subordinate to that of these antecedents. For instance, ‘he’ and ‘John’ cannot refer to the same individual in (42a), while they can in (42b):

(42) a. He saw John
    b. When he entered, John saw Mary

These restrictions on pronominalization were also independently discovered by Langacker (1969) and they are therefore called ‘Ross & Langacker’s con-

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they were just numbered; (c) some bibliographical references were updated and some others have been added (including remarks on some papers announced as ‘in preparation’ in 1967, but never actually completed); (d) a few footnotes are omitted; (e) some slight rewording occurs in a few places; (f) a short “After words”, mainly of a personal character, is added. In the page quotations, I refer to the printed (1986) version.
straints'. Ross argued that the combination of these constraints with the principle of the cyclic application of rules could easily account for the contrast between (43a) and (43b):

(43) a. *Realizing that Oscar was unpopular didn’t disturb him;
    b. Realizing that he was unpopular didn’t disturb Oscar.

This contrast is so much more puzzling since the relationship between ‘he’ and ‘Oscar’ in (43a) seems to obey Ross & Langacker’s constraints. Ross showed that resorting to the cyclic principle could overcome the difficulty. Indeed, both (43a) and (43b) would derive from the same deep structure, namely something like:

(44) \[ S_1[S_2Oscar realized [S_3that Oscar was unpopular]] disturbed Oscar]\]

According to the cyclic principle, the pronominalization transformation firstly applies within \( S_2 \). The result is obligatorily ‘Oscar realized that he was unpopular’, not ‘*He realized that Oscar was unpopular’: for in the latter case the pronoun would precede its antecedent and would be in a sentence not subordinate to that of this same antecedent. On the \( S_1 \) cycle, the NP ‘Oscar’ subject of ‘realize’ would be deleted by means of EQUI transformation, since it is identical with the NP object of ‘disturbed’. ‘Complementizer placement transformation’ (see above:356) would account for the surface aspect of (43b). (43a) is ungrammatical because ‘*He realized that Oscar was unpopular’, which is a necessary step in its derivation, is also ungrammatical, as has been just seen. But this step is necessary by virtue of the application of the cyclic principle.

The standard practice mainly resorted to the notion of ‘cycle’ to solve some ‘ordering paradoxes’. It was assumed that transformations are ‘extrinsically ordered’: to obtain a grammatical result, a given transformation must apply before or after another. So, for example, the reflexivization transformation was assumed to apply before the transformation that deletes the understood NP subject ‘You’ of imperative sentences, to generate a sentence such as ‘Dress yourself!’ from a deep structure (approximately) such as ‘You dress you’. If the order were the reverse, the reflexivization transformation could not apply, for its application requires the presence of two identical NPs within the same clause (see above:348). The ‘ordering paradoxes’ were represented by those cases where a given transformation (e.g., Passive) apparently applies after as well as before another (e.g., EQUI). They could be easily solved by showing that the ordering of transformations is always the same: in the case in point, EQUI always precedes Passive. Passive applies twice: firstly, at a lower cycle where EQUI cannot apply; then, on a higher cycle, after EQUI, as expected. Examples (45) illustrate such a derivation:
(45) a. \[\text{Bill persuaded Mary [the police to interrogate Mary]}\] (deep structure)
b. \[\text{Bill persuaded Mary [Mary to be interrogated by the police]}\]
   (cycle 1; Passive applied; EQUI inapplicable)
c. \[\text{Bill persuaded Mary [to be interrogated by the police]}\]
   (cycle 2; EQUI has applied)
d. \[\text{Mary was persuaded by Bill [to be interrogated by the police]}\]
   (cycle 2; Passive has applied)

As a matter of fact, the assumptions that rules are extrinsically ordered and apply cyclically were logically independent of each other: rules can apply in any order, and still their domain of application must first be the most embedded sentence, then the immediately superordinate one, and so on. Moreover, the notion of ‘cyclic domain’ could not be restricted to sentences: some other kinds of constituents could represent ‘cycles’ in themselves. The conceptual deepening of the notion of ‘cycle’ and ‘cyclicity’ followed precisely these paths: rules were no longer assumed to be extrinsically ordered, but the idea that their application is ‘bounded’ in one way or other was always preserved, whether the term ‘cycle’ itself was resorted to or not. These matters will be dealt with in a later chapter (10.2.1).

4.5 Beyond the standard theory

The contribution of Ross’ (1967a) thesis to the development of generative grammar was not limited to what was reported in the preceding section: it contained a variety of other insightful remarks about the functioning of transformational rules which were to mark the whole development of generative syntax in the subsequent decades. It is a rather curious fact that Ross did not especially deepen the line of research that he himself had opened: as will be seen (10.2.1), it instead became the starting point of Chomsky’s line of thought since the late sixties. Ross, for his part, became one representative of the so-called ‘Generative Semantics’ approach (see 9.4.1) as early as in 1966, i.e., in the year preceding the completion of his thesis (see, e.g., Newmeyer 1986:82ff.). Generative Semantics assumptions, however, find only a small space in Ross (1967a), and this can explain the apparent paradoxical fact that it was a main source of inspiration for Chomsky’s later research. In 1967, Chomsky circulated the “unrevised version” of a manuscript which was later published as Chomsky (1970a). This essay is often referred to (e.g., Newmeyer 1986:85) as a “counterattack” to the first formulations of Generative Semantics: this is undoubtedly true, but it also contains some proposals for a revision of the ‘standard’ model which were no less important at the time and which in some sense complemented those contained in Ross’s thesis. In what follows, the essential contents of Ross (1967a) and Chomsky (1970a) will therefore be presented.
The notion of ‘syntactic variable’, to which Ross’s work is devoted, was possibly introduced by Lees (1968[1960]). Making use of the ‘variable’ notation, the ‘wh’-question transformation would be represented as follows (cf. Lees 1968[1960]:35; the symbol Q indicates any constituent of the category Noun or Adverb, which can also be accompanied by a preposition and a modifier):

\[(46) \text{X} - \text{Q} - \text{Y} \rightarrow \text{WH} + \text{Q} - \text{X} - \text{Y}\]

In these formulas, \(X\) and \(Y\) represent the ‘irrelevant’ context, namely they can stand for any strings of symbols, even a null one, since their categorial constituency is not relevant for the transformation concerned.

Ross started by noticing that variables are not only useful devices to unify different instances of the application of a transformational rule, but they are even necessary in some cases: e.g., where the nodes which intervene between the elements involved in a given transformation can form (in principle) an infinite list. ‘Wh’-question transformation is a case in point: it seems to be possible to move the ‘wh’-element from an indefinitely embedded position to the sentence initial position (cf. Ross 1986:5-6).

\[(47)\]
\[\begin{align*}
\text{a. What did Bill buy?} \\
\text{b. What did you force Bill to buy?} \\
\text{c. What did Harry say you had forced Bill to buy?}
\end{align*}\]

Variables, however, cannot stand for any kinds of categories. The ‘wh’-element can ‘cross’ an indefinite number of sentence nodes in (47), but not other categorial nodes (cf. ibid.):

\[(48)\]
\[\begin{align*}
\text{a. *What did Bill buy potatoes and?} \\
\text{b. *What did that Bill wore surprise everyone?} \\
\text{c. *What did John fall asleep and Bill wear?}
\end{align*}\]

Therefore the functioning of variables must be subject to constraints which are “suspected to be universal” (p.6).

Ross’s remarks were not wholly new. The first hint at a condition on the operation of transformations was a side remark in Chomsky (LSLT:437), to the effect that not all occurrences of personal pronouns (which are assumed as the kernel forms of ‘wh’-constituents) can be transformed into ‘wh’-questions. Then, from

\[(49)\text{Your interest in him seemed to me rather strange} \]

it is impossible to derive

\[14\text{On the technical meaning of ‘node’, see above:340.}\]
(50) *Whom did your interest in seem to me rather strange?

On the other hand, both the following sentences are possible:

(51) You lost interest in him (last year)
(52) Whom did you lose interest in (last year)

Chomsky (ibid.) accounted for this contrast by putting a condition on the operation of ‘wh’-question transformation (Tw in LSLT terminology): the first term of the structural description (namely, that preceding the personal pronoun) cannot end with a preposition, unless the third term (namely, that following the pronoun) is a Prepositional Phrase, an Adverbial Phrase, or is empty.

Many other similar remarks were made later by Lees (1968[1960]:88; 1963:384), but, however important they were, they only listed a variety of structures where the ‘wh’-transformation was unable to apply. The first attempt to account for these facts by means of a general principle was formulated by Chomsky (1964a:931), in the following terms:

(...) if the phrase X of category A is embedded within a larger phrase ZXW which is also of category A, then no rule applying to the category A applies to X (but only to ZXW).

Ross (1986:10) labeled this restriction the ‘A-over-A principle’. He also showed how it can explain a variety of other facts (cf. pp. 13-17); for example, that “elements of relative clauses may not be questioned or relativized”:

(53) a. I chased [NP the boy who threw [NP a snowball] at our teacher]
   b. *Here is the snowball which I chased the boy who threw at our teacher

Another fact accounted for by the ‘A-over-A’ principle is that “elements of sentences in apposition to such sentential nouns as ‘fact’, ‘idea’, ‘doubt’, ‘question’, etc., cannot be questioned or relativized”:

(54) a. Tom mentioned [NP the fact that she has worn [NP a bikini]]
   b. *Where’s the bikini which Tom mentioned the fact that she has worn?

The ‘A-over-A principle’ therefore has a great explanatory force. Such force, however, is apparently too strong in some cases, as the following ones, already noticed by Chomsky (1964b):

(55) [NP What] would you approve of [NP my seeing]?
(56) [NP What] are you uncertain about [NP my giving to John]?

As can be seen from the labeled bracketings, both (55) and (56) are generated by extracting an NP-constituent from a Noun Phrase, and hence they should be ungrammatical, which they are not. This is the reason why the ‘A-over-A’ prin-
ciple is only hinted at in Chomsky (1964b:74fn.16a) but it is not further developed.

The solution devised by Ross was to formulate some constraints which would act not simply as some conditions on the application of a specified rule, but at the same time would not be so general as to exclude grammatical sentences, as happened with the ‘A-over-A’ principle. One such constraint is the so-called ‘Complex Noun Phrase Constraint’ (CNPC), which is formulated as follows:

‘Complex NP Constraint’ (CNPC): “No element contained in a sentence dominated by a noun phrase with a lexical head noun may be moved out of that noun phrase by a transformation” (Ross 1986:76).

CNPC would account, for example, for the facts exemplified by (53) and (54), above. The other constraints proposed by Ross are the ‘Coordinate Structure Constraint’ (CSC; cf. pp.98-99), the ‘Left Branch Condition’ (LBC; cf. p.127), the ‘Sentential Subject Constraint’ (SSC; p.149). CNPC, CSC, LBC and SSC form what Ross (p.288) called ‘islands’, to mean that no element can move out of the structure that they delimit. This term was to become a favorite one in the writings of generative grammarians.\(^\text{15}\)

Ross’s dissertation also dealt with many other problems, such as the distinction between rules to which his constraints apply (which he dubbed ‘chopping’ rules) and rules to which they do not (his ‘copying’ rules); we shall not enter into this distinction, nor do we enter into many other problems faced by Ross, some of which are still open (see p.291). Only two of them will be quoted, since the attempt to find a solution for them characterized much of the subsequent research. They are: (a) “why should complex NPs, coordinate nodes, sentential subject clauses, and NPs on the left branches of larger NP’s all function the same in defining islands?” (b) “Can islands be shown to behave like psycholinguistic entities?” Indeed, a solution was aimed at that applied to both problems at once: all islands are such since they all are instances of the same principle, which is part of human language faculty; and if something is shown to be part of the human language faculty, then it is a psycholinguistic entity by definition. This was, at least, the path followed by Chomsky, as will be seen in chapter 10, below.

Let’s now turn to the second work that marked the departure from the ‘standard’ model, namely Chomsky’s essay about nominalizations (Chomsky 1970a). This essay marked a turning point in the history of generative syntax

\(^{15}\text{On the development of the treatment of ‘island’ phenomena since Ross until the eighties, see I. Roberts (1988).}\)
since it 1) revised the role of transformations in generating sentences by assigning part of it to the phrase structure rules and another part to the lexicon; and 2) contained the first proposal for restricting the format of phrase structure rules. Lees' (1968[1960]) study, which represented a fundamental step in the development of generative syntax, was devoted to nominalizations (see above:347). Lees' 'nominalizations' included not only derived and compound nouns, but also a variety of dependent structures, some of which would have been called 'substantival clauses' already in 19th century classification of sentence types (see above:4.1.2). All nominalizations were transformationally derived. For example, (58) would be derived from (57) (the 'source-sentence') and (59) (the 'genitive periphrasis') would be in turn derived from (58).

(57) The committee appoints John
(58) The committee's appointment of John
(59) John's appointment by the committee

A nominal like 'appointment' was called by Lees an 'action nominal'; other types of nominals, according to his classification, are 'agentive nominals' (i.e., derived nouns with ' -er' suffix), or 'abstractive nominals' (nouns derived from adjectives, such as 'deepness', 'localness', etc.). A special class is formed by 'gerundive nominals', namely the gerundive verbal forms, such as 'John's criticizing the book'.

Chomsky (1970a) opposed gerundive nominals to all other classes of nominals, which he labeled 'derived nominals', and stated that only the former, but not the latter, are transformationally generated. This is the first of the two major steps alluded to above. Chomsky dubbed his proposal that derived nouns are not transformationally derived as the 'Lexicalist Hypothesis'; the alternative hypothesis was called by him the 'transformational' one. The arguments brought forward by him in favor of such a solution were numerous. First of all, he noted that, while gerundive nominals are derivable from any sentence type, derived nominals are not, as can be seen from (60c) vs. (60a, b):

(60) a. John is easy to please
     b. John's being easy to please
     c. *John's easiness to please

Secondly, derived nominals do not always have the same meaning as the verbs from which they should be transformationally derived. Chomsky (1970a:189) lists many of such examples; the clearest of them is possibly that of the derived nominals.

16 One could rightly remark that to say that 'derived' nominals are not transformationally derived sounds rather contradictory. Plainly, however, Chomsky used 'derived' in the traditional morphological sense, namely of a 'word derived from another word (or a stem) by means of suffixes'.
nominal ‘deeds’: if the transformational hypothesis were tenable, ‘deeds’ would derive from the verb ‘to do’. Chomsky remarks, however, that if this were the case, then we would be obliged to say that one of the first deeds by John this morning would be brushing his teeth (see Chomsky 1970a:217fn.11). Such meaning differences do not occur at all between gerundive nominals and the verbs from which they originate: hence this origin can rightly be considered as being of a transformational kind.

A third difference between derived nominals on the one hand and gerundive nominals on the other is shown by the fact that the former clearly behave as noun phrases, while the latter equally clearly behave as verb phrases. For example, there cannot be any article before gerundive nominals: ‘the criticism of the book’ vs. ‘*the criticizing the book’. On the other hand, derived nominals cannot contain auxiliaries, unlike gerundive nominals, which freely admit them: ‘*John’s have(ing) criticism of the book’ vs. ‘John’s having criticized the book’.

This different behavior of derived vs. gerundive nominals was not discovered by Chomsky: many of the observations just quoted can already be found in Lees (1968[1960]; cf. especially pp.65-67). Lees, however, maintained the transformational hypothesis for all kinds of nominals, in part because no real alternative treatment was available at that time. This hypothesis had the undisputed advantage of accounting for the structural analogies which the various kinds of nominalizations show. The correspondence of passive structures in sentences and in noun phrases is possibly the most apparent of such analogies:

(61) a. The enemy destroyed the city
    b. The city was destroyed by the enemy
(62) a. The enemy’s destruction of the city
    b. The city’s destruction by the enemy

One could therefore ask if a better solution would not be to preserve the transformational hypothesis and to account for the problems noted above by means of an appropriately formulated ‘theory of exceptions’, which could explain, for example, the meaning differences between ‘deeds’ and ‘do’, or the non-existence of a verb like ‘*auth’ to be transformationally related to ‘author’. This path was actually taken by Lakoff, in his doctoral dissertation, published as Lakoff (1970a[1965]). Chomsky, however, rejected such a solution. Hence the debate about the treatment of nominalizations can be considered as one of the first actions in the “linguistic wars” which exploded within the generative field in the sixties and the seventies (cf. below:9.4.1).

The problem that the ‘Lexicalist Hypothesis’ had to solve was therefore to account for the structural analogies between pairs of structures such as (61) and (62) without postulating a transformational origin for the derived nouns like
‘destruction’. Chomsky’s solution lay in assigning an essentially analogous hierarchical structures to all ‘major’ syntactic categories: Noun Phrase, Verb Phrase, Adjective Phrase. Each of these phrasal categories would contain a lexical ‘head’ (N, V, or A, respectively), which could have a ‘complement’: ‘criticism of the book’, ‘criticize the book’ ‘eager to please’. Hence a single schema could account for the complement system of such categories (cf. Chomsky 1970a:210):

\[(63) X' \rightarrow X\ldots\]

Chomsky’s original notation superimposed bars on the symbol ‘X’, hence the name of ‘X-bar notation’, or ‘X-bar theory’. For typographic convenience, bars have mostly been replaced by primes, and this convention is followed here too. Since X can take the value of N, V, or A, the X’ constituents are N’, V’ and A’. Developing the same convention, phrases immediately dominating X’ categories can be labeled X’’: N’’, V’’, A’’, (and later also P’’), corresponding to the traditional NP, VP, AP (and PP). They are formed by merging the X’ categories with their ‘specifiers’. The specifier of N’ is the determiner (e.g., ‘the criticism of the book’); that of V’, the auxiliary or the tense affix (e.g., ‘having criticized the book’, ‘past criticize the book’); that of A’, the intensifier or the element introducing the comparative construction (e.g., ‘very eager to please’, ‘more eager to please’). Phrase structure rules can therefore be reduced to the following schemes:

\[
\begin{align*}
(64) & \text{a. } X'' \rightarrow \text{Spec, - } X' \\
& \text{b. } X' \rightarrow X - \text{Comp}
\end{align*}
\]

Given the X-bar scheme, the PS-rule corresponding to (27), above, would therefore have the following format:

\[(65) S \rightarrow N'' + V''\]

The tree diagrams corresponding to (61a) and (62a) would be (66) and (67), respectively (triangles signify simplified tree diagrams):
This structural analogy between the domains of the sentence and of the Noun Phrase makes it possible to explain the relation between (61b) and (62b) without resorting to any nominalization transformation. The relation between the sentence containing the verb ‘destroy’ and the NP whose head is the noun ‘destruction’ is accounted for by assuming that ‘destruction’ is the ‘phonological word’ corresponding to the lexical entry ['destroy$, +N$. The preposition ‘of’ would be inserted “by a general rule which applies to N-NP constructions”. The passive transformation would apply to both structures (66) and (67), giving as a result (61b) and (62b), respectively (cf. Chomsky 1970a:203-204).

NP is therefore assimilated to Sentence: this move was to have some important consequences, especially concerning the notion of cyclicity and of ‘bounding domain’ (see below:10.2.1). Furthermore, Chomsky (1970a) no longer described the passive transformation as a unitary phenomenon (as it was treated in LSLT, or in Chomsky 1957), but as the joint effect of two different transformations, namely ‘Agent postposing’ and ‘NP preposing’. In the domain of the sentence, both apply; in the domain of Noun Phrase, either both apply, as in (62b), or only Agent postposing applies, eventually generating ‘the destruction of the city by the enemy’.
Starting from the analysis of a single grammatical phenomenon, namely English nominalizations, Chomsky therefore reached a result of general significance: ‘X-bar theory’ represented the first systematic effort at defining the notion of a ‘possible phrase structure rule’. Such a step was among the first ones taken by Chomsky in his “search for principles”, which took its initial impetus from the discovery of conditions on transformational rules, such as the ‘A-over-A’ principle and Ross’s constraints: Chomsky (1970a) extended this to the phrase structure component. Such a search for principles has been the leading thread of the Chomskian program to this day.
CHAPTER 9
DIFFERENT VIEWS OF SYNTAX

0. Introduction
Since the mid sixties, as John Lyons (1970b:27) wrote, “generative grammar, and more particularly transformational grammar, has aroused more general interest than any other development in linguistics in recent years”. Such an interest, of course, did not mean that generative assumptions and technical analyses were accepted by everybody: quite the contrary, many of them were sharply criticized. On the other hand, however, some descriptive devices invented by Chomsky and his followers were resorted to, perhaps unconsciously, even by people belonging to the opponents of generative grammar. It may be useful, therefore, to sketch the overall situation induced by, essentially, the ‘standard’ theory of generative syntax (cf. above:8.4.3; 8.4.4).

A good specimen of such a situation is offered by the proceedings of the conference “Current Approaches to Syntax”, held in Milwaukee on March 15, 1979 (Moravcsik & Wirth, eds. 1980). The organizers of the conference provided the different contributors with a set of ‘basic issues’ and of ‘sample sentences’: the ‘basic issues’ were to be answered according to the different views held by the several representatives of the different theories, and the ‘sample sentences’ (17 in total) were to be analyzed according to the different theoretical principles and analytical practices. Just by taking a glance at the list of issues and of sentences (cf. Moravcsik & Wirth 1980:389-392), one can clearly see that many topics and concepts were touched on which had been stimulated by generative research. For example, the first question of the ‘basic issues’ asked whether a difference was felt between ‘syntactic competence’ and ‘syntactic performance’. Another question was “to what extent and in what way should syntactic accounts involve (a) describing data [...]; (b) predicting data; (c) explaining data?” (p.389): now, it was seen above (352-353) that the opposition between descriptive and explanatory adequacy was a key point of Chomsky’s theory of grammar (cf. Chomsky 1964a, 1964b, 1965).
The influence of Chomskian grammar on the organizers of the Milwaukee conference is clearly discernible also in the list of ‘sample sentences’: they are for the most part, if not wholly, instances of phenomena on which the attention of Chomsky or of his teachers and followers had focused. 1 On the one hand, homage is apparently paid to Sapir: the third sentence is the reference example resorted to by Sapir (1921:82ff.) in his discussion of ‘grammatical concepts’, but the fourth suggests that it is the active/passive transformational relation which lies at the center of interest; and the fifth sentence implies a further transformational relation (namely the interrogative one). The so-called ‘raising to object’ constructions, which was to become a problem that was keenly felt by syntacticians only after Chomsky (1965) and Rosenbaum (1967; see above:356-357), are exemplified by sentences (9) and (10) of the list. Some other sample sentences are evidently inspired by revisions of Chomskian grammar which were to become autonomous theories, such as Case Grammar (see below:9.1.3): note the fourteenth sentence, which, among other things, raises the problem of the ‘unagentive subject’.

It seems, therefore, that the majority of syntactic theories of the second half of the twentieth century could not help referring to Chomsky’s view of syntax, even those which had originated before it or independently from it. I will therefore proceed as follows: firstly, I will sketch the achievements of generative syntax which became a sort of common core of syntactic research (9.1.1); subsequently, I will turn to some issues prompted by the generative approach to syntax and which were hotly debated. The different positions held concerning such issues were among the roots of the proliferation of syntactic theories. They

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1 The list of sentences was the following one:

1. The woman walked.
2. Every woman walked.
3. The farmer killed the duckling.
4. The duckling was killed by the farmer.
5. Who killed the duckling?
6. A farmer killed every duckling.
7. John killed a duckling with an axe.
8. The woman believed that John killed the farmer.
9. The woman believed John to have killed the farmer.
10. The woman believed the farmer to have been killed by John.
11. The farmer was believed by the woman to have been killed by John.
12. The farmer gave the axe to John.
13. The farmer gave John the axe.
14. The axe killed the duckling that John loved.
15. John killed the woman and Bill, the farmer.
16. John loved the woman and he killed the farmer.
17. John loved the woman and killed the farmer.
will be investigated in sections 9.1.2-9.1.3. In subsequent sections of the present chapter, various different theoretical approaches will be presented, starting with those, such as Montague Grammar (9.2.) and the various kinds of functional grammars (9.3.1-9.3.2), which, although connected with generative syntax to a certain extent, are conceptually independent and even alternative to it. Then some theories will be dealt with which originally derived from the generative stem, even if they took directions and shapes which were often very different from each other: among them, Generative Semantics (9.4.1), Relational Grammar (9.4.2), Lexical-Functional Grammar and Generalized Phrase Structure Grammar (9.4.3). Such a survey does not attempt to offer an exhaustive presentation of the syntactic research of the last decades of the 20th century: it only aims at presenting some directions which have been pursued, or, in other words, at illustrating the major branches of the genealogical tree sketched out in 8.1., above. For more detailed information about contemporary syntactic theories, the interested reader is referred to works such as Jacobs, von Stechow, Sternefeld & Vennemann (1993), or Brown & Miller (1996).

1. Generative syntax and the proliferation of syntactic theories

1.1 The impact of generative syntax

Let us now turn to the insights of early generative grammar which became a common core of contemporary syntactic research. In my opinion, these are (at least) 1) the ‘productivity of human language’ (cf. Lyons 1970b:12), namely the possibility for the speaker of a given language to form a potentially infinite number of new sentences; 2) the necessity of accounting for the relations between sentences of different kinds and 3) the search for linguistic universals. As the preceding chapters of this book should have shown, none of these ideas was totally new. Nevertheless, one cannot deny that generative grammar put such issues on the forerunners of syntactic research. As for the first of the above listed points, even theories which are very distant from generative grammar like to stress their ‘generative capacity’. For example, Simon Dik states that his Functional Grammar “has recursive properties and thus generates an infinite set of sentences” (Dik 1980:46).

Even the idea of transformational relations between sentences was not originally due to Chomsky, but to Harris (cf. 5.3.6). And, in fact, Harris’ work brought about a school of transformational grammarians which took not only in the United States, but also in Europe (cf., e.g., Gross 1975). Harris and Chomsky seem to have exerted a parallel influence in the diffusion of transformational ideas. To ascertain which of them actually had the greater influence and why Chomsky’s name is better known than Harris’, would deserve specific research which I will not undertake. What is important to note, in the present
connection, is that the transformational way of looking at syntax came to be generally accepted. By such a label, I mean the resort to intersentential relations to analyze some aspects of syntactic structures. Such analytical procedures can be utilized without appealing to a distinction between a ‘deep’ and a ‘surface’ structure, i.e. without committing oneself to an acceptance of Chomsky’s (1965) model.

The renewed interest for linguistic universals shown by enterprises such as the Dobbs Ferry conference of 1961 was dealt with in 8.3.2, above. A similar interest was shown also by Chomsky, although from a rather different perspective. He resuscitated the notion of ‘Universal Grammar’, by making explicit reference to the tradition of *grammaire générale* starting with Port-Royal (cf. Chomsky 1965:5-7). According to Chomsky, Universal Grammar must account for “the creative aspect of language use” and for the “deep universal regularities” which are not described but merely presupposed, by any particular grammar (cf. ibid.). As will be seen in the next chapter (cf. pp.426-427]), from the early seventies Chomsky’s notion of Universal Grammar essentially came to mean what he had earlier dubbed the ‘language acquisition device’ (LAD; cf. above:352): it was assumed to be universal since it would be shared by all human beings. The approach to linguistic universals by Greenberg and the other scholars participating to Dobbs Ferry conference was rather different: they also aimed at finding the ‘psychological principles’ underlying linguistic universals (cf. above:326), but they did not conceive of them as principles *specific* to the human linguistic capacity. This problem came linked to that of the ‘psychological reality’ of linguistic theory, to which I will return in the next section. Despite all such differences, however, the problem of accounting for the universal aspects of language was felt to be basic by the majority of linguists of the second half of the twentieth century. One could say that another effect of Chomsky’s impact on linguistic, and especially syntactic research was precisely his insistence on the fundamental importance of such a problem.

1.2 Some debated points: issues of principle

Three issues of principle seem especially important as sources of the proliferation of syntactic theories: (a) the question of the ‘autonomy of syntax’; (b) the question of the ‘organization of syntax’, namely whether two or more distinct ‘levels of representation’ have to be assumed or not; (c) the issue of the ‘psychological reality’ of syntax, i.e. whether syntactic descriptions refer to psychological entities and/or they can be put in relation with such entities (supposing that these latter can be defined in an independent way). Let’s now survey the positions held about these issues by some syntactic theories.
That syntax is an autonomous system was one of the tenets of generative grammar in its most orthodox Chomskian version. Such a view implied that the principles which govern syntactic structures are by no means conditioned by semantic and/or pragmatic factors (even if, of course, syntactic structures are systematically related to semantic and pragmatic factors). The opposite position was held, first of all, by the several ‘functionalist’ schools, which, although partially differing in their analytical techniques, share a common tenet, namely, that the nature of language as a means for communicating essentially conditions its syntactic structures. Tagmemics also held a similar view. But even a theory that was a direct offspring of Chomskian generative syntax, namely that mainly known under the name of ‘Generative Semantics’, departed from its original source on just this question of the autonomy of syntax. For the generative semanticists, syntactic deep structure and semantic representation are one and the same thing, hence syntax is inseparable from semantics (see below:9.4.1). On the other hand, however, one has to remember that Chomsky was not the only one to state the autonomy of syntax: even syntactic approaches directly deriving from formal logic, such as Montague Grammar, adopted an analogous perspective. And, in general, all theories stemming from Chomskian syntax and developed since the seventies (cf. below:9.4.2-9.4.3) have assumed the autonomy of syntax, even if many of them have also tried to develop detailed semantic representations.

Let’s now turn to the organization of syntax, namely to the question of the existence of different levels of representation. It has been seen in the preceding chapter (see especially 8.4.2) that the assumption of several distinct levels of representation was essential for Chomskian syntax. The eventual labeling that the different levels obtained in Chomsky (1965) was that of ‘deep structure’ vs. ‘surface structure’. Many syntactic theories refused to assume such a distinction of syntactic levels, keeping a possible distinction (if any) between the level of syntax and that of semantics: this was the case of the several functionalist approaches, but also of purely formal approaches, like Montague Grammar (see 9.2). The word ‘level’ also occurs within tagmemics, but with a meaning which is different from that of Chomskian generative syntax. Moreover most syntactic theories originating from the Chomskian stem rejected a distinction between a ‘deep’ and a ‘surface’ syntactic structure (see below:9.4.3). One significant exception among them was Relational Grammar (see 9.4.2), which assumed a multi-level (in its terms, ‘multistratal’ conception of syntactic structures). Even the most recent version of the ‘Chomskian program’ disposes of the levels of ‘deep’ and ‘surface structure’, and assumes ‘Phonetic Form’ and ‘Logical Form’ as the only levels of representation (see below:10.4.2): but this looks more like a technical issue than an issue of principle, insofar as this distinction
is tenable. In fact, any version of Chomskian generative syntax essentially assumes a very abstract relation between the phonetic and the semantic side of language (the ‘Logical Form’ of the latest models). By contrast, theories which in principle reject the distinction between different levels of representation also reject the assumption of abstract entities: in other words, a structure provided with abstract symbols which is to be kept distinct from the concrete, observable, structure. Such a distinction is exactly what a theory like tagmemics, for example, would deny.

Finally, the idea of a ‘deep structure’ was also endorsed by some versions of typological syntax, namely that held by W.P. Lehmann (see below:9.3.1). This use, however, rests on a partial misunderstanding of the original Chomskian meaning of the terms involved, since ‘deep’ (‘underlying’) structure is equated with the universal component of syntax, common to all languages, which differ on the ‘surface’ level (cf. Lehmann 1978b:50-51). The misunderstanding lies in the fact that ‘deep’ and ‘surface’ structure, in Chomsky’s (1965) formulation, are concepts related to the representation of a given sentence in a given language; hence they do not refer in themselves to the opposition between the ‘universal’ and ‘particular’ grammar. This misunderstanding was partly due to some of Chomsky’s own statements, such as the following one: “to a large extent, the rules of the base may be universal, and thus not, strictly speaking, part of particular grammars” (Chomsky 1965:141). However, it must be remarked that Chomsky did not speak of ‘deep structure’, but of ‘base’: within his framework, ‘deep structure’ has always held a technical meaning only, one which is related to the theory of transformations. A meaning somewhat similar to ‘universal grammar’ was assigned to it mainly by non-generative theories of syntax.

The most belligerent controversies were caused by the third issue noted above: the assumption that linguistics is a part of theoretical psychology. This was the core of the so-called hypothesis of the ‘psychological reality’ of linguistics, and in particular of syntax, which has been held by Chomsky since the mid-sixties (cf. 8.4.3). As will be remembered, an immediate consequence of such an assumption is that to do linguistics (or, more exactly, to do generative linguistics) is to do psychology. In other words, there is no need to supply “external” psychological evidence to support syntactic statements and to show that they are psychologically real. Judgments by native speakers concerning the grammaticality vs. ungrammaticality of sentences, paraphrase relations, etc., are sufficient evidence. Some years later, after more than one decade of hot debate, Chomsky simply stated that to say that a theory is psychologically real does not mean any more than that it is true (cf. Chomsky 1980a:107).
Of course, Chomsky's assumptions did not find general agreement. Some linguistic schools even rejected the idea that linguistics in general, and syntax in particular, belong to psychology: among them one can quote theories still partly connected to the structuralist age, such as tagmemics; but also some theories originating from the Chomskian roots did not adhere to such a position: this is the case for Relational Grammar. Many other scholars, however, were fascinated by the idea of connecting the study of language to the study of mind, but the majority of them, unlike Chomsky, deemed the attainment of psychological, "external" evidence necessary.

As a matter of fact, the first experiments searching for "external" corroboration of the generative hypotheses appeared to be successful: this was so for the "Derivational Theory of Complexity" (DTC), as it was dubbed by Fodor (1971; for more details, see Fodor, Bever & Garrett 1974:320-328; Greene 1972). To put it in a nutshell, DTC maintained that the process of the perception of a sentence would be more difficult (and therefore longer) depending on the number of transformations needed to generate its surface structure from its deep structure. Hence a passive sentence would require more time to be processed than the corresponding active one, but lesser time than the corresponding passive-negative, and so on. The results of the first experiments seemed to corroborate DTC; see, e.g., Miller & McKean (1964); Gough (1965); Savin & Perchonok (1965). Later works (e.g., Bever 1970; Fodor 1971; Fodor & Garrett 1966), however, showed that: 1) some transformationally derived sentences (e.g., a reduced relative such as 'the red bucket fell over') were processed faster than the corresponding untransformed ones ('the bucket that was red fell over'). 2) In cases in which the sentence "with more transformations" was perceived as more complex than the corresponding one "with less transformations", one might suppose that the cause of such a greater complexity was not due to the greater number of transformations, but to other reasons. For example, a negative sentence would be perceived as more complex than the corresponding affirmative one since it is more difficult for a speaker to imagine a non-existing state of affairs.

The failure of DTC did not especially worry Chomsky, since he had never considered "external" data, such as those supplied by the analysis of linguistic perception, superior to those supplied, for example, by the judgments of native speakers. Hence, if this last kind of data and the overall deductive structure of the theory spoke in favor of a transformational analysis, there was no reason, for Chomsky, to give it up. Moreover, it could be maintained that the perceptual processing of sentences does not concern competence, but performance: and a performance model need not be isomorphic to a competence model. However, not all generativists shared these views, and this was another cause
of the proliferation of syntactic theories. For example, Bresnan (1978:2), recalling the empirical falsification of DTC, wrote that “the proper conclusion to draw about the familiar model of transformational grammar presented in Chomsky’s *Aspects of the Theory of Syntax* may simply be that it is psychologically unrealistic”.

Several theories diverging from the Chomskian framework from the seventies (such as Lexical-Functional Grammar by Bresnan and her associates) were also characterized by a concern for psychological reality. However, Chomsky followed his original path: generative grammar was in itself psychologically real since it formulated the hypothesis about a mental object, language, or more exactly, the ‘language faculty’, namely that “component of the mind/brain that yields knowledge of language given presented experience” (Chomsky 1986a:4).

1.3 Some debated points: empirical issues

The issues to be dealt with in the present section are not less principled than those discussed in the preceding one: for they concern some equally fundamental points of syntax. The main difference is that the topics discussed above concern syntax as a whole, its role within general linguistic theory, and its status, as a purely formal or rather as a psychological discipline. The topics to discuss now, instead, are in some sense “internal” to syntactic analysis. Obviously, not every phenomenon which is a problem for a given syntactic theory is by necessity a problem for all of them: as is well known from contemporary philosophy of science, a phenomenon acquires its meaning only within a specific theoretical framework. In general, the following set of issues seems to have been treated by the majority of the syntactic theories of the last two or three decades: (a) the analysis of constituent order and of constituent structure, with its implications for the analysis of several phenomena, beginning with the definition of grammatical relations; (b) the respective roles to assign to the different components of grammar: transformations, PS-rules and the lexicon.

The assumption of constituent structure as the starting point of syntactic analysis did not mean that all linguistic theories shared the Chomskian *theoretical interpretation* of constituent structure. That is to say, while for Chomsky and his followers an analysis of syntactic structures in terms of linearly and hierarchically ordered constituents is both necessary and sufficient, other theories were (and are) very far from accepting a similar view. For example, both Curry’s (1961) categorial model and the generative-categorial model worked out by the Russian linguist Sebastian K. Šaumjan (see, e.g., Šaumjan 1965) assumed that deep structure is linearly unordered. Chomsky (1965:221fn.34) referred to such proposals, but he discarded them on the basis of the argument that such an allegedly unordered structure should be converted into an ordered
structure, to which transformations would apply. Hence the postulation of an unordered deep structure would bring about an unnecessary complication. Nevertheless, the idea of an unordered deep structure also gained acceptance with other linguists, especially in connection with the problem of the definition of grammatical relations.

In the Chomskian model, even grammatical relations such as ‘subject’, ‘object’, etc., were derived from their hierarchical-linear representation: given a deep structure phrase marker, ‘Subject-of’ was defined as the NP directly dominated by the category S; ‘Predicate-of’, as the VP directly dominated by the category S; ‘Direct-Object-of’, as the NP directly dominated by the category VP; ‘Main-Verb-of’, as the V directly dominated by the category VP (see Chomsky 1965:71; analogous definitions, in formalized terms, can be found in LSLT:212ff.). This derivative conception of grammatical relations was a radical innovation of the Chomskian model; it did not meet with general agreement. Many syntactic theories continued to assume grammatical relations as primitive, rather than derivative, concepts: this was the case for tagmemics and several forms of functionalist syntax, and it was also the basic tenet of a theory stemming from the generative framework, namely Relational Grammar (cf. 9.4.3). Chomsky’s ‘configurational’ definition of grammatical relations had two main consequences: (a) it avoided any reference to a possible semantic interpretation of grammatical relations, i.e. ‘subject’ so defined was not in any way identified with ‘agent’, or ‘object’ with ‘patient’ or ‘goal’, etc.; (b) the highest level analysis of the sentence ended up being binary, i.e. partitioned into a subject and a predicate, and therefore in agreement with the traditional, “Aristotelian” view. Both of these conclusions were rejected by many syntacticians, even by some belonging to the generative group, the first of whom was Fillmore.

Fillmore’s ‘Case Grammar’, first proposed in Fillmore (1968) and subsequently revised and developed by Fillmore himself and several other scholars (cf., e.g., Fillmore 1977; Anderson 1971; 1977; Starosta 1988) represented a really radical break with the preceding generative tradition. The first step taken by Fillmore was to distinguish between ‘pure’ (or ‘configurational’) relations on the one hand and ‘labeled’ or ‘mediated’ relations on the other. The former hold “between grammatical constituents expressible in terms of immediate domination” (Fillmore 1968:16). The latter kind of relations are those “of an NP to a sentence, or to a VP”, e.g. those labeled by a category such as ‘Manner’, ‘Location’, etc. Fillmore maintained that even relations such as ‘Subject’, ‘Object’, etc., that are represented as purely configurational in Chomsky (1965), actually derive from underlying labeled relations. This assumption had two immediate consequences: (a) the category VP was eliminated and (b) the
relation ‘subject’ was defined as a purely surface structure phenomenon (cf. Fillmore 1968:17). A further corollary was the questioning of the traditional analysis of the sentence into subject and predicate: on this point, Fillmore (ibid.) referred to Tesnière’s position, which had denied any legitimacy to the analysis of the sentence into subject and predicate, by considering it as an unwarranted transfer of logical categories to grammar (see above:6.2.2). Fillmore’s reference represented a real rediscovery of Tesnière: since then, the ideas of the French linguist have become the source of an increasing number of new syntactic theories (cf., e.g., below:9.3.1). To a certain extent, they were also taken up in the later developments of the Chomskian model (see below:10.3.2).

In Fillmore’s view, the ‘basic structure’ of the sentence, “consists of a verb and one or more noun phrases, each associated with the verb in a particular case relationship” (Fillmore 1968:21). “Each case relationship occurs only once in a simple sentence” (ibid.). Fillmore’s use of the term ‘case’ refers to an “underlying syntactic-semantic relationship” (ibid.), while the particular expressions of this relationship in a given language or another are dubbed ‘case forms’ (Fillmore credits with this terminological distinction F. Blake 1930). Within the basic structure of the sentence, Fillmore distinguishes between ‘proposition’, i.e. “the array of case relationships”, and ‘modality’, namely elements such as “negation, tense, mood, and aspect” (Fillmore 1968:23). The elements of the basic sentence structure are unordered (cf. p.24fn.30). The impact of Fillmore’s article was enormously greater than that of Saumjan’s works, mainly since it was written in English rather than in Russian. Thereafter the assumption of an unordered basic structure gained acceptance among several other syntacticians.

The assumption that deep structure is linearly ordered also encountered some problems in the domain of cross-linguistic comparison. Greenberg’s (1966[1963]) overview had clearly proved the existence of three ‘dominant orders’: VSO, SVO, and SOV. Such orders should surely be considered as surface orders: but which order should be assumed for deep structure? Should a universal ‘deep order’ be postulated, or does the order of deep structure constituents differ across languages? Such a problem was also raised by Chomsky’s definition of grammatical relations, since they were derived from the hierarchic-linear organization of deep structure, as has been just seen. Now, consider the case of VSO languages: they apparently do not contain any ‘Verb Phrase’ constituent, since the verb is separated from the direct object. But, if VSO were also the deep structure order, how could ‘Predicate’ be defined for such languages? Furthermore, there exist languages that exhibit two different surface orders even for declarative sentences: Dutch and German, which show
SVO order in main clauses and SOV in subordinate ones, are a case in point. In such a case, which order should be assumed as the deep structure one? Another related problem was to find an explanation for Greenberg's 'harmonic' orders, namely, e.g., NG/Preposition/VO vs. GN/Postposition/OV (cf. above: 8.3.2). The discovery of such an explanation was the main interest of typologically-oriented syntactic theories, as was easy to foresee (cf. below: 9.3.2), but since the eighties it has also begun to intrigue linguists belonging to the 'Chomskian program' (cf. below: 10.3.2).

The analysis of constituent structure, namely of the notions of 'head', 'modifier', etc., and the related topic of the classification of constructions into 'endocentric' vs. 'exocentric' ones played a fundamental role for American structuralism (see above: 7.1.1); however, one may note that it did not find ample space in the first decade of generative syntax. Actually, the relevant notions are formally defined in LSLT (213-214), but the problem did not receive any special attention in other works by Chomsky until after Chomsky (1965). Postal (1964:16) formulates a restriction on phrase-structure rules which has some important consequences for the definition of grammatical constructions. It "prevents not only the expansion of A into A but also the expansion of A into any string containing A". The effect of this restriction is that PS-rules cannot generate coordinate structures nor endocentric constructions; that is to say, rules as the following ones are not allowed:

(1) a. NP → NP and NP
    b. NP → Adjective NP

The terms 'head' and 'modifier' occur in Katz & Postal (1964). Moreover, Katz & Postal (p.49), although in a different context, also speak of Noun and Verb, etc., as "heads of the major categories". This was the path consistently followed in Chomsky (1970a), as was seen in 8.4.5, above, which therefore marked the beginning of a new age of research. For several of the syntactic approaches since the late sixties concentrated on the internal structure of constituents and on the notion of head-modifier relations. In some cases, such investigations brought about a refinement of the relevant notions and the building up of a new and more explicit theory of constituent structure, as happened with Chomsky's 'X-bar theory' (cf. above: 8.4.5 and below: 10.2.3). In some other cases, the theoretical notion of constituent was put into doubt, as with Hudson's 'word grammar' or with Gross' 'neo-Harrisian' framework, although they reached very different conclusions. Other syntactic theories continued to adopt

2 Chomsky (1975b:48fn.21) writes: "Occasionally, it has been argued that under the LSLT procedure, all endocentric constructions are excluded. This is incorrect, however".
the notion of constituent without especially entering into the discussion of its internal structure and/or its theoretical legitimacy.

Let's now turn to the second issue listed above: the functions of transformations and other components of grammar within syntactic analysis. The different weight assigned to transformations in LSLT and contemporary works and in Chomsky (1965) as well as the reasons for these changes have been described in 8.4.3. Despite all such differences, some phenomena still needed a transformational treatment or a treatment equivalent to it, such as, for example: (a) paraphrase relations between sentences; (b) long-distance grammatical relations; (c) some special distributional facts. Typical instances of (a) are the paraphrase relationships between active and passive sentences, or between pairs of sentences such as 'John gave a book to Mary' and 'John gave Mary a book' (the so-called 'double object', or 'indirect object', transformation), or even between a Noun Phrase such as 'the tall boy' and a sentence such as 'the boy is tall'. Case (b) is exemplified by such sentences as 'Who do you think that John saw?', where the object of 'see', namely 'who', is not adjacent to the verb which governs it, i.e. 'saw'; if no Ross's 'island' occurs (see above:363), this distance between the involved elements can be extended at will: 'Who do you think that Bill said that John saw?', 'Who do you think that Bill said that Fred believed that John saw?', etc. This is the reason why such phenomena were dubbed 'unbounded dependencies'. As can be easily noted, transformations also account for the phenomenon of discontinuous constituents (cf. above:7.3.5) in cases (a) and (b). Case (c) has several subcategories: for example, it accounts for the occurrence of 'do' in questions and in negative sentences; but it also accounts for the particular distribution of pronouns vs. reflexives (cf. above:348). Many syntactic theories of the second half of the twentieth century sought an explanation for such phenomena, even if not necessarily in transformational terms, and still more rarely by assuming an opposition between 'deep' and 'surface' structure.

Several theories originating from the generative source aimed at drastically reducing the role of transformations. In general, these same theories assigned many more tasks to the lexicon than it had in earlier models of generative grammar, such as LSLT or Chomsky (1965). On the other hand, some other theories continued to resort largely to transformations and to keep the lexicon marginal. As was seen in 8.4.3, above, the treatment of the lexicon had already undergone major changes between LSLT and Chomsky (1965). Nevertheless, the more or less explicit attitude was still to consider the lexicon as "the locus of exceptions", as opposed to syntactic rules, conceived of as "the locus of regularities". Chomsky (1970a) marked a reversal of such an attitude (cf. above:8.4.5): the role formerly assigned to transformations in generating nomi-
nalized constructions was largely devolved to lexical rules. Generative Semantics chose the opposite option: it increased the scope of transformations and assumed that they also accounted for the occurrence of lexical items (cf. below:9.4.1).

The program of the reduction of the transformational component characterized some schools which developed from the late seventies onwards, e.g., Lexical-Functional Grammar or Generalized Phrase Structure Grammar, which wholly abandoned transformations; this choice forced them to adopt some other means to account for discontinuous constituents and for long-distance relations (cf. below:9.4.3). The space assigned to transformations was narrowed even within the developments of the Chomskian model, but not totally eliminated. Transformations were still kept as the proper means to account for long-distance relations, while they were given up in other instances, e.g. as an explanation of the distribution of pronominal elements. Moreover, the essential aim of Chomsky and his followers was to restrict the operation of transformations: namely, to reduce their variety to a small number of types, or possibly to a single type, and to define the exact constraints they must obey, as will be seen in ch. 10, below.

2. Natural languages as formal languages: Montague Grammar

In 8.2. above, reference was made to the attitude of “low evaluation” of natural language by most logicians in the first half of 20th century. It was seen that such an attitude involved the assignment of a “corrective” meaning to the phrase ‘logical form’ and a lack of interest in natural language analysis. Ajdukiewicz and Reichenbach represented exceptions to such an attitude, but their work on natural language did not really succeed in modifying it. A couple of decades later, the situation changed drastically, especially on account of Richard Montague’s work. As Barwise & Cooper (1981:204) say, Montague’s “revolutionary idea” was to break away from the views of his own teacher Tarski on this subject, and to start studying natural language using the same means which had previously been considered adequate only for formal languages. Tarski had laid the foundations of logical semantics as ‘truth-conditional’ semantics, that is, he had based semantics on the notion of ‘truth’ (see especially Tarski 1935; 1944). However, he had also stated that an adequate definition of ‘truth’ for natural languages is impossible, since they are ‘semantically closed’

\[3\] As will be remembered (cf. above:351), even Chomsky’s (1965) ‘standard’ theory argued that lexical insertion rules are transformational in nature. Such rules, however, were assumed to belong to a special restricted kind of transformation, named ‘local’ transformations. Generative Semantics, by contrast, assumed that transformations inserting lexical items and those accounting for syntactic constructions are of one and the same type.
(which is to say, they can express anything, and this would be an unavoidable source of paradoxes). Montague’s program was fully in line with Tarski’s: he regarded “the construction of a theory of truth (..) as the basic goal of serious syntax and semantics” (Montague 1974[1970a]:188). This view of semantics as based on the notion of truth contrasts with linguistic semantics both in its traditional conception going back to Bréal (1897) and in its much more recent treatment within the generative framework, e.g. by Katz & Fodor (1963), or Katz & Postal (1964). ‘Logical’ semantics in the Montague style ‘interprets’ the expressions of a given (formalized or natural) language against a ‘model’, i.e. in a set of entities: such entities are individual objects for individual expressions, relations among objects for predicative expressions, etc. ‘Linguistic’ semantics translates the expressions of a natural language into another language, e.g. Katz and Fodor’s so-called ‘Markerese’. Moreover, Montague’s treatment of natural language had as its goal the development not of a syntactic, but of a semantic theory, syntax merely being an “auxiliary discipline” to semantics (cf. Montague 1974[1970b]:223fn.2). This marks the first important difference between Montague’s syntax and several other syntactic theories investigated in this volume, especially those belonging to the generative trend, with the exception of Generative Semantics. Unlike Generative Semantics, however, Montague had no interest in the psychological reality of his linguistic theory: “according to Montague the syntax, semantics and pragmatics of natural language are branches of mathematics, not of psychology” (Thomason 1974:2). Despite such an avowed self-restriction to the logicians’ typical concerns, Montague’s work on natural language, developed in a few articles written at the end of the sixties (Montague 1970a; 1970b; 1973), and interrupted by Montague’s violent death in 1971, aroused a great interest among many linguists, especially those formerly belonging to the generative field. The phrase ‘Montague Grammar’ is therefore ambiguous: it can refer both to Montague’s own work on natural language and to the systems of syntactic and semantic analysis developed by several scholars after his death. In what follows, these two different stages of Montague Grammar will be discussed in turn.

Unlike Tarski, Montague assumed that a truth-conditional semantics was possible also for natural languages, and not only for formalized ones. This radical change of perspective was surely due to the developments in symbolic logic during the decades separating the two logicians, which made the attempt at giving a scientific description of natural language appear not to be as hopeless as it was for Tarski and other scholars contemporary with him. One such development was the replacement of Tarski’s notion of ‘absolute’ truth with that of ‘truth relative to a model’, which makes it possible to speak of a natural language by using this same language, which, in a Tarskian perspective, inevitably
led to paradoxes. Another important development was that of so-called ‘intensional logic’. The opposition ‘intension’ vs. ‘extension’ was a time-honored one within the history of logic, which can be traced back to Port-Royal Logique (Arnauld & Nicole 1683[1662]:Part I, chapter 6). In that work, the ‘intension’ of ‘ideas’ was opposed to their ‘extension’. The intension was the set of attributes of a given idea “which cannot be removed without destroying it”: e.g., given the idea of a triangle, its extendedness, its shape, its having three sides, its having three angles, etc. The extension of an idea, on the other hand, is the set of objects to which it is applicable: the extension of ‘triangle’ is the set of all triangles. Carnap (1947) resumed such an opposition to deal with a topic which had represented a puzzle for the founders of modern logistics, namely the fact that in some contexts, expressions having the same denotations cannot replace each other *salva veritate*. Such contexts, are, for example, those induced by ‘modal’ expressions (‘possible’, ‘necessary’). To illustrate the point, consider the equation: ‘the number of planets = 9’. One could think that ‘the number of planets’ is freely replaceable by ‘9’ and vice versa: ‘the number of planets is higher than 6’ and ‘9 is greater than 6’ are both true. Consider, however, the two following sentences:

(2) It is necessary that 9 is larger than 6
(3) It is necessary that the number of planets is larger than 6

It is clear that, while (2) is true, (3) is false: it is a logical truth that 9 is larger than 6, but it is not a logical truth that the number of planets is larger than 6: there could well be ‘possible worlds’ where the number of planets is equal to 6 or lower than 6 (the phrase ‘possible world’, which goes back to Leibniz, has become a key word in intensional logic). Carnap solved the puzzle by stating that modal expressions bring about ‘intensional’ contexts, where the notion of truth has to be defined in a more complex way than in standard ‘extensional’ contexts. He also distinguished between an ‘intension’ and an ‘extension’ for

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4 The original Port-Royal terms were *compréhension* vs. *étendue*. In the 19th century, William Hamilton replaced *compréhension* with the technical term ‘intension’ (cf. Kneale & Kneale 1962:318).

5 Problems analogous to those exemplified by (2) and (3) also occur with the so-called ‘propositional attitude’ verbs (as they were dubbed by Russell 1940), namely ‘believe’, ‘assert’, ‘hope’, etc. Cf. the following pair of sentences:
(a) Kepler was unaware that the number of planets is larger than 6
(b) Kepler was unaware that 9 is higher than 6
In fact, Kepler was really unaware that the number of planets was larger than 6 (Uranus, Neptune and Pluto had not yet been discovered in his time), but it is certain that he was perfectly aware than 9 is larger than 6. Montague treated contexts induced by propositional attitude verbs as a further case of intensional contexts. Carnap’s (1947) analysis was partly different; I will not enter into the details here.
sentences, for names and for properties (‘predicators’, in his own terms). The extension of a sentence was defined as its truth-value, namely truth or falsity, and its intension as the proposition expressed by it; the extension of a name as the individual denoted by it, and its intension as its ‘individual concept’; the extension of a predicator as the class of individuals to which it applies, and its intension as the property which it expresses. Carnap’s insights were subsequently developed by several other scholars, Montague being one of the most important. The details of such developments, as well as the formal apparatus of Montague’s intensional logic will not be investigated here (for a systematic presentation see, e.g., Dowty, Wall & Peters 1981). I will limit myself to remark (following Thomason 1974) that the means provided by intensional logic allowed Montague to give an adequate characterization of several aspects of natural language without “regimenting” it into a “corrective” logical form: the opposite path was that followed by such logicians as Russell, but also by linguists contemporary to Montague, e.g. the followers of Generative Semantics (see below:9.4.1). In all such cases, “formalization was a process of purification and logical form was severed from syntactic form” (Thomason 1974:42). By contrast, Montague Grammar directly interprets a syntactic structure which is essentially analogous to the surface structure of ‘standard’ generative grammar (which, unlike generative grammar, is not transformationally derived, but is directly generated by a kind of Categorial Grammar, as will be seen in a moment).

Since syntax is viewed by Montague as “a preliminary to semantics” (see above), it is in a sense conditioned by semantic concerns. More specifically, the construction of Montague Grammar strictly follows what has been called the ‘syntax-semantics parallelism’: “for each syntactic rule, there is a corresponding semantic rule” (Thomason 1974:32). In other words, there cannot be any syntactic rules which generate any syntactic object without a semantic interpretation. In what can be considered Montague’s most mature essay - Montague (1973) - semantic interpretation does not directly apply to the natural language investigated, but to a ‘translation’ of it into the language of intensional logic (cf. Montague 1974[1973]:256). The system of syntactic analysis which is fittest to develop syntactic rules in parallel to semantic ones is that of Categorial Grammar. Montague therefore referred to Ajdukiewicz’s work, but he also introduced some modifications to the original system of the Polish logician. First of all, Ajdukiewicz’s primitive syntactic categories are reinterpreted as semantic categories (Montague 1974[1970]:189): more specifically, Ajdukiewicz’s $n$ and $s$ (cf. above:315) correspond to $e$ and $t$ in Montague Grammar, respectively, where $e$ (i.e., ‘entity’) is the category of “entity expressions (or individual expressions)” and $t$ (i.e., ‘truth’) that of “truth value expressions (or
declarative sentences)” (Montague 1974[1973]:249). Other categories are defined on the basis of the primitive categories by means of the ‘slash’ notation, as in Ajdukiewicz’s or Bar-Hillel’s models: so, for example, $t/e$ (also labeled $IV$) is the category of ‘intransitive verb phrases’, namely the predicates. Another of Montague’s innovations with respect to Ajdukiewicz’s original system is the ‘double slash’ notation: it indicates different syntactic categories which correspond to the same semantic category (or ‘semantic type’). An instance of such categories is $t//e$, which corresponds to ‘common noun’ in traditional grammar ($CN$, in Montague’s notation). Both $IV$ and $CN$ belong to the same semantic type, which is labeled $<e, t>$ by Montague: in fact, both denote functions from individuals (e) into truth values (t). Their syntactic form, however, is plainly different: such a difference is registered by the use of single vs. double slash. A consequence of the partially different treatment of syntactic categories in Ajdukiewicz and Montague’s systems are the respective roles of predicate and subject (cf. Partee 1976[1973]:60). Indeed, while, according to Ajdukiewicz, the functor is the predicative verb ($s/n$) and the argument is the subject noun ($n$), the relationship is inverted according to Montague: the subject is the functor ($t/IV$) and the predicate is the argument ($IV$).

The remaining categories introduced in Montague (1974[1973]:250-251) are the following ones (their labels and their categorial composition are given within brackets): ‘terms’, namely noun phrases ($T$, i.e. $t/IV$); transitive verbs ($TV$, i.e. $IV/T$); verb phrase adverbs ($IAV$, i.e. $IV/IV$); prepositions ($IAV/T$); sentence-modifying adverbs ($t/t$); ‘sentence-taking verb phrases’, namely verbs such as ‘believe’ ($IV/t$); ‘IV-taking verb phrases’, namely verbs such as ‘try to’, ‘wish to’ ($IV//TV$). Items belonging to any of the above defined categories are called by Montague ‘basic expressions’: they constitute the ‘lexicon’ of the concerned language. Languages may differ from each other according to the categories of basic expressions that they contain.

Basic expressions may be combined by means of ‘syntactic rules’, which bring about a set of constructions. Some of these rules are more sophisticated than the simple ‘concatenating’ rules of ‘pure’ categorial grammar (as noted by Casalegno 1997:190): e.g., the rule which generates clauses (rule S4, in Montague 1974[1973]) introduces the inflected third person singular present verb. Or the rule accounting for noun phrases (S2) has three subcases, specifying, respectively, whether they are introduced by the universal quantifier ‘every’, or by the definite determiner ‘the’, or by the indefinite determiner ‘a’, or ‘an’, according to the initial sound (a consonant or a vowel) of the first word following it. By means of this extension of the simple concatenating procedure, Montague is able to reach a higher descriptive adequacy than ‘classical’ forms.
of Categorial Grammar, even if his goal is always explicitly confined to the description of just some ‘fragments’ of English.

Another domain where Montague’s approach proved successful was the analysis of the so-called ‘scope ambiguities’ of quantifiers. Consider, for instance, a sentence such as the following one:

(4) Every man loves a woman

(4) can mean either that every man loves a different woman, or that there is a given woman (e.g., Gina Lollobrigida) who is loved by every man. Given Montague’s assumption of ‘syntax-semantics parallelism’, syntax must be able to account for this dual semantic interpretation. The notion to which Montague resorts to achieve this goal is that of ‘analysis trees’: an analysis tree records the way a given construction is brought about, by numbering each syntactic operation resorted to. In the case of the first interpretation of (4), namely that which states that every man loves a different woman, the rules involved are the following three: that forming a noun phrase (S2, in Montague 1974[1973]), that forming a verb phrase from a transitive verb and a noun phrase (S5), and that forming a sentence from a subject noun phrase and a predicate verb phrase (S4). The analysis tree corresponding to the first reading of (4), above, will therefore have the following form:

(5)  

Every man loves a woman, 4  

| every man, 2 | loves a woman, 5 |

| love | a woman, 2 |

| a | woman |

The analysis tree corresponding to the second reading of (4), namely that there is a given woman who is loved by every man, would be obtained by applying the ‘rule of quantification’ (S14 in Montague 1974[1973]), which (informally speaking) says that, if a given entity \( \alpha \) is a noun phrase and another entity \( \beta \) is a sentence containing a pronoun, \( \gamma \) is a sentence generated by replacing all occurrences of the pronoun by \( \alpha \). Rules S4, S2, and S5 apply as in tree (5). As can be seen, even rule (S14) is not a concatenation rule (cf. Casalegno 1997:201). The result is tree (6):
What kind of objects are Montague's analysis trees? According to Partee (1976[1973:61) they are “more like” T-markers of early transformational grammar than Phrase-Markers: ‘T-markers’ represent the sequence of transformations by means of which a given sentence is derived from its kernel (cf. LSLT:73). As a matter of fact, analysis trees do not represent an immediate constituent structure, therefore they are not Phrase-markers. On the other hand, however, since Montague Grammar is not transformational, the analogy between analysis trees and T-markers cannot be pushed too far. All that can be said with certainty is that analysis trees represent some different possibilities of building up a syntactic structure, by means of an apparatus of unordered rules.

Let's now turn to the extensions of Montague Grammar worked out, after Montague's death, to deal with the classical topics of transformational grammar. Montague Grammar looked especially attractive to several generative linguists because of its rigorous formal apparatus: the drive towards the formalization of linguistics and especially of syntax, initiated by Chomsky in the fifties, appeared to reach its highest point by systematically developing Montague's approach. Of course, the adoption of such an approach meant the abandonment of any interest in the psychological reality of grammars: but plainly not all generative linguists had a real interest in this topic. The fact that Montague Grammar completely abandons transformations, basing semantic interpretation on surface structure alone, was another of its attractive points. The study of the formal properties of grammars, which had its roots in the research of Chomsky, Miller and Schützenberger during the fifties and the sixties, had proved that Phrase Structure Grammar was not adequate to describe natural languages, and hence it had to be supplemented with a transformational grammar. Further research (see especially Peters & Ritchie 1971; 1973), however, had shown that, with respect to phrase-structure grammars, “transformational grammars are inadequate for just the opposite reasons. They are too powerful and do not sufficiently delimit the class of natural languages” (Bach 1974:203). Given such results, therefore, a model of syntax which did not resort to trans-
formations, unlike what happened in the fifties and in the early sixties, deserved attention.

The obvious problem was how to account for the whole set of constructions which the ‘standard’ approach dealt with in transformational terms, such as Passive, or ‘Subject Raising’, or ‘wh’-questions, etc.: Montague’s analysis of some ‘fragments’ of English had not faced any of these. Another problem was that of making Montague’s truth-conditional approach applicable also to non-declarative sentences: for how could one say that interrogative or imperative sentences have a truth value? A solution to this problem (which was to become standard within the Montague Grammar framework) was proposed by Hamblin (1976): the semantics of questions was defined on the basis of the set of their true answers. Such a set, in the case of a ‘yes’ / ‘no’ question, would be the one-member set ‘yes’ or ‘no’, according to which one is the true answer. In the case of a ‘wh’-question, like, e.g., ‘who walks’, it would be the set of all true propositions ‘Mary walks’, ‘John walks’, etc. The semantics of questions is therefore defined in truth-conditional terms.

Among the first systematic attempts to give a non-transformational account of constructions formerly explained in transformational terms, one can quote Partee (1976[1973]; 1975), Karttunen (1977), Dowty (1978), Bach (1980); a good survey of such proposals, in partially adapted terms, can be found in Cooper (1980:29-43). The strategy adopted essentially consisted in enlarging the number of ‘basic expressions’ and of ‘syntactic rules’, by means of new syntactic operations applicable to already introduced expressions. Take, for example, passive constructions: given three categories, namely ‘transitive verb’, ‘preposition’, and ‘term’ (i.e., noun phrase), a new class of ‘basic expressions’ is introduced, ‘passive phrase’, by taking the past participle of a transitive verb, the preposition ‘by’ and one ‘term’, and by putting them in that order. Passive phrase has the categorial symbol \( t///e \): if one compares it with the symbol for ‘intransitive verb phrases’ (i.e., of predicates), namely \( t/e \), it immediately becomes apparent that the two categories differ only from the syntactic point of view as indicated by the different number of slashes. And, as a matter of fact, both ‘passive phrases’ and ‘intransitive verb phrases’ combine with expressions denoting an ‘entity’ \((e)\) to give a sentence, namely the denotation of a truth value \((t)\). In an analogous vein, proponents of Montague Grammar were able to account for other classes of constructions, such as double object ones, or interrogative sentences, in non-transformational terms.

Montague Grammar has therefore been able to reach the same descriptive results as ‘standard’ generative grammar, by using a more restricted and more complete formal apparatus: more restricted, because it did not resort to transformational rules, which had proved to be too powerful a device; more com-
plete, because it treated not only syntax but also semantics in a formalized way. Hence Montague Grammar became especially attractive for linguists who were mainly interested in the formalized aspects of generative grammar: the former theory appeared to wholly implement the program only sketched by the latter. On the other hand, since the early seventies, the evolution of ‘standard’ generative grammar (what will be called the Chomskian program; see ch. 10) has shown a diminishing interest in its formalization of natural language analysis, and an increasing interest in its investigation as a human cognitive capacity. Therefore the two approaches, while superficially dealing with the same set of problems, have actually pursued very different goals.

3. Functional and typological theories of syntax

3.1 The galaxy of functionalism

In section 9.1.2, the assumption that language structure is conditioned by its function as a means of communication has been singled out as the common tenet of all functionalist schools. Some explicitly functional approaches to syntax have been investigated in the second part of the present volume. Remember, for example, Gardiner’s opposition between ‘syntactic form’ and ‘syntactic function’ (cf. 5.1.2), Frei’s and Mikus’ ‘functional linguistics’ (5.2.1; 5.3.1), but especially the Prague school (cf. 5.2.2; 5.3.2), to which Martinet has to be added (cf. 5.3.3). The term ‘function’ was also employed by scholars such as Bloomfield and the glossematicians (cf. 5.2.3; 5.2.5), but with another meaning: it referred to the internal network of syntactic and morphological relations, without reference to their role within the speech communication process. ‘Functionalism’ in the former meaning was essentially extraneous to American structuralism, as well as to generative grammar. By contrast, a decidedly functional view of language in the United States was held by tagmemics (cf. 8.3.1). Since at least the seventies, the opposition between a ‘formal’ vs. a ‘functional’ view of language and especially of syntax has become standard: generative grammar, or, more exactly, the Chomskian version of it, appeared as the typical ‘formalist’ theory, while the label of ‘functionalist’ was applied to a variety of theories.6


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6 A useful collection of papers representative of several functionalist trends is Dirven & Fried (1987).
former kind of functionalism, while the latter type would be represented by several approaches “mainly of American origin”, like those of Givón or Haiman (see, e.g., Givón 1984; 1991; Haiman 1985). The topic of the present section will be “theory-driven” functionalist theories; as far as the Prague school is concerned, I will only deal with ‘Functional Generative Description’ (FGD) of Petr Sgall and his associates (see, e.g., Sgall 1964; 1967; 1993; Sgall, Hajičová & Panenová 1986; Hajičová 1996); the conceptions of other Prague scholars, such as Firbas or Daneš, have been presented in 5.3.2, above. The reason for separate treatment is due to the fact that Sgall’s syntactic views are influenced by some aspects of generative grammar, while Firbas’s or Daneš’ are essentially extraneous to it.

As a matter of fact, not only FGD, but also FG and even SFG were influenced by the generative approach to linguistics, although to a different extent and with different outcomes. Halliday’s SFG originated independently from ‘standard’ theory, but its references to Fillmore’s Case Grammar are explicit and not of a minor import; since Fillmore’s model was conceived as an alternative to standard generative grammar, SFG is therefore connected to this latter theory, albeit in an indirect and critical way. FG was initially presented as an explicit alternative to generative grammar: already in his dissertation, Dik (1968) pleaded (a) for a non-transformational grammar, (b) against the treatment of grammatical relations as derivative concepts, as in Chomsky (1965), (c) for a ‘semantically-based’ syntax, and (d) for a ‘pragmatically-based’ semantics. These points formed the basis of Dik’s model of Functional Grammar, first presented in Dik (1978), and then revised in Dik (1997a[1989]; 1997b); due to Dik’s death in 1995, the two last references were edited by K. Hengeveld. FGD explicitly borrowed some technical concepts and devices from generative grammar, such as tree diagrams. FGD proponents did not reject generative grammar as a whole, but maintained that it was too partial an approach to language; on the other hand, they considered exclusively pragmatic approaches to be partial as well. Sgall (1993:351-352) illustrates such both kinds of incompleteness by resorting to a metaphor, that of the building: generative grammar (and Montague Grammar as well) only constructs the basement, “without realizing that it is a basement rather than a whole house”, while “certain pragmatically oriented trends would like to erect the building without any basement”.

Despite such differences, all “theory-driven” functionalist schools share an important common core, the main points of which are the adoption of (a) Functional Sentence Perspective and of (b) Tesnière’s valency grammar. The

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7 To these three theories, Role and Reference Grammar (RRG) may be added as a further “theory-driven” functionalist syntactic theory. About RRG, cf., e.g., Foley & Van Valin (1984).
adoption of valency grammar may be direct or mediated through Fillmore’s Case Grammar: the latter is mainly the case with SFG, the former with FGD. Hence the fundamental problem of all “theory-driven” functionalist approaches is to work out a device to explain the relationship between the system of Tesnière’s roles (or Fillmore’s ‘deep cases’) and the grammatical and communicative organization of the sentence. Such a device is worked out within each theory in slightly different ways. Halliday (1970) distinguished three functions of language: the ‘ideational’ function, the ‘interpersonal’ function and the ‘textual’ function. In more recent treatments, such as Halliday (1994[1985]), these are renamed ‘metafunctions’ (the name ‘function’ being reserved for such notions as ‘Agent’, ‘Subject’, or ‘Theme’) and the label ‘ideational’ is replaced by ‘representational’: the ‘representational’ function is said to be connected to the ‘clause as representation’, the ‘interpersonal’ function to the ‘clause as exchange’ and the ‘textual’ function to the ‘clause as message’. Dik’s FG assumes that language has three main components: ‘fund’, ‘underlying clause structure’ and ‘expression rules’; it also distinguishes three kinds of functions, ‘semantic’, ‘syntactic’ and ‘pragmatic’ functions. Prague FGD opposes ‘tecto-grammatical representations’ to ‘surface syntax’.

Halliday defines the ‘ideational’ (or ‘representational’) function as the expression of processes; the elements involved in processes are the process itself, the ‘participant functions’ and the ‘circumstantial functions’. Processes are usually expressed by verbs, participant functions by nouns, and circumstantial functions by adverbs: there are, however, also ‘incongruent’ expressions, such as, for example, nominalizations, where processes are expressed by nouns. The linguistic expression of processes was dubbed ‘transitivity’ by Halliday, who distinguished three types of transitive clauses: ‘action’, ‘mental processes’ and ‘relational’ clauses. Halliday (cf. 1967/1968; 1970) goes on to say that Modern English shows both a ‘transitive’ and an ‘ergative’ pattern of representing processes: the latter is characterized by the fact that the ‘affected’ participant occurs in any clause type (e.g., ‘the ball’ in ‘he bounced the ball’ and ‘the ball bounced’). ‘Ghosts scare Paul’ and ‘Paul fears ghosts’ are instances of such an ergative pattern: ‘Paul’ is the ‘affected participant’, which has the same function in both sentences.

To illustrate the interrelations between what he calls the different functions of language, Halliday resorted to some notions and specifications of psycholinguistic age syntax, explicitly referring to Sweet: ‘logical subject’ is the ‘actor’ and it derives from the ‘ideational function’; the ‘grammatical subject’ derives from the ‘interpersonal’ function; the ‘psychological subject’ from the ‘textual’ function (cf. Halliday 1970:159). Halliday ascribed the grammatical subject to the ‘interpersonal function’ since he saw its task in defining “the communica-
tion role adopted by the speaker” (p.160): e.g., in English, the position of the grammatical subject (before or after the verb) indicates if the sentence is a statement or a question. This is the reason why Halliday also named the grammatical subject ‘modal subject’. As for psychological subjects, Halliday (1970) distinguished two types: ‘psychological subject₁’, which he called ‘theme’, and ‘psychological subject₂’, also called ‘given’. Both were said to belong to the ‘textual’ function: the couple ‘theme’ vs. ‘rhemé’ would form the ‘thematic’ structure, that ‘given’ vs. ‘new’, the ‘information’ structure of the clause (cf. p.163). The distinction between the two kinds of ‘psychological subject’ was due to the fact that ‘theme’ does not always coincide with ‘given’: e.g., in a sentence such as ‘THIS GAZEBO can’t have been built by Wren’, where capitals indicate contrastive stress, the phrase ‘this gazebo’ is the theme (that which is talked about), but is at the same time the new information (cf. ibid.). In Halliday (1994[1985]:299), the couple ‘theme’ ~ ‘rhemé’ is said to be ‘speaker-oriented’, that ‘given’ ~ ‘new’, ‘listener-oriented’. Halliday (1970:161) stated that theme, actor and modal subject “are identical unless there is good reason for them not to be (...). When they are not, the tendency in Modern English is to associate theme and modal subject; and this is the main reason for using the passive”. This sounds reminiscent of Mathesius’ remark (cf. above:5.2.2) that English tends to identify the grammatical subject with the theme much more than Czech.

Let’s now turn to the FG system, and to its distinctions among ‘fund’, ‘underlying clause structure’, and ‘expression rules’. The ‘fund’ of language is constituted by ‘predicate frames’ and ‘terms’. Predicate frames specify the syntactic and semantic properties of a given predicate: e.g., the predicate frame of ‘walk’ will specify that it is “a verbal predicate (...) taking an argument (...) with Agent function, and imposing on that argument the restriction that it be animate” (Dik 1980:52). Functions assigned to arguments are therefore ‘semantic’ functions, in FG terminology. ‘Nuclear predicate frames’ (such as the one just exemplified) only contain ‘arguments’: they may be enlarged with the addition of ‘satellites’ (as can be seen, this distinction between ‘arguments’ and ‘satellites’ corresponds to Tesnière’s one between participant roles and circumstantials). Terms may be ‘basic’ or ‘derived’: in the former case, they are directly supplied by the lexicon and they can be proper names or personal as well as interrogative or relative pronouns. Derived terms are, e.g., noun phrases, derived by means of ‘restrictors’ and ‘operators’: e.g., in a noun phrase such as ‘the old farmer’, the head ‘farmer’ is its first restrictor, the modifier ‘old’ its second restrictor, and the determiner ‘the’ its definite description operator. The insertion of terms into the positions of arguments and satellites of predicate
frames brings about ‘nuclear predications’, i.e. ‘designations of states of affairs’.

The ‘underlying clause structure’ is a ‘layered’ one. The first layer is formed by ‘nuclear predications’. ‘Syntactic’ functions, such as Subject and Object, and ‘pragmatic’ ones, such as ‘Theme’, are ‘added’ to the nuclear predication at later layers. The assignment of Subject and Object represents the different ‘perspectives’ from which the state of affairs expressed by the predication can be presented. Such an assignment of syntactic functions has consequences on the form and order of realized constituents: e.g., in English the Subject will never be introduced by a preposition and will precede the Object, in declarative sentences. Subject and Object functions are not randomly assigned, but they are conditioned by the ‘Semantic Function Hierarchy’: the first candidate to receive the subject function is the Agent, that of the object function the Goal, etc. Pragmatic functions are subdivided by FG into two main classes: ‘external’ (‘Theme’, ‘Tail’) and ‘internal’ functions (‘Topic’, ‘Focus’), where ‘external’ and ‘internal’ are defined with respect to the clause. To illustrate this point, consider the following sentences (from Dik 1997b:329):

(7) My brother I hate
(8) As for my brother, I hate him
(9) I hate him, my brother

In (7), ‘my brother’ is internal to the clause, while in (8) and in (9) it is not (the arguments of the predicate ‘hate’ are ‘I’ and ‘him’): hence FG names it ‘Topic’ in the former case, and ‘Theme’ in the latter one. In (9), ‘my brother’ is the ‘Tail’.

The assignment of all kinds of functions, i.e. semantic, syntactic and pragmatic ones, brings about the ‘underlying clause structure’ (in terms of Dik 1997a,b; they were named ‘fully specified predications’ in Dik 1978). Underlying clause structures (or fully specified predications) are the input of ‘expression rules’. These account for (a) the form of the constituents (including the specification of grammatical elements such as affixes, particles, auxiliaries and determiners, which do not belong to the lexicon); (b) the order of the constituents; (c) the prosodic patterns of the linguistic expressions. The rules determining constituent order are given in terms of ‘tendencies’, which may conflict with each other. Some of them consist in associating given designated positions with given syntactic and pragmatic functions; the outcome is the following ‘general schema’ of ordering patterns (cf. Dik 1980:71):

(10) P2, P1 (V) S (V) O (V), P3

P2 is the position of the theme, P1 that of question-words, relative pronouns, and subordinators: when no such constituents occur, as in (7), it may be used
for Topic or Focus constituents. The brackets around V indicate that it may appear in initial, medial, or final position within the predication, bringing about VSO, SVO, and SVO languages, respectively. P3 is the position of the Tail. The other tendency constraining word order is called ‘language-independent preferred order of constituents’ (LIPOC): it states that “other things being equal, constituents prefer to be ordered from left to right in order of increasing complexity” (Dik 1980:ibid.). Specific orders for each language will be determined by the interaction of the ‘general schema’ (10), with the rules for the constituents which may occupy P1, and with LIPOC.

Within FGD, ‘tectogrammatical representations’ (TRs) play a role analogous to that of the underlying clause structures of FG. TRs are tree-like objects built according to the principles of Tesnière’s grammar. Contrary to the trees of generative grammar, they do not contain any non-terminal nodes, but the ‘governing’ nodes dominate the ‘subordinate’ ones (cf. above:5.2.6); furthermore, the topmost node is the main verb. The TR corresponding to the sentence ‘in Vienna, Jim had a house in the center of the city’ would be the following one (cf. Sgall 1993:354):

![Diagram](image)

Labels ‘Loc’, ‘Act’, and ‘Obj’ indicate the roles of the constituents dominated by the branch close to them: hence ‘in Vienna’ is a locative, ‘Jim’ the actor, and ‘house’ (with its undetermined specifier), the object. ‘Appurt’ denotes the relation (named ‘appurtenance’ by Sgall) between ‘center’ and ‘the city’. As can be seen, the role ‘Loc’ occurs twice. This is perfectly possible, given the reformulation of valency principles by Sgall and his associates: ‘inner participants’ are opposed to ‘free modifications’, and both categories can contain ‘optional’ and ‘obligatory’ elements. The general restriction is that “every obligatory complementation has to be present among the daughter nodes of the given head, any of the optional complementations can be present there, and no inner participant can be present more than once” (Sgall 1993:353). Such a restriction explains why it is possible to have a sentence such as the quoted one with two location modifications, but no sentence with, say, two direct objects.

According to the FGD model, Communicative Dynamism (CD) Hierarchy (see above:5.3.2) and ‘Topic-Focus Articulation’ (TFA) are specified within
TRs. ‘Topic’ and ‘focus’ are defined on the basis of ‘contextual boundedness’: the ‘context-bound’ elements belong to the topic, the ‘non-bound’ ones to the focus. Elements of the TRs are marked by the superscripts ‘t’ and ‘f’, according to their belonging to topic and focus, respectively: for example, in (11) above, if the sentence which it underlies would be read with a normal intonation, ‘Vienna-in’ and ‘Jim’ would bring superscript ‘t’, and all the other constituents the superscript ‘f’. TFA assumes that every sentence has a focus, while some sentences may lack a topic (those corresponding to ‘thetical’ judgements of Brentano’s and Marty’s tradition; cf. above:2.4.1-2.4.2). TFA is brought about according to the following two hypotheses (see Hajicová & Sgall 1987; Hajicová 1994): (a) the Topic-Focus boundary is always placed in such a way that, for any given node A, less dynamic nodes than A belong to the topic, and more dynamic nodes belong to the focus; (b) CD is determined by a ‘systemic ordering’ (SO), which corresponds to a given sequence of free and obligatory modifications. SO is also called ‘deep word order’: this means that the increase of CD is not automatically represented by the surface word order, with the rightmost constituents being always more ‘dynamic’ than those to the left; SO corresponds to the surface word order only if the sentence has an unmarked intonation pattern. CD cannot be simply identified with TFA, since different elements which all occur within the focus may have different degrees of CD. The focus coincides with the scope of sentence negation. In connection with this, definite noun phrases are presupposed if they belong to the topic, not to the focus of the sentence: ‘Our victory was not caused by Harry’ presupposes that a victory took place, while ‘Harry did not cause our victory’ does not have such a presupposition (cf. Hajicová 1973; 1984).

At this point, it is possible to trace a comparison among the treatments of the different ‘functions’ or ‘layers’ of language by the three functionalist schools. The device resorted to in order to describe the ‘ideational’ (or ‘representational’) function (SFG), the ‘underlying clause structure’ (FG) and the ‘tectogrammatical representation’ is a Tesnière-like model of grammar. It is important to note that all three theories neatly oppose semantic roles to grammatical functions: then the role of, e.g., ‘actor’, is clearly kept distinct from the grammatical function of ‘subject’, or the role of ‘beneficiary’ from the grammatical function of ‘indirect object’. This is not always the case in Tesnière (cf. above:7.2.1). Hence “theory-driven” functionalist theories did not simply take over Tesnière’s grammar, but they also improved it in some respects. The treatment of ‘textual’ (SFG), ‘pragmatic’ (FG) or ‘communicative’ (FGD) notions differs in part from theory to theory. The first difference lies in labels: ‘theme’ of the classical Prague school and of SFG is named ‘topic’ by FG and by Prague FGD. However, ‘topic’ is not the same notion for FG, on the one
hand, and FGD, on the other: it is identified with ‘theme’ of the classical Prague school within the latter theory (see, e.g., Sgall 1987:179), while the two notions are kept distinct within FG (cf. above). Furthermore, ‘theme’ and ‘rheme’ (or, respectively, ‘topic’ and ‘focus’) are distinguished from ‘given’ and ‘new’ by SFG, while they are not distinguished by the other functionalist schools. The notion of ‘systemic ordering’ (SO) is not accepted by FG and (implicitly) neither by SFG (cf. Bolkestein 1993:344). Even today, the different functionalist schools do not seem to have found any agreement about the definition and the exact content of the notions of topic, theme, and related ones.

3.2 Developing Greenberg’s insights: from formal to functional explanations

It is now standard among typologists to oppose ‘Greenberg’s approach’ to ‘Chomsky’s approach’ to linguistics, and to syntax in particular (see, e.g., Comrie 1989[1981]:ch.1; Croft 1995:86): the former approach is qualified as ‘inductive’ and ‘functional’, the latter one as ‘deductive’ and ‘formal’. Such an opposition is legitimate from a theoretical point of view, since the vast majority of present day linguists who refer to Greenberg’s seminal work actually adopt an inductive and functional approach. From a historical point of view, however, this does not mean that Greenberg willingly assumed an anti-Chomskian position: he developed his research about universals in full independence of Chomsky’s work on the same subject, and possibly also before it (cf. above:8.3.2). Furthermore, if the most recent developments of typological syntax are functional and based on semantic and pragmatic considerations, by contrast, Greenberg’s (1966a[1963]) essay as well as the early linguistic research inspired by it were decidedly “syntax-oriented” (cf., e.g., Lehmann 1978b:5). The reasons for such a change of perspective are possibly to be found within the development of typological syntax itself, which will be sketched in what follows.

The starting motivation of typological syntax was the attempt to find an explanation for Greenberg’s ‘harmonic’ orders (see above:329). During the seventies, Theo Vennemann (e.g., Vennemann 1976; Vennemann & Harlow:1977) and Winfred P. Lehmann (1973) each proposed a principle to account for them: Vennemann proposed the ‘Consistent Basic Serialization’ (CBS) and Lehmann a specific ‘structural principle’. To state his principle, Vennemann (1976:315) resumed the classical opposition between déterminant and déterminé, or ‘modifier’ and ‘head’, explicitly referring, among others, to the works of Behaghel (1923-32), Trubècekoj (1939b), and Tesnière (1966[1959]), replacing déterminant (or ‘modifier’) with ‘specifier’. CBS reads as follows (Vennemann 1976:615; cf. Vennemann & Harlow 1977:237):

a language has CBS if specifiers (...) either all precede or all follow the specified. A language with CBS is called a consistent prespecifying language (...) if
specifiers precede the specified; otherwise it is called a consistent postspecifying language (...).

This principle is based on the reformulation of the pair of notions ‘specifier’ and ‘head’ in a Categorial Grammar framework: ‘argument’ categories of Categorial Grammar (also called ‘operands’, by Vennemann) correspond to heads, ‘functor’ categories (also called ‘operators’) to specifiers. The head is defined as “that constituent which determines the category of the resulting combination in the sense that its category is either identical to that of the combination or differs from it only by a ‘denominator’” (Vennemann & Harlow 1977:235). An instance of the former case is the category ‘common noun’, viz. c: it may combine with an adjective (c/c) to give another common noun, e.g., ‘old book’. The latter case is exemplified by transitive verb phrases: their head (namely, the transitive verb) has the form (v/n)/n, and it differs from the category resulting from its combination with the object noun phrase (namely, the verb phrase, e.g. ‘follows Mary’) only by its denominator: (v/n)/n vs. v/n. If the categories of the head and of the combination of head and specifier are identical, the specifier is an ‘attribute’: e.g., ‘old’ is an attribute of the head ‘book’ in ‘old book’. If the categories differ by a denominator, the specifier is a ‘complement’: e.g., ‘Mary’ in ‘follows Mary’. In Vennemann’s perspective, however, such a partly different categorial constitution has no effect on word order: both kinds of specifiers must go to the same side of the head in a ‘consistent’ language.

Lehmann’s (1973:48) ‘structural principle’ states that “modifiers are placed on the opposite side of a basic syntactic element from its primary concomitant”. ‘Basic syntactic elements’, in Lehmann’s approach, are verbs and nouns; the ‘primary concomitant’ of a verb (V) is its object noun (O). The modifiers of the verb are elements such as negation, interrogative markers, etc.; the modifiers of the noun are the adjective, the genitive, the relative clause, etc. The prediction of the ‘structural principle’ is that, in VO languages, modifiers of the noun will follow the noun since they are to be located on the opposite side of the verb: hence in such languages the order will be N(oun) A(djective), N(oun) G(enitive), N(oun) R(elative clause), etc. In contrast, in OV languages, all such modifiers will precede the noun, and the order will be AN, GN, RlN, etc. Greenberg’s ‘harmonic’ orders would therefore be explained. As far as verbal modifiers are concerned, the ‘structural principle’ predicts that they will precede the verb in a VO language, while they will follow it in an OV language, and this prediction seems confirmed, at least in ‘consistent’ languages: e.g., in Se-

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8 Hence ‘specifiers’ in Vennemann’s sense covers the meaning of both ‘specifier’ and ‘complement’ within X-bar theory; cf. above:8.4.5.
mitic languages, which are VO, the interrogative particle is sentence-initial; in the OV language Japanese, it is sentence-final.

Both Vennemann’s and Lehmann’s proposals had their roots in formal approaches to syntax: Vennemann’s, as has been said, in Categorial Grammar, Lehmann’s in generative grammar, although with major modifications. Both scholars described word order as a kind of surface phenomenon. For Vennemann, the basic syntactic relation is that of “categorial compatibility”: it “has nothing to do with order” (Vennemann & Harlow 1977:234). Lehmann started from a syntactic model analogous to that of Fillmore’s Case Grammar: he assumed an unordered ‘underlying structure’, consisting of “sentence boundaries, sentence qualifiers, verb and potential object” (Lehmann 1973:49). A rule with phrase-structure format would convert such an unordered string into a linearly ordered one, according to the ‘structural principle’: therefrom VO-languages vs. OV-languages would result (cf. ibid.). Today, the idea of an ‘underlying’ order appears to have been completely abandoned by ‘typological-functional’ approaches to syntax: e.g., Croft (1991:29) stresses that functional theories admit a single level of representation.

The parallels between Fillmore’s and Tesnière’s views of syntax has been remarked on above (9.1.3). And in fact not only Lehmann, but also Vennemann, implicitly assumed a Tesnière-like approach: they did not assign the subject any privileged status within clause structure. Such an approach remained a constant of typological syntax: cf., e.g., Croft (1991:32-33). Vennemann replaced the category s(entence) of Categorial Grammar by means of category v(erb): he stated that such a category refers to what Lewis (1972) called the ‘sentence radical’, namely the simple statement of a ‘state of affairs’. A sentence in its full rights would also contain what Lewis called ‘mood’, namely its being declarative, or interrogative, or imperative. Vennemann (1976:618) went on to say that “the category s of sentence radicals is nothing but the category of zero-place verbs, either basic as in the case of ‘(it) rains’, pluit, or derived as in the case of ‘Mary screams’, ‘Mary kisses John’, ‘Mary gives John the book’”. Hence, as in Tesnière’s grammar, the structure of the sentence (more exactly, of the ‘sentence radical’) is made to coincide with the verbal valency, and the subject may be lacking. For his part, Lehmann (1973:51) stated that “subjects are by no means primary elements in sentences” and that “the S in SVO formulae is far less significant than are the categories represented by V and O”. Such assumptions allowed him to classify SVO and VSO languages together under a general type VO, which is opposed to OV languages. By so doing, the “inconsistency” of SVO languages, which apparently put two ‘primary concomitants’ on the two opposite sides of the verb, would disappear: the subject is no longer a primary concomitant of the verb.
Plainly, neither Vennemann’s nor Lehmann’s principles were able to account for other cases of ‘disharmonic’ orders: e.g., that of the several OV languages that show NA order (type 24 of Greenberg’s 1996a[1963] Appendix II list). Vennemann limited himself to contrast languages with ‘consistent basic serialization’ (CBS) to languages without it. In Vennemann (1976), Japanese is presented as a consistent language of the XV type (i.e., the OV type in Lehmann’s terms); in Vennemann & Harlow (1977), Maori is given as an example of a consistent VX (Lehmann’s VO) language. Hence, according to Vennemann, languages showing harmonic orders follow the CBS principle. Lehmann instead assumed that “inconsistent” features of some languages “indicate that they are undergoing change” (Lehmann 1973:49fn.1). This explanation was shared by several other scholars, but the idea that some synchronic factors could also bring about disharmonic orders was pursued as well.

Among such proposals, two deserve special attention in my view: those of Antinucci (1977) and Hawkins (1980; 1983). Antinucci assumed that word order is regulated by three basic principles, which he labeled the ‘building principle’, the ‘increasing principle’ and the ‘subject formation principle’. The first two principles belong to the ‘structural’ system, the last one to the ‘communicative’ system of language: since the two systems have different goals, the third principle may sometimes conflict with the other two. The ‘building principle’ and the ‘increasing principle’ have the same effect as Lehmann’s structural principle, but Antinucci stated that they are more motivated: they together transform a hierarchically ordered underlying structure into a linearly ordered surface structure. In Antinucci’s framework, which is explicitly reminiscent of those of Generative Semantics (see below:9.4.1), the underlying structure is a hierarchy formed by a predicate and its arguments: the most intimate of such arguments, and the deeper in the hierarchy, is the ‘objective Case’ of Fillmore’s, namely that indicating “the thing affected by the action of state identified by the verb” (cf. Fillmore 1968:25). This can be exemplified by the traditional direct object of transitive verbs, but also by their subject, when they are intransitively used: for example, ‘the door’ is ‘objective’ (in Fillmore’s sense) both in ‘John opened the door’ and ‘the door opened’ (cf. p.27). Now, the ‘building principle’ establishes that a language will linearize the arguments leftwards or rightwards of the predicate: ‘leftwards building’ languages would correspond to Lehmann’s OV languages, ‘rightwards building’ ones to VO languages (cf. Antinucci 1977:11-14). The ‘increasing principle’ determines the respective order of the arguments: e.g., Fillmore’s ‘objective’ will always be the argument closest to the verb, to the left or to the right of it according to the direction imposed by the ‘building principle’ (cf. pp.14-23). It is clear that, if only these two principles are operative in determining word order, only two
types of languages would occur: namely, SOV and VOS, to use Greenberg’s labels. The actual occurrence of other orders (SVO and VSO) is accounted for by the ‘subject formation principle’ (cf. p.45). Such a principle chooses a single argument and puts it in sentence initial position: or to put it another way, the argument is ‘topicalized’. The choice of the topic argument is not arbitrary: it is determined by the ‘topic natural hierarchy’ (pp.51-53). This hierarchy is based on two different dimensions which may also conflict with each other: the ability vs. the non-ability of being the cause of the described state of affairs, and an ‘animacy scale’. Elements higher in the animacy scale prevail over the lower ones for selection as subjects: i.e., given two arguments one indicating a human being and the other an inanimate being, the former one will become the subject of the sentence. Since, in many cases, animate beings are the cause of the described state of affairs, the agent argument will be preferred to the patient one by the ‘topic natural hierarchy’, whose two dimensions will therefore not conflict, in such instances. In other cases, however, an animate being is not the agent, as happens, e.g., with the so-called psychological verbs (e.g., ‘like’ or ‘please’): here, the animate being is the not the agent, but the ‘experiencer’ of the state of affairs caused by an inanimate entity denoted by the other argument. This would imply that both arguments can become subject: and such a phenomenon actually occurs, as can be seen by comparing (12) with (13):

(12) The play pleased John
(13) John liked the play

As can be seen, a sentence such as (12) chooses the ‘cause’ inanimate argument as the subject, whereas (13) chooses the ‘experiencer’ animate argument. This is an instance of conflict within the ‘topic natural hierarchy’. In another section of his book (see especially pp.94-115), Antinucci described the effect of the ‘subject formation principle’ in more detail, comparing its implementation in ergative systems and in nominative/accusative ones. He also distinguished a ‘primary’ and a ‘secondary’ topicalization: the former is that forming the grammatical subject proper, the latter that accounting for other topicalized constituents (e.g., ‘John’ in such a sentence as ‘John, I have never seen him’). The greatest novelty of Antinucci’s treatment lay in his proposal that word order is not determined by a unique principle, but by a set of principles, and in his adding to purely structural principles such as those of Lehmann’s or Vennemann’s another principle which is related to the communicative organization of discourse: therefore word-order typology is no longer approached in purely syntactic terms, but begins to take into account also pragmatic and semantic factors, such as the ‘animacy scale’ and the ‘topic natural hierarchy’.
The notion of hierarchy was gaining increasing success in this period: think, e.g., of Dik’s ‘Semantic Function Hierarchy’ alluded to in the preceding section. In this field, the paradigm article was possibly Keenan & Comrie’s (1977 - the essay actually dates back to 1972) cross-linguistic analysis of relativization. On the basis of a sample of about fifty languages, Keenan and Comrie came to the conclusion that relative clause formation is possible depending on the place that the relativized constituent occupies in the following hierarchy: subject < direct object < indirect object < oblique < genitive < object of comparison, the leftmost positions being more ‘accessible to relativization’ than rightmost ones. Therefore the subject is relativizable in every language, while the possibility of relativization diminishes for the direct object, the indirect object, the oblique, the genitive and the object of comparison, each of these positions being more difficult to relativize than that to its left and easier than that to its right. For example, in Malagasy a sentence such as ‘the woman is washing clothes’ is grammatical, but one like ‘the clothes that the woman is washing’ would not be; in Malay, both sentences would be grammatical, but a sentence relativizing an indirect object (e.g., ‘the woman I gave a book to’), would not be. Keenan and Comrie further stated that the relativization possibilities apply to a ‘continuous’ segment of the hierarchy, and that they can stop at any point, depending on the language: e.g., it is impossible for a given language to relativize, say, the indirect object but not the direct object, and, while a given language may relativize, say, up to the oblique position, another may stop at the direct object position within the hierarchy. Keenan and Comrie proposed that their hierarchy had a psychological explanation related to the ‘ease of comprehension’ of the different grammatical relations. They explicitly admitted (p.89) that such a psychological explanation itself had to be accounted for: one must explain why a subject is more accessible to relativization than any other grammatical relation. To this end, they tentatively proposed that the subject is characterized by a property of ‘independent reference’: viz., the reference of the subject of a sentence cannot be made dependent on that of another noun phrase, as the phenomenon of reflexivization shows (if two noun phrases are identical, it is that denoting the object and not that denoting the subject which is replaced by a reflexive pronoun; cf. p.94). Whether such an account is satisfactory or not, what is important to note is that Keenan and Comrie appealed to non-syntactic explanations for syntactic facts.

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9 It should be born in mind that the hierarchy only applies to the relativization processes brought about by the same strategy, like, for instance, that exemplified by English ‘that’. Some positions which are not relativizable by means of the strategy applied to the subject may be relativized by means of another strategy; the order of the hierarchy, however, does not change.
Let us now turn to Hawkins' treatment of Greenberg's word order correlations. The first novelty of Hawkins' approach over Greenberg's, but also Lehmann's or Vennemann's, lay in its formulation of 'complex' universals, to show that cases which appeared as exceptions in Greenberg's treatment are actually not exceptions. Consider the case of the Genitive-Noun order: if one interprets Vennemann's or Lehmann's principles literally, one could formulate the implicational universal “if a language is OV, then it will show the GN order”. There exist, however, several OV languages which show an NG order, namely those listed in group 22 of Appendix II in Greenberg (1996a[1963]). Hawkins' proposal is to reformulate the implicational universal in a 'complex' form, namely: “if a language is SOV, then, if it has AN order, it has also GN order” (cf. Hawkins 1983:64). This universal is exceptionless: and indeed Greenberg's (loc. cit.) group 23, which should contain OV languages with NG and AN orders, has no attested examples. It has also to be remarked that Hawkins, unlike Vennemann and Lehmann, did not take verb position as the basic parameter of word order, but rather the order Preposition – Noun vs. Noun – Postposition (cf. Hawkins 1983:86-89).

It is a fact, however, that fully 'harmonic' types contain a larger number of languages than 'disharmonic' ones: this fact was the basis for Vennemann's idea of a 'consistent basic serialization', or for Lehmann's 'structural principle'. Hawkins' new approach to the problem mainly consisted (as noted by Croft 1995:100) in formulating a principle that is statistical in nature, rather than absolute, like Vennemann's or Lehmann's. Such a principle, called 'Cross-Category Harmony' (CCH), states that

the more similar the position of operands relative to their operators across different operand categories considered pairwise (verb in relation to adposition order, noun in relation to adposition order, verb in relation to noun order), the greater are the percentage number of exemplifying languages. (Hawkins 1980:216)

(In the above quotation, 'adposition' is a cover term for both 'preposition' and 'postposition').

The assumption of a principle such as CCH represented a further departure (besides those quoted above) from a purely formal approach to syntax by typologically oriented linguists: formal approaches generally avoid statistical statements. Also the idea of replacing definitions of categories in terms of necessary and sufficient conditions by means of definitions in terms of 'continua' and 'prototypes' moved in this same direction. The heralds of such definitions were, once again, Keenan (e.g., 1976) and Comrie (e.g., 1989[1981]:ch.5), especially as far as the notion of subject was concerned: in this case, however, the two scholars did not work jointly but made partly different proposals. Their
common insight is the idea that the category ‘subject’ cannot be defined in terms of a single property but as a cluster of different properties: if all such properties occur, the subject is ‘prototypical’; the deviations from the prototype are distributed along a ‘continuum’. A formal definition of subject, such as that of Chomsky (1965), would not allow for such a continuum: the subject is the NP node immediately dominated by the S node, and any other NP is not a subject. Comrie states that the prototype of the subject is a constituent which is both the agent and the theme. Neither of these properties is syntactic: the first of them is largely semantic, the second pragmatic-communicative. There are, however, several cases of subjects in many languages which are not agents, others which are not themes, and still others which are neither agents nor themes: they form a continuum from the prototypical until the least prototypical case of subject. The farther a category is from the prototype, the more ‘marked’ it is. Much of the recent research within the typological field (cf., e.g., Croft 1991) deals with the proper characterization of prototypes on the one hand and of marked constructions on the other.

“Modern syntactic typology” (to use Croft’s 1995 phrase) therefore developed as an attempt to explain word order correlations stated by Greenberg, and it gradually replaced purely syntactic explanations with semantically and pragmatically based ones, which seem to be more adequate. Parallel with such developments within the domain of word order investigation, research into other topics (such as the notion of the subject) strengthened the idea that explanations of grammatical facts have to be found mainly outside syntax, especially in the semantic and in the pragmatic-communicative domain. This explains the linking of the attribute ‘functional’ to ‘typological’ by those linguists who find their basic inspiration in Greenberg’s classic study of word order.

4. Trends in generative syntax

4.1 Syntax as semantics and ‘natural logic’: Generative Semantics

Linguists labeled as ‘generative semanticists’ did not form, nor did they want to form, any rigid school: their ideas and their proposals differed on many points. The label ‘Generative Semantics’ itself was not felt as really representative of their ideas: some other labels such as ‘Semantic Syntax’ (Seuren 1972; 1974) were at times used instead. In what follows, reference will be made mainly to the analyses by some generative semanticists which appeared most innovative with respect to the ‘standard’ theory: the discussion will be centered around the works of George Lakoff and James D. McCawley. One cannot forget, however, the important contributions to Generative Semantics made by other linguists, such as Postal (e.g., 1969; 1970) or Ross (1969; 1970; 1972).
It seems that the phrase ‘Generative Semantics’ first appeared in a paper written by George Lakoff in 1963; it was published as late as 1976 (Lakoff 1976[1963]), in a collection of articles “from the linguistic underground” edited by McCawley (1976). This paper, however, did not gain much attention. The real manifesto of the school can therefore be considered another underground paper, namely Lakoff & Ross (1976[1967]). Its main thesis was that “semantics may be generative”: this amounted to saying that there was no difference between ‘deep structure’ and ‘semantic representation’, since the arguments brought forward by the standard theory to motivate the existence of a separate level of deep structure could not really hold (cf. p.160). These arguments characterized deep structure as

(A) the base of the simplest syntactic component; (B) the place where cooccurrence and selectional restrictions are defined; (C) the place where basic grammatical relations are defined; (D) the place where lexical items are inserted from the lexicon. (ibid.)

Lakoff and Ross maintained that (D) has no value: lexical insertion may occur at any point in the derivation. Concerning (C), they stated that the notions of subject and object have no direct relevance for semantic interpretation: the same subject may have two different semantic representations, as cases such as ‘John tortured Max’ vs. ‘John underwent torture’ show (the influence of Fillmore’s ideas on this point is clear). That (B) is untenable is maintained by Lakoff & Ross on the basis of McCawley (1968a, b), which claimed that selectional restrictions operate on the semantic, not on the syntactic, level. Since (B), (C) and (D) do not hold, Lakoff and Ross can easily conclude that condition (A) is wholly arbitrary: any level could equally be defined as the base of the simplest syntactic component. But then, “why invent the term ‘deep structure’ for it?” (p.161). Therefore the automatic conclusion was that the only real ‘deep’ level is semantic representation, which is directly generated and is then related to surface structure by means of transformations. The corollaries of this conclusion are that: (a) ‘deep structure’ is a useless concept and therefore must be abandoned; and (b) linguistic description must be ‘semantically based’.

The conceptual essence of what Newmeyer (1996) calls “linguistic wars” lies precisely in the acceptance vs. the rejection of conclusions (a) and (b), above. These were the starting point of the research program of Generative Semantics. However, Chomsky and other scholars who worked out the ‘Extended Standard Theory’ (EST) rejected both of them, although with different
motivations: (a) was deemed false, (b) senseless. (a) was deemed false since EST-linguists argued that a separate level of deep structure is motivated by reasons of simplicity and generality of linguistic descriptions. Assumption (b) has no sense since it was considered senseless to assume that there is any "direction" in the generation of the several levels of linguistic representation, as far as competence is concerned: namely, syntactic derivation does not first generate deep structure to later map it onto surface structure on the one hand and onto semantic representation on the other. Hence, it is meaningless to ask that semantic representation be generated 'first' (cf. Chomsky 1970b:57).

Lakoff apparently shared this position with Chomsky's: there is no sense in opposing a 'semantically-based' grammar to a 'syntactically-based' grammar. For him, as for Chomsky, they are "notational variants" of each other (cf. Lakoff 1971a:265-267). Both Chomsky and Lakoff therefore maintained that the real distinction between Generative Semantics and EST lies in the assumption vs. the rejection of the notion of 'deep structure'. Of course, this concept was ill-defined, hence useless for Lakoff, while Chomsky stated that it is necessary for any adequate linguistic theory.

In reality, Generative Semantics positions and EST-positions were motivated by quite different conceptions not only of the levels of representations, but also of the tasks and goals of syntax. Yet two such quite different views both had their roots in the research program of Chomsky (1965), namely in the assumption that linguistics is "a part of theoretical psychology". According to Generative Semantics, the implementation of such a program implied that linguistic categories should be reduced to logical and/or psychological categories: 'underlying syntax' should be made to coincide with 'natural logic' (cf. Lakoff 1970b). According to Chomsky, as has been seen in 9.1.2, above, "psychologically real" did not mean anything more than 'true': to do linguistics was *ipso facto* to do psychology.

Let's now illustrate the Generative Semantics program of discovering a 'natural logic'. Such a program took shape gradually, by replacing the 'deep structures' of 'standard' theory with increasingly abstract 'underlying structures', or 'semantic representations'. Possibly, the first decisive step in this direction was the idea of a 'prelexical' syntax, which is especially (although not exclusively) linked with McCawley's name (see, e.g., McCawley 1968c; 1971). The term 'prelexical' means that transformations are assumed to apply not only after, but also before the rules inserting lexical items: such an assumption plainly rejected one of the principles of the 'standard' theory, according to which all rules of the latter kind apply before any rule of the former kind (as can be seen, this was point (D) of Lakoff and Ross' arguments against the assumption of a deep structure level). The most famous prelexical analysis was
McCawley’s derivation of the verb ‘die’, according to which a sentence such as (14) would derive from the underlying structure in (15):

(14) Bill killed John

(15)

The terminal nodes (JOHN, CAUSE, etc.) are written in capitals since they do not indicate surface lexical items, but predicates and arguments at the level of semantic representation (note, incidentally, that negation is labeled as a verb). The lexical item ‘kill’ is brought about by the iterated application of a transformation called ‘Predicate Raising’, which takes a V-node and adjoins it to the immediately higher node: so ALIVE is adjoined to NOT, the resulting predicate \([\sqrt{\text{NOT}}[\sqrt{\text{ALIVE}}]]\) is adjoined to BECOME and so on until the complex predicate

\[
\sqrt{\text{CAUSE}}[\sqrt{\text{BECOME}}[\sqrt{\text{NOT}}[\sqrt{\text{ALIVE}}]]]
\]

is formed. (16) is then replaced by the lexical item ‘kill’. Since Predicate Raising is a syntactic transformation analogous, for example, to Subject Raising, and it operates before lexical insertion, transformations are shown to apply before lexical insertion rules.

The building of abstract underlying structures was also stimulated by phenomena which apparently falsified the ‘Katz-Postal hypothesis’, namely that transformations have no semantic effects, i.e. they do not change meaning (cf. above:349). One instance of such phenomena is the following pair of sentences:
(17)  
a. Many men read few books  
b. Few books are read by many men

According to the Katz-Postal hypothesis and to the standard theory, (17b) would be derived by a deep structure which differs from that of (17a) only by containing a constituent ‘by + PASS’: ‘many’ would precede ‘few’ in both deep structures, and the inverted surface order of (17b) would be generated by the application of the passive transformation. Now, since it is the respective order of quantifiers which brings about the different meanings of the two sentences, it would seem that the passive transformation changes meaning: the Katz-Postal hypothesis would hence be falsified. At this point, two solutions were available: (1) to give up Katz-Postal hypothesis; or (2) to assign to the sentences concerned an ‘underlying structure’ which was much more abstract than that of the ‘standard’ framework. EST choose solution (1) and allowed transformations to change meaning (cf., e.g., Jackendoff 1972): this extension of the power of transformations is what explains the label of the theory. Generative Semantics choose solution (2). Such options were made on the basis of quite different conceptions of syntax and of the role of ‘deep’, or ‘underlying’ structure. Chomsky’s ‘deep structure’ was essentially a technical concept, which indicated nothing more than a given stage in the derivation. Therefore it makes no difference if its relationship with semantic interpretation has to be changed, provided that some empirical arguments push us in that direction. On the other hand, however, generative semanticists replaced ‘deep structure’ with ‘semantic representation’: therefore they could not allow for this representation to be changed by any transformation.

To deal with cases such as those represented by (17a) vs. (17b), Lakoff (1971a:239) assigned them two different underlying structures:
(18) a.

\[ S_1 \]

\[ NP \quad S_2 \quad VP \]

\[ NP \quad S_2 \quad VP \]

\[ NP \quad S_3 \quad are \quad few \]

\[ NP \quad S_3 \quad are \quad few \]

\[ NP \quad S_3 \quad are \quad many \]

\[ NP \quad S_3 \quad are \quad many \]

\[ NP \quad S_3 \quad are \quad many \]

\[ NP \quad S_3 \quad are \quad many \]

\[ NP \quad S_3 \quad are \quad many \]

\[ NP \quad S_3 \quad are \quad many \]

(18) b.

\[ S_1 \]

\[ NP \quad S_2 \quad VP \]

\[ NP \quad S_2 \quad VP \]

\[ NP \quad S_3 \quad are \quad few \]

\[ NP \quad S_3 \quad are \quad few \]

\[ NP \quad S_3 \quad are \quad few \]

\[ NP \quad S_3 \quad are \quad few \]

\[ NP \quad S_3 \quad are \quad many \]

\[ NP \quad S_3 \quad are \quad many \]

\[ NP \quad S_3 \quad are \quad many \]

\[ NP \quad S_3 \quad are \quad many \]

\[ NP \quad S_3 \quad are \quad many \]

\[ NP \quad S_3 \quad are \quad many \]
A basic difference between these ‘underlying structures’ (or ‘semantic representations’) and the ‘deep structures’ of ‘standard’ theory lies in the fact that, while the latter are strings generated by means of a phrase-structure grammar and lexical insertion rules, the former are tree diagrams, as proposed by McCawley (1968a). In other words, phrase markers are not, as in the ‘standard’ theory, simple illustrations of strings forming the deep structure of a given language, but they are themselves such a structure. Such a direct reference to the phrase marker allowed Lakoff (1971a) to formulate the transformational rule (called ‘quantifier lowering’) which leads from underlying structures (18) to the corresponding surface structures (17) in a rather straightforward way. The quantifier higher in the underlying structure (‘many’ or ‘few’ in (18a)-(18b), respectively) is the quantifier on the left in the surface structure.

Lakoff (1970b) solved an analogous problem related to the interpretation of quantifier scope by means of a formalism which was partly different from the one just illustrated, but which was wholly identical in its basic idea. By so doing, Lakoff further developed a proposal by McCawley (1970): semantic representations of natural language sentences should be generated by resorting to the devices both of symbolic logic (more exactly, to first-order predicate calculus) and of phrase markers. Lakoff and McCawley’s ‘natural logic’ attempted to discover the logical structures of natural language by means of the descriptive tools of transformational linguistics. It is important to stress that, for generative semanticists, natural logic is not merely a system of symbolic logic which has proved adequate for the treatment of natural language: natural logic is the real underlying structure of natural language. Lakoff, McCawley, and other followers of the Generative Semantics trend did not conceive of logic as a calculus based on axioms and inference rules, and whose goal is the formal deduction of true utterances. Rather, they saw it as “the science of human thought”. Such a conception is therefore similar to the 19th century psychologistic one. As a matter of fact, McCawley (1970:169) maintained that “the much criticized title, *The laws of Thought*, which George Boole (1840) gave to the first work on symbolic logic, is actually much more appropriate than has generally been thought the case”.

Natural logic is therefore conditioned by linguistic concerns, the most important of which is the necessity of fitting the variable-argument notation of first order predicate calculus into a phrase marker representation. But the form of such phrase markers and the categories which they may host are themselves conditioned by logical concerns: Generative Semantics aimed at giving a semantic representation of predicates and arguments, assigning to such terms their logical meaning. But the linguistic categories which can fulfill the function of predicate or argument in a logical sense are few: this explains the disap-
pearance of those categories from the ‘semantic representations’ of Generative Semantics which often occurred within ‘deep structures’ of the ‘standard’ theory. This is the case, for example, for ‘determiner’, or for ‘prepositional phrase’, or even for ‘adjective’. Generative Semantics brought forward a reductionist program of syntactic categories from its very beginnings: e.g., Lakoff (1970a[1965]) equated adjectives with verbs; Ross (1969), auxiliary verbs with main verbs. Eventually, the only recognized categories were Sentence, Noun Phrase and Verb.

It is therefore on this basis that generative semanticists categorized quantifiers (and negations; cf. above, (15)) as verbs: they were treated as ‘logical predicates’ (cf. Lakoff 1971a:244) whose arguments are very complex Noun Phrases: see, e.g., diagrams (18a, b) above. Generative Semantics therefore merged both values of ‘predicate’, namely the linguistic and the logical one. This merging was certainly not unintended: the quantifier is a verb since it is a ‘predicate’ of the ‘argument’ Noun Phrase both in a logical and linguistic sense. As has been said, semantic representation is a level at which language and logic are indistinguishable from the Generative Semantic perspective. Moreover: natural logic must also make the structure of human reasoning explicit. Its rules must reflect those really employed in the arguments developed by means of natural language. Natural logic “is a theory about the human mind, not a theory about the universe” (Lakoff 1970b:249). Logic, linguistics and psychology therefore merge into a theory which is based on all these disciplines, but conceives of them in a new way: Generative Semantics.

This pursuit of a natural logic forced generative semanticists to make certain steps which had very important consequences: since semantic representations had the task of making the structure of human reasoning explicit, the set of elements they were assumed to contain was considerably enlarged. Lakoff (1971a:234-235) defined the semantic representation of a sentence as a set of elements SR = (P₁, PR, Top, F,...), where ‘P₁’ indicates the base phrase marker, “PR is a conjunction of presuppositions, Top is the indication of the ‘Topic’ of the sentence, and F is the indication of the focus of the sentence”. Dots indicate “other elements of semantic representation that need to be accounted for”. Semantic representation, therefore, was conceived of as consisting not only of such objects as phrase markers, but also of some semantic and even pragmatic objects such as presuppositions. One consequence of such assumptions was Lakoff’s statement that the ‘well-formedness’ property has not to be assigned to a sentence but to the pair of elements formed by a given sentence and its presuppositions (cf. Lakoff 1971b:336). For instance, a sentence such as (19a) would be well-formed, only if its presupposition were (19b):

(19) a. John told Mary that she was beautiful and then she insulted him.
b. That John told Mary that she was beautiful entails that John insulted Mary.

This notion of 'relative well-formedness' was therefore an important consequence of the expansion of the notion of 'semantic representation', and it had some still more far-reaching implications. First of all, the competence vs. performance distinction had no longer any real foundation. Lakoff stressed that this distinction must be preserved, but his arguments did not seem convincing. As a matter of fact, any sentence could be accepted as well-formed given a suitable presupposition. This means either that competence is viewed as common sense, or that competence must be assigned to each speaker individually. McCawley (1972:542) explicitly acknowledged, albeit in a footnote, that his semantic descriptions did not have a generalizing, but an individualizing, character: he said that he was talking "about sentence tokens rather than sentence types" and added that a sentence token such as, for example, 'It's raining', "will have different content depending on when and where it is said". Such eventual positions by Generative Semantics represented a real upsetting of that approach to syntax, and to linguistics in general, which was typical of the Chomskian program. Bear in mind that this program aimed at building a linguistic theory by the standards of other scientific theories (see above:8.4.2): i.e. its goal was the formulation of general statements, not of individual descriptions. The implementation of such a program implied that the description of linguistic facts should be idealizing and abstract: Generative Semantics marched in the opposite direction.

However insightfully argued, this refusal of generalization and idealization may have been the reason for the collapse of Generative Semantics after the early seventies. The leading ideas which had characterized its followers in the preceding decade were gradually abandoned and each generative semanticist followed his own way. Lakoff first tried to work out a "fuzzy" grammar consistent with his individualizing, anti-generalizing approach to linguistic descriptions (see Lakoff 1973) and with the "category squish" argued for by Ross (1972), who maintained that grammatical categories are not discrete, but form a continuum from the noun at one end to the verb at the other. Later, Lakoff increasingly turned his attention to questions of pragmatics and rhetoric (see, e.g., Lakoff 1987; Lakoff & Johnson 1980). McCawley moved towards an "empirical" and somewhat skeptical approach to syntax, as the title itself of his contribution to the Milwaukee conference (McCawley 1980) shows. In this paper, he restated some positions that were typical both of Generative Semantics and of EST: for example, that linguistics is a branch of cognitive psychology and any adequate theory of language must include a theory of language acquisition (cf. McCawley 1980:181). Contrary to EST, however, McCawley
(p.183) kept on rejecting any theory of language acquisition which did not take into account general cognitive properties. From this point of view, ‘Cognitive Grammar’ by Langacker and his associates (see, e.g., Langacker 1987; 1991) could be considered as a legitimate heir to Generative Semantics.

4.2 Relational Grammar

Some other linguists formerly belonging to the Generative Semantics group worked out a theory which, while maintaining a considerable distance from ‘standard’ generative syntax, nevertheless took a path completely different from that of the ‘cognitive’ approaches alluded to at the end of the preceding section. The most important of these linguists were David M. Perlmutter and Paul M. Postal, and the theory they developed was named ‘Relational Grammar’ (RG). The basic tenets of RG were opposed to those of ‘standard’ theory since it completely abandoned the notion of transformation as an operation on hierarchically and linearly ordered phrase markers. RG differed from ‘cognitive’ approaches mainly in the fact that it explicitly rejected any aim at being ‘psychologically real’, its goal being only that of answering the question “In what ways do natural languages differ, and in what ways are they all alike?” (Perlmutter 1980:195). In this respect, RG goals were radically different also from those of the ‘standard’ theory and of the Chomskian program as a whole. Perlmutter and Postal presented a first sketch of RG in a series of lectures held at the 1974 Summer Institute of the Linguistic Society of America. The framework was developed in some papers by these same - as well as other - scholars in the second half of the seventies and the early eighties (see, e.g., Perlmutter 1978; 1980; 1982; Postal 1977; Chung 1976; 1978; two important collections of RG papers are Perlmutter, ed. 1983, and Perlmutter & Rosen, eds., 1984). A (more formalized) offshoot of RG is Johnson and Postal’s (1980) ‘Arc Pair Grammar’.

As its name suggests, the basic notion of RG is that of ‘grammatical relation’, namely subject, predicate, object, indirect object, etc. It has been seen in 9.1.3, above, that the ‘standard’ theory defined grammatical relations in a configurational and derivative way: ‘subject-of’ was defined as the NP directly dominated by the category S, etc. By contrast, RG takes grammatical relations as primitives and virtually gives up any configurational representation of syntactic objects. RG represents clause structure as an unordered set of constituents which bear grammatical relations to each other. An immediate consequence of such assumptions is that the notion of Verb Phrase and the “Aristotelian” splitting of the sentence into a subject and a predicate are given up: all relations are on the same plane. Such a view undoubtedly reminds us of Fillmore’s and Tesnière’s approaches, but there remain some important differ-
ences between these and RG. Indeed, Fillmore opposed ‘deep cases’ to ‘grammatical relations’, which are realized on the surface level. RG, instead, takes grammatical relations as primitives on any level, and does not attempt at identifying them with semantically-based notions such as ‘agent’, ‘goal’, ‘patient’, etc.\(^\text{11}\) On his hand, Tesnière analyzed some sentences as containing two instances of the same participant role: this happened in the case, e.g., of the double accusative constructions, which would contain two ‘second participant roles’ (two direct objects, in the traditional terminology; see above:7.2.1). As will be seen in what follows, RG forbids this for reasons of principle: it would violate the ‘Stratal Uniqueness Law’.

Grammatical relations may change from one level to another: e.g., the direct object of an active verb may become the subject of the corresponding passive verb. In RG terms, the levels are renamed ‘strata’. One of these is the ‘initial stratum’. The grammatical relations holding at the initial stratum would approximately correspond to those of deep structure within the ‘standard’ theory: e.g., both theories would pick out the same constituent as the subject of an active sentence, although they define it in a completely different way. RG, however, does not connect the strata by means of transformations, but of ‘Relational Networks’, which show which different grammatical relations the constituents bear at different levels. Not all changes of relations across the strata are possible: they are constrained by certain ‘laws’. Let’s investigate in slightly more detail RG formalisms in the representation of Relational Networks and the formulation of some ‘relational laws’.

The most widely used and transparent of such formalisms is that of the so-called ‘stratal diagrams’: the relations which ‘dependents’ (e.g., verbs or noun phrases) bear to some linguistic element (e.g., to a clause) at the different strata are indicated by means of arches pointing from that element (the ‘tail’ of the arch) towards the dependents (the ‘heads’), crossing other arches which represent the strata. Each grammatical relation is marked by an integer: e.g., 1 for the subject, 2 for the direct object, 3 for the indirect object. A constituent may lack any grammatical relation, and it is labeled ‘Cho’, meaning ‘Chômeur’ (French ‘unemployed person’). The letter P means ‘predicate’. For example, a passive sentence such as ‘Mary is loved by John’ would have the following stratal diagram:

\[^\text{11}\] To be exact, early works within the RG framework assumed the so-called ‘Universal Alignment Hypothesis’, according to which subjects of the ‘initial stratum’ (see the following paragraph) would be agents or experiencers, objects of the same stratum patients or themes, etc. Such an hypothesis, however, was later abandoned, at least in its strong form.
Diagram (20) states that, at the initial stratum, 'love', 'Mary' and 'John' bear the grammatical functions 'predicate' (P), 'object' (2) and 'subject' (1), respectively; at the final stratum, 'love' still bears the relation 'predicate', while 'Mary' bears the relation 'subject' and 'John' is 'put in chômage'.

It will have been noticed that diagram (20) abstracts away from linear order as well as from the representation of tense and agreement; it would also not indicate case and/or prepositions in languages which such elements occur (e.g., in Latin subject and object are marked Nominative and Accusative, respectively, or, in Spanish, the animate direct object is preceded by preposition a). The powerful generality of RG formalism is, on the one hand, a defect, which is sometimes more or less explicitly recognized even by some representatives of this syntactic framework (see, e.g., B.J. Blake 1996:280). On the other hand, it makes it possible to offer a unified treatment of such grammatical phenomena as Passive which, from the point of view of morphology and word order, show a variety of cross-linguistic differences. By so doing, it should be possible to answer the question which RG assumes as the basic one of linguistics, namely the universal similarities vs. individual differences between languages.

The changes of grammatical relations across strata ('revaluations' in RG terminology) are not unconstrained, since they obey so-called 'relational laws' (on which see especially Perlmutter & Postal 1983). For example, the 'Stratal Uniqueness Law' states that a given relation at a given stratum may be borne only by a single element: this implies that, strictly speaking, the so-called 'double object constructions' do not exist, since there can never be two direct objects at one and the same grammatical level. Indeed, constructions such as 'John gave Bill a book' are said by RG to be instances of '3-2 Advancement'. This means that the indirect object of the initial stratum (that corresponding to the sentence 'John gave a book to Bill'), namely 'Bill', becomes the direct object at the following stratum: hence it is 'advanced' from relation 3 to relation 2. The initial 2, namely the direct object 'a book', is in turn 'put in chômage', as happens to the initial subject of the passive construction. Note that even the occurrence of 'chômeur' elements is not unconstrained, since it must obey the
‘Motivated Chômage Law’, which essentially states that ‘chômeurs’ are inserted only as a result of given changes of grammatical relations. In the cases discussed here, such a result is obtained by means of two ‘Advancement’ rules: the advancement of the object of the active verb to the subject relation of the corresponding passive, or the advancement of the indirect object of a verb such as ‘give’ to the direct object function.

RG stimulated cross-linguistic investigation to a considerable extent, offering explanations of previously unaccounted phenomena, among which the alternation of Italian auxiliaries is possibly the most well-known one. It was first investigated by Perlmutter (1978), whose analyses were taken up by Burzio (1981; 1986) within the so-called ‘Government & Binding’ framework (see below: 10.3.2). Italian intransitive verbs can be subdivided into two classes according to the perfect auxiliary they take: avere (‘to have’) or essere (‘to be’). For example, a verb such as camminare (‘to walk’) takes the avere auxiliary, while one such as arrivare (‘to arrive’) takes essere. Transitive verbs, on the other hand, uniformly take avere auxiliary. Traditional, descriptive and generative grammars of Italian had always noticed these two different classes of intransitive verbs, but had never given, nor attempted to give, any explanation for this difference. Perlmutter’s solution lay in assuming that intransitive verbs which take the essere auxiliary do not have any subject at the initial stratum, but only a direct object. They were dubbed ‘unaccusative’ by Perlmutter; the label is accounted for by the fact that such an assumed initial direct object never shows the accusative form, but the nominative one, as in (21) below:

(21) Sono arrivato io
    Am-arrived-I
    ‘I have arrived’

The direct object of arrivare and analogous verbs undergoes an ‘advancement’ and becomes a subject at the final stratum. (This step is motivated by a Relational Law dubbed the ‘Final 1 Law’, which states that every clause must have one subject at the final stratum). Such an advancement process is what causes essere assignment; if it does not occur, the auxiliary is avere. Therefore, verbs like dormire (‘unergative’, in RG terminology) are assumed to take a subject in the initial stratum, since their auxiliary is avere:

(22) Qui ho dormito io
    Here-have-slept-I
    ‘Here I have slept’

The fact that avere is also the auxiliary of Italian transitive verbs immediately follows: transitive verbs have both an initial subject and a direct object, hence there is no object-to-subject advancement in clauses containing them, exactly
as in the cases of verbs like *dormire*. The alternation of Italian auxiliaries, together with the rather puzzling fact that the auxiliary for transitive verbs is the same as for one class of intransitive ones, therefore finds an explanation.

The phase of the Chomskian program labeled ‘Principles and Parameters Theory’ (see below: ch. 10) may have shown the same degree of interest in cross-linguistic investigation as RG. The comparison, however, cannot be pushed too far, since the basic assumptions and the goals of the two theories are very different. RG assumed as primitives not only grammatical relations, but also such notions as Passive, ‘3-2 Advancement’, etc. By contrast, the ‘Principles and Parameters Theory’ simply considered them as descriptive labels which have to be traced back to deeper and more abstract principles. Such a difference is connected to the essential difference of goals which has already been mentioned: namely, the lack of interest within RG in the ‘psychological reality’ of linguistic descriptions, which on the contrary was one of the greatest concerns of the Chomskian program.

4.3 *One-level* approaches to syntax: LFG and GPSG

Generative Semantics pushed the distance between ‘deep’ and ‘surface’ structure to its extreme, by identifying deep structure with semantic representation. The syntactic approaches to be investigated in the present section took the opposite path, since they gave up the distinction between deep and surface structure and assumed a single level of syntactic representation. ‘Syntactic’ has to be intended as meaning “represented in the form of linearly and hierarchically ordered constituents”: and, in fact, Generative Semantics representations are always of such a nature, even if they refer to the “deepest” aspect of language. By contrast, the theories to be described now do assume some level of semantic, or functional, representation, besides one single syntactic level, but the form of such representations is essentially different from the syntactic one.

The first systematic proposals of a ‘one-level’ syntax appeared as the second part of a volume by Michael K. Brame (1976), the first part of which consisted of a thorough and harsh critique of Generative Semantics. Brame pleaded for a model of syntax which would completely dispose of transformations: the idea was not new in itself (think, for example, of Montague Grammar), but it was a novelty within the generative framework. Among Brame’s analyses of specific phenomena, one deserves special mention, since it was taken up by several other scholars: that of dependent infinitival constructions, such as, e.g., ‘I love to play the piano’, or ‘John seems to be a liar’. Rosenbaum (1967) treated them as deep structure sentences: Brame assumed instead that they are simply a special kind of Verb Phrase. Brame put forward his model of a ‘base-generated syntax’ in several articles which appeared in the journal “Linguistic Analysis”
and in books as well (e.g., Brame 1978; 1979). Brame’s theory did not gain much acceptance outside the circle of his graduate students; however, the fact that he was the first to work out this kind of syntax cannot be overlooked.

The ‘one-level’ theories of syntax which were to become most renowned and widespread are ‘Lexical-Functional Grammar’ (LFG) and ‘Generalized Phrase Structure Grammar’. The early seeds of LFG lie in work by Joan Bresnan (see especially Bresnan 1978), a former graduate student of Chomsky’s; GPSG was initiated in about the same years by a British scholar, Gerald Gazdar, who was later joined in his research program by other British and American linguists (e.g., Ewan Klein, Geoffrey Pullum, Ivan Sag). As reference works for such theories, Bresnan, ed. (1982c), for LFG, and Gazdar, Klein, Pullum & Sag (1985), for GPSG, might be quoted. Further developments of LFG are represented by such papers as Bresnan & Kanerva (1989), or Bresnan and Moshi (1990), which work out the so-called ‘Lexical Mapping Theory’; the most recent version of LFG is laid out in Bresnan (forthcoming). An offshoot of GPSG is ‘Head-driven Phrase Structure Grammar’ (on which see especially Pollard & Sag 1994). Beside positing a single level of syntactic representation, GPSG and LFG share additional assumptions: for example, the introduction of elements into the syntactic structure in their fully inflected form (namely, a verbal form such as ‘took’ would be inserted as such by Phrase Structure rules, not as two elements ‘take’ and ‘past’). Such shared assumptions allow both theories to avoid transformations and to resort to comparable solutions to solve problems which ‘standard’ theory dealt with in transformational terms. On the other hand, they originated from and developed with rather different goals and concerns. LFG was worked out mainly in the search for a ‘realistic’ (i.e., ‘psychologically real’) grammar, as the title itself of Bresnan (1978) suggests: a syntactic theory maximally reducing the role of transformations (as in Bresnan 1978) or completely eliminating them (as in later works within the LFG framework) was put forth to better account for phenomena such as language acquisition, or derivational complexity, language production and comprehension (cf. Bresnan 1978:44–59). GPSG, on the other hand, was worked out mainly on the basis of formal concerns. The difficulty of restricting the power of transformational grammars was mentioned above (9.2); by contrast, Phrase Structure Grammars were proved to be more restricted, hence more interesting from a formal point of view. Gazdar’s main goal was therefore

12 The label ‘one-level approaches’ to designate such theories as LFG or GPSG could be considered inappropriate by some linguists following them, who would rather prefer the term ‘unification approaches’. ‘One-level’ has been adopted here mainly for convenience, since it refers to the abandonment of the ‘standard’ opposition between deep and surface structure, which had been taken as one of the starting points of the survey contained in the present chapter.
that of developing a syntactic model which, while preserving the more restricted format of Phrase Structure Grammars, would be able to overcome their empirical inadequacies. GPSG, having been devised to solve such formal problems, had no special interest in building a ‘psychologically real’ grammar. In this respect (and in some technical respects as well; see below), GPSG bears some close similarities to Montague Grammar.

Let’s now turn to some formal aspects of LFG and GPSG. LFG assumes three structural levels: lexicon, ‘c-structure’ and ‘f-structure’. The lexicon is a list of forms specifying their meaning, their argument structure and the grammatical functions associated with such structures. For example, the lexical form for ‘love’ would be the following one:

\[
\text{‘love} \left(\text{(SUBJ), (OBJ)}\right) \leftarrow \text{lexical form of ‘love’}
\]

\[
\text{(SUBJ)} \quad \text{(OBJ)} \quad \leftarrow \text{lexical assignment of grammatical functions}
\]

\[
\text{‘love}, \text{(argument 1, argument 2)} \leftarrow \text{predicate-argument structure}
\]

\[
\text{(experiencer)} \quad \text{(theme)}
\]

‘c-structure’ is the only syntactic level of LFG, being the only one which is linear and hierarchic: it is generated by a Phrase Structure Grammar. The novelty introduced by LFG is that c-structure constituents are ‘functionally annotated’, namely they bear the indication of their grammatical function: e.g., in a sentence such as ‘John loves Mary’, ‘John’ would be marked as ‘SUBJ’ and ‘Mary’, as ‘OBJ’. Note that, as in Relational Grammar, notions such as ‘subject’, ‘object’, etc., are taken as primitives. By means of ‘functional annotation’, ‘c-structure’ is related to ‘f-structure’. This last level specifies the functional relations between the different elements of the sentence, namely which one is the subject, which the predicate, which the object, etc. Such relations obviously differ according to the different lexical items which occur within a sentence: e.g., a sentence with a verb like ‘love’ will have a dyadic predicate with a subject and an object, a sentence with a verb like ‘walk’, a monadic predicate with a subject. The lexicon therefore plays a key role in the generation of ‘f-structures’, hence the name given to the theory. ‘c-structures’ differ from ‘f-structures’ in (at least) two respects: the former structures are linearly ordered, while the latter ones are unordered; and the same grammatical functions can be differently encoded across languages. For example, subject and object are distinguished by means of structural configuration in English (the subject is the NP directly dominated by S, the object is the NP directly domi-
nated by VP), and by particles in Japanese (the subject is followed by the particle \textit{ga}, the object by the particle \textit{o}). ‘f-structure’ is therefore universal, while ‘c-structure’ varies across languages.

GPSG opposes a single syntactic level to a level of semantic interpretation. This latter level is essentially conceived and represented as in Montague Grammars: syntactic forms are translated into formulas of intensional logic which are in turn interpreted in model-theoretic terms. The syntactic level is generated by a Phrase Structure Grammar, which presents some novelties with respect to the “classical” versions of such grammars formalized by Chomsky and other scholars during the fifties. First of all, the symbols introduced by the PS-rules are not simple categorial symbols but rather bundles of features: such features specify, for any given constituent, the category to which it belongs, (e.g., if it is verbal it will be marked [+V, -N], if it is nominal, [-V, +N]), its ‘projection’ level (e.g., if a verbal constituent is a head or a Verb Phrase), its subcategorization properties, its case and number, etc. Secondly, GPSG distinguishes between ‘immediate dominance’ (ID) and ‘linear precedence’ (LP) rules. The former rules state which node may legitimately dominate other nodes: for example, a VP node (more exactly, the bundle of features corresponding to it) may dominate (the bundles of features corresponding to) a V and an NP, but the respective order of these constituents is not determined by any ID rule. Such a task is assigned to LP-rules, which will state that, e.g. in English, the verb precedes the NP. As is easy to see, the set of ID rules can be reasonably assumed to be invariant across languages, while LP rules show considerable cross-linguistic variation. By means of the distinction between these two different kinds of rules, GPSG obtains more or less the same result that LFG gains by opposing ‘f-structure’ to ‘c-structure’.

Given such formal devices, LFG and GPSG are able, without any resort to transformational rules, to account for phenomena which ‘standard’ generative grammar had presented as the strongest proofs for the need of transformations. The most typical of these phenomena are: (a) intrasentential relations such as Passive; (b) the interpretation of the understood subjects of infinitival clauses, e.g. the so-called ‘Raising’ and ‘EQUI’ constructions (see above: 8.4.4); (c) the ‘unbounded dependencies’ phenomena.

Passive and other phenomena of type (a) are accounted for, within the LFG framework, by means of ‘lexically-redundant rules’, i.e. of rules which relate the active and the passive forms of a set of lexical entries sharing given features. Such rules show which changes the grammatical relations undergo. The passivization rule is formulated as follows in Bresnan (1982a: 20):

\begin{equation}
\text{(23) a. Operation on the lexical form:} \quad (\text{SUBJ}) \rightarrow \emptyset/(\text{BY OBJ})
\end{equation}
\begin{equation}
(\text{OBJ}) \rightarrow (\text{SUBJ})
\end{equation}
b. Morphological change: \( V \rightarrow V_{[\text{Part}]} \)

Hence the change of the verbal form (e.g., from ‘love’ to ‘loved’) is accompanied by the realization of the object of the active verb as the subject of the passive one and by the deletion of the subject of the active verb (or by its realization as a prepositional object).

Within GPSG, the active-passive relationship is dealt with by means of an operation called ‘metarule’. The Passive metarule has the following form (see Gazdar & al. 1985:59)

\[
\text{VP} \rightarrow W, \text{NP} \\
\downarrow \\
\text{VP [PAS]} \rightarrow W, (\text{PP}[by])
\]

The first line of such a metarule states an ID-rule (see above) which generates a VP dominating an NP. From such a rule, a new rule is formed which introduces a VP whose V head is in the passive form and which does not contain any NP, while it may contain a PP introduced by the preposition ‘by’ (\( W \) is a variable over all categories). The task of metarules in GPSG is analogous to the task performed by certain transformations in transformational grammar (cf. Sells 1985:90): I said “certain transformations” since metarules only deal with phenomena which are bounded to a clausal domain, such as Passive. And indeed, phenomena involving two or more sentences (such as those accounted for by Raising or EQUI, in transformational terms, or unbounded dependencies) are treated within GPSG by other devices.

The treatment of Raising and EQUI phenomena is one which may show the greatest similarities between LFG and GPSG. Both theories share the assumption (originally made by Montague and by Brame) that the infinitival complements of verbs such as ‘seem’, or ‘tend’, etc., on the one hand, and of ‘want’, ‘promise’, ‘persuade’, etc., on the other, are not sentences, but verb phrases. All such frameworks must therefore find another explanation for the different behavior of such classes of verbs, which Rosenbaum’s ‘standard’ treatment accounted for in transformational terms. In Rosenbaum’s framework, the ‘Raising’ transformation was kept distinct from the ‘EQUI’ transformation: the former accounted for verbs such as ‘seem’, the latter for those such as ‘promise’, ‘persuade’, or ‘want’ (see above: 8.4.4). Even Chomsky’s theory of syntax analyzed such constructions in non-transformational terms, from the early seventies onwards: unlike LFG and GPSG, however, it went on to assume that the infinitival complements of the above mentioned verbs are sentences and to distinguish the ‘Raising’ cases from the ‘EQUI’ (renamed ‘control’) ones (see below: 10.2.4).
Both GPSG and LFG account for the difference between ‘raising’ and ‘EQUI’ (or ‘control’) verbs in terms of the difference in their lexical properties and neither assigns any structural position to the ‘controlled’ element. According to LFG, infinitival complements are ‘open’ (or ‘unsaturated’) functional structures, lacking a subject argument which is ‘controlled’ by an argument within the main clause. The ‘Lexical Rule of Functional Control’\textsuperscript{13} of Bresnan (1982b:322) states that such a controller is: (a) the indirect object, if it is present; otherwise, (b): the direct object, if it is present; otherwise, (c): the subject. In the case of verbs like ‘seem’ or ‘try’, the controller is the subject, since neither an indirect object nor a direct object is present (in such sentences as ‘John seems to me to be a liar’, the experiencer ‘to me’ is considered by Bresnan to be a grammatical function different from that of indirect object). The only difference between ‘seem’, on the one hand, and ‘try’, on the other, lies in the different properties of their respective subjects: the subject of ‘seem’ is not part of its lexical entry, while the subject of ‘try’ is. This eliminates any structural distinction between ‘Raising’ and ‘EQUI’ constructions.

The formal treatment of infinitival complements within GPSG is rather involved. One can (somewhat wildly) summarize it by saying that, analogously to what happens within LFG, the understood subject of the infinitival clause is controlled by a NP within the matrix clause and it has no categorial syntactic realization but only a semantic interpretation. In Raising constructions, the subject of the matrix clause is the controller and, since it is not associated with any semantic role, it shares all properties of the understood infinitival subject. By contrast, the subject of an EQUI verb, such as ‘try’, is semantically restricted, and therefore it cannot share all the properties of the understood subject. This explains the long-noticed contrast between the following pair of sentences, since it is rather odd that an inanimate entity such as ‘story’ may be able to try something:

\begin{enumerate}
\item a. This story seems to please everybody
\item b. ??This story tries to please everybody
\end{enumerate}

This same difference between the subcategorization properties of ‘seem’ vs. those of ‘try’ also explains why only the verbs of the former class can take an expletive subject:

\begin{enumerate}
\item a. There seemed to be a unicorn in the garden
\item b. *There tried to be a unicorn in the garden
\end{enumerate}

\textsuperscript{13} LFG distinguishes ‘functional’ from ‘anaphoric’ control, the latter exemplified, among other cases, by the understood subject of the gerundive phrase in such sentences as ‘Eating together would be more economical’. Anaphoric control will not be discussed here.
Since ‘seem’ is unrestricted in the choice of its subject, it can also take a NP subject which has no semantic role at all, namely an expletive like ‘it’.

Let’s now turn to unbounded dependencies, which are exemplified by sentences such as those of (27):

(27) a. Who did you see?
    b. Who do you think that John saw?
    c. Who do you think that Bill said that John saw?

GPSG deals with unbounded dependencies by resorting to two formal devices: the notion of ‘empty node’ and that of ‘slash notation’. The former notion means that in a sentence like (27) above, the object of ‘see’ would be represented in the tree diagram generated by PS-rules as a NP category which does not dominate any lexical material. This category is marked by a ‘slash’: NP/NP. Such a ‘slash’ feature is carried along throughout all nodes which dominate the empty category, until the top of the sentence, where it combines with an identical ‘unslashed’ category. Hence (27a) would have the following representation (which abstracts from the phenomena of subject/auxiliary inversion and ‘do’ insertion, and where ‘e’ is the symbol for the empty category):

(28) \[
\begin{array}{c}
S \\
| \\
NP \\
| \\
| \\
NP \\
| \\
who \\
| \\
you \\
| \\
S/NP \\
| \\
| \\
V \\
| \\
see \\
| \\
VP/NP \\
| \\
| \\
NP/NP \\
| \\
\end{array}
\]

The ‘slashed’ category S/NP combines with NP to give the category S: one can notice the similarity of this device to those of Categorial Grammar (see above:8.2). Of course, a structure like (28) would be generated as such by PS-rules, and therefore no transformation is needed to account for it and for any unbounded dependency. The idea of empty categories plays an absolutely central role also in Chomsky’s theory of grammar (cf. ch. 10). The latter theory, however, preserves the notion of transformation, in the form of the movement of the ‘wh’-constituent from a ‘deep’ position (that of e in (28)) to the ‘surface’ one.

LFG avoids the assumption not only of movement rules, but also of empty categories. Unbounded dependencies are accounted for at the level of f-structure (see especially Kaplan & Zaenen 1989). The f-structure of sentences such as (27) would indicate that the relation between ‘who’ and the object of
‘see’ or ‘saw’ “is one of functional identity, just like the relation between a functional controller in a raising or equi construction and its controllee” (Kaplan & Zaenen 1989:30). LFG treatment of unbounded dependencies (‘long-distance dependencies’, in the theory’s own terms) is indeed analogous to a case of functional control. However, as Kaplan and Zaenen immediately add (ibid.), “the linguistic conditions on the linkages in functional control and long distance dependencies are quite different”: for unbounded dependencies are constrained by ‘island’ phenomena (cf. above:8.4.5). Kaplan and Zaenen argue that such phenomena are better accounted for in terms of functional relations than of structural properties; linguists working within the Chomskian program followed the opposite path (see below:10.2.1; 10.3.3).

The formal similarities between LFG and GPSG, on the one hand, and the theory developed within the ‘Chomskian program’ on the other are surely closer than those between all three of these theories taken together and Relational Grammar, or Generative Semantics, not to speak of functional or typological theories. Nevertheless, their goals are quite distant from each other, and this renders them barely comparable, even if they often investigate the same sets of facts, such as the control constructions, or the ‘wh-’ ones. For example, it has already been said that both Chomskian syntax and LFG aim at ‘psychological reality’, but they interpret this notion in a very different way; GPSG, for its part, explicitly pays no attention to such a problem. Wasow (1985:197) interprets the differences between the three theories by suggesting that Chomskian syntax may be considered as pursuing the goal of explanatory adequacy, LFG that of descriptive adequacy and GPSG that of observational adequacy. Such a suggestion may be a bit of an oversimplification, but it contains some truth. In any case, one can surely agree that both LFG and GPSG try to give adequate descriptions of phenomena and statements of rules, while the Chomskian program takes such phenomena as a starting point for the formulation of more general hypotheses about language structure and Universal Grammar.
CHAPTER 10

THE ‘CHOMSKIAN PROGRAM’

0. Introduction

The subject of the present chapter is the syntactic theory worked out by Chomsky and his closest associates (mostly, but not exclusively, his former Ph.D. students) in the period from the late sixties until now. Throughout this period, it has been known by different names: during the seventies, first ‘Extended Standard Theory’ (EST; cf. also above:404) and ‘trace grammar’; in the eighties, ‘Government-Binding Theory’ (GB-Theory), or ‘Principles and Parameters Theory’ (the latter name is that largely preferred by Chomsky himself; cf., e.g., Chomsky 1995a:162fn.1); from the early nineties until today, the ‘Minimalist Program’ (MP). For practical purposes, all of these may be labeled the ‘Chomskian program’. EST, GB-Theory and MP represent the three different phases (until now) of the Chomskian program. Three works of Chomsky’s could be considered the landmarks of each of these three phases: Chomsky (1973) for EST; Chomsky (1981a) for GB-Theory; and Chomsky (1995a) for the Minimalist Program.

Such phases will be investigated in sections 2, 3 and 4 of the present chapter, respectively. The main concern of the program during its first phase was the definition of restrictions on the functioning and on the format of syntactic rules. The first, decisive, step in this direction is the system of conditions on the transformations of Chomsky (1973), whose main lines are presented in 10.2.1. In this essay, and, more systematically, in Chomsky (1975c) two further notions were elaborated which were to become fundamental in the subsequent development of the Chomskian program: ‘trace’ and ‘Logical Form’; they will be presented in 10.2.2. Section 10.2.3 deals with some important contributions to the Chomskian program made by J. Emonds and R. Jackendoff: the restriction of the format of transformational rules and phrase structure rules. This restriction of the rule format, conjoined with the restriction of rule functioning of

1 The abbreviations EST, GB, and MP were introduced by Chomsky himself, and will therefore be employed in the present discussion.
Chomsky (1973), led the Chomskian program to dispose of the notion ‘rule’ entirely. The first steps in this direction are described in 10.2.4, together with the empirical issues and the theoretical proposals which immediately led to the formulation of Principles & Parameters theory, at the end of the seventies. This theory actually represents the fulfillment and the systematization of the research of the preceding decade. Its basic notions are investigated in 10.3.1; the immediately following sections (10.3.2-10.3.3) illustrate the developments of the theory during the eighties, together with some insights which later inspired the Minimalist Program. Such topics are further discussed in 10.4.1 and the main lines of the Minimalist Program are investigated in 10.4.2. The last section of the chapter (10.4.3) presents the proposal of Kayne (1994), which, although not incompatible with Chomsky’s minimalist framework, was worked out independently from it and stimulated a large amount of research within the generative field.

Before entering into the details, it may be useful to sketch some essential features of the Chomskian program which characterized it throughout its different stages: they will be the topic of the immediately following section.

1. **Chomsky’s concept of ‘Universal Grammar’**

   One could say that the leading ideas of the Chomskian program are essentially two, both of which were already present in his early works: 1) the realistic interpretation of linguistic theory (see above:352); and the 2) the notion of ‘simplicity of the theory’, borrowed from philosophy of science, whose importance was stated as early as in LSLT (see above:336). The joint effect of these two ideas was Chomsky’s own reshaping of the notion ‘Universal Grammar’ (UG), which he had initially borrowed from the tradition starting with Port-Royal (cf. above:8.4.3; 9.1.1). However, while Port-Royal scholars used the phrase ‘Universal Grammar’ (to be exact, ‘general grammar’) in reference to the fact that all languages express the same categories of thought, Chomsky used it to refer to the device of language acquisition (LAD; cf. above:352) which was assumed to be shared by all human beings and thus, to be innate. According to Chomsky, the proper goal of linguistic theory, and of syntax in particular, is to “find properties of language that can reasonably be supposed not to have been learned” (Chomsky 1975c:30). Chomsky therefore combined a deductive approach to linguistic theory with the realistic interpretation of it: ‘simplicity’ ultimately means the ‘restriction of available options’. In other terms: since Chomsky saw the goal of linguistic theory in the explanation of language acquisition, which he described as astonishingly rapid and with little reliance on any explicit learning, he deemed it necessary to find out some principles defining the class of possible grammars for any natural language in a very restrictive way.
The path initially followed by Chomsky (see especially 1973; 1975c; 1976) was to formulate some conditions that transformational rules must obey if they are to adequately describe any natural language. The conditions stated in Chomsky’s (1973) paper were originally conceived as conditions on the functioning of rules; later, they received a partially different interpretation (see below:445-446). The great abstractness of such conditions was assumed to be the proof that they could not possibly have been taught by adults or inductively discovered by the child. Hence, while Port-Royal grammar was mainly searching for universal categories and rules, Chomsky mainly attempted at formulating universal conditions on rules, or universal principles governing rule application. These principles should reach the highest possible level of simplicity, in the sense that they should be strongly limited in number and that the format and the functioning of the specific grammatical rules should be deducible from them.

If one surveys the whole Chomskian program from its beginnings up to the present day, one notices that the research strategy has been the same throughout: the immediately preceding stage of the theory is assumed as the starting point for the next. Revisions are made on account of empirical and conceptual issues. The former have to do with consequences that follow from the theoretical assumptions but which do not really hold; the latter arise when theoretical assumptions are revealed as either partly redundant, or based on spurious generalizations, or not fully compatible with the concept of Universal Grammar which is both the starting point of the research and its ultimate goal. For such reasons, a partly revised model is proposed which is again subject to further revisions as is the case in any empirical science. In what follows, a (necessarily limited) account of such successive developments of the Chomskian program will be given.

2. The seventies: ‘conditions’ and ‘filters’

2.1 Restricting the functioning of grammatical rules:
‘conditions on transformations’

Principles to restrict the nature of grammatical rules were formulated by Chomsky already in his early works. One of them was the ‘structure-dependence’ of transformational rules (see above:344). When from the beginning of the seventies the search for Universal Grammar began to be systematically pursued, such a principle was interpreted as an instruction contained “in the child’s mind”: “the principle of structure-dependence is not learned, but forms part of the conditions for language learning” (Chomsky 1975c:33). Another condition which looked liked a good candidate for becoming a principle of UG was the ‘A-over-A principle’. The problems connected with this principle and Ross’ solution to them were illustrated above (8.4.5): since it also ex-
cluded some grammatical sentences, Ross proposed to replace it with a battery of specific descriptive constraints (CNPC, LBC, etc), which achieved the same results without producing undesired effects. In Chomsky’s terms, Ross’ solution was certainly more adequate on a ‘descriptive’ level, but it lacked ‘explanatory’ power. One could rightly maintain that the whole Chomskian program has been led by the effort of attaining an increasingly higher degree of explanatory adequacy, sometimes even at a cost of descriptive adequacy.

The research strategy adopted by Chomsky (1973) therefore consisted in searching for other principles analogous to the ‘A-over-A principle’: namely, principles abstract enough to make it necessary to postulate them as innate, but also able to yield the same descriptive results for such descriptive statements as CNPC and other constraints of Ross’. Those which lay at the heart of the subsequent research were the ‘Subjacency Condition’, the ‘Specified Subject Condition’ (SSC) and the ‘Tensed Sentence Condition’ (TSC). Let’s first investigate SSC and TSC. Their formulation as reproduced here is from Chomsky (1977b[1976]:176), since, although being almost identical in its essence to that found in Chomsky (1973), it seems clearer and more general (both conditions are expressed by means of a single statement):

(A) Consider a structure of the form:

...X...[α...Y...X...]

Then no rule can involve X and Y in (A) [= (11), in Chomsky’s original numbering] where α is a tensed-S (the tensed-S condition) [footnote omitted] or where α contains a subject distinct from Y and not controlled by X (the specified subject condition).

The term ‘involve’ is intentionally generic: it means that both TSC and SSC can block the application of transformational rules, and of interpretive rules as well.

Examples of the latter kind of rules are what Chomsky called ‘Reciprocal Interpretation’ and ‘Disjoint Reference’. They have the task of accounting for the distribution of pronouns, reflexive pronouns and reciprocals. Early research within generative grammar (Lees & Klima 1963; Ross 1967b; Langacker 1969; cf. above:348; 358-359) had shown that: (a) personal pronouns cannot have any antecedent within their clause; (b) reflexive pronouns must have an antecedent within their clause; (c) pronouns cannot both precede their antecedents and be in a clause which is not subordinate to that of the antecedents. In all quoted works, and in the ‘standard’ theory as well, pronouns were introduced by means of transformational rules. Such a treatment of pronouns, however, soon ran into empirical problems, such as the so-called ‘Bach & Peters’ paradox’, an instance of which is a sentence like ‘A boy who saw her kissed a girl who knew him’ (from McCawley 1970). How is it possible to account for the occurrence of pronouns in that sentence in transformational terms? In fact, the
pronoun ‘her’ should have transformationally replaced ‘a girl who knew him’; but the pronoun ‘him’ of the latter phrase should have transformationally replaced ‘a boy who saw her’, where the pronoun ‘her’ should again have replaced ‘a girl who knew him’; and so on in infinitum.

To deal with such kinds of problems, an alternative treatment was argued for mainly by Dougherty (1969) and Jackendoff (1972): pronouns were directly introduced into the deep structure, and subsequent interpretive rules had to account for their meaning. The above quoted sentence would be generated as such in deep structure and the interpretive rules would assign to the pronouns ‘her’ and ‘him’ the same reference of ‘the girl’ and ‘the boy’, respectively. Some other relevant examples of interpretive rules are:

(1)  
   a. The men like each other  
   b. The men like them  
   c. Bill likes him

In (1a), ‘Reciprocal Interpretation’ applies and ‘each other’ is appropriately assigned an antecedent (‘the men’). In (1b) and (1c), Disjoint Reference applies: ‘them’ and ‘him’ are obligatorily interpreted as non-coreferent with ‘the men’ and with ‘Bill’, respectively (cf. Chomsky 1977b[1976]:179; examples have been somewhat adapted). Consider now sentences (2) and (3):

(2)  
   a. The men want [John to like each other]  
   b. The men want [John to like them]  
   c. Bill wants [John to like him]

(3)  
   a. The men expected [that each other would win]  
   b. The men expected [that they would win]  
   c. Bill expected [that he would win]

The status of such sentences is exactly the opposite of sentences (1): sentence (a) is ungrammatical; sentence (b) is perfectly interpretable with ‘them’ or ‘they’ coreferent with ‘the men’; and sentence (c) with ‘him’ or ‘he’ coreferent with ‘Bill’. Chomsky accounted for such phenomena by stating that the application of Reciprocal Interpretation and Disjoint Reference is blocked: in (2), by SSC (where the specified subject is ‘John’), and in (3), by TSC, since the embedded clause is a finite one. Contrasting with (2), Reciprocal Interpretation applies in a sentence such as (4):

(4) We wanted to kill each other

This was explained by Chomsky by assuming that the subject of ‘kill’ is ‘controlled’ by ‘we’ and thus the rule is not blocked by SSC (cf. (A) above). After Chomsky (1973), such a controlled ‘understood’ subject was represented by means of the symbol PRO:

(5) We wanted [PRO to kill each other]
Chomsky (1977b[1973]:120) says that “PRO is controlled by the subject ‘we’ and is deleted by EQUI-NP deletion” (on this transformation, see above:356).

Hence SSC and TSC make structures in the domain of a subject (SSC), as well as structures in the domain of finite tense (TSC), inaccessible to both transformational and interpretive rules. Let’s now investigate the Subjacency Condition: it restricts the domain of the application of transformational rules. Again because of its greater clarity, the definition of the Subjacency Condition reproduced here is taken from a more recent essay than Chomsky (1973):

(B) I will understand the subjacency condition as holding that a cyclic rule cannot move a phrase from position $Y$ to position $X$ (or conversely) in:

$...X...[\alpha...[\beta...Y...]...]\...X...,\text{ where }\alpha\text{ and }\beta\text{ are cyclic nodes}$.

(Chomsky 1977a:73)

This definition essentially presupposes the notions of ‘cycle’ and ‘cyclic node’, or ‘cyclic category’. The ‘cycle’ has been illustrated above (cf. 8.4.3). Initially, the only category assumed to be cyclic was the sentence: but recall that, in his investigation of English nominalizations, Chomsky (1970a) had maintained that a cyclic transformation such as Passive can have the NP as well as the sentence as its domain of application (cf. above:367). Chomsky (1973) therefore assumed that the ‘cyclic nodes’ are the NP and the sentence. Akmajian (1975) further argued for the cyclic nature of NP.

Let’s now examine which phenomena were accounted for by means of the Subjacency Condition (together with the extension of the notion of cyclic nodes to NPs as well). Chomsky was able to show that Ross’s CNPC or analogous ‘island’ conditions were actually special cases of the Subjacency Condition, which therefore appeared as a more general principle. For example, a sentence such as (6a) would be ungrammatical since it would derive from a deep structure such as (6b), and the ‘wh’-element would have to cross two cyclic nodes (the embedded S and the NP headed by ‘claim’) to reach sentence initial position (cf. Chomsky 1977b[1973]:103):

(6)  a. *Who does he believe the claim that John saw?
    b. He believes [NP the claim [S John saw who]]

How is it possible, however, that a sentence such as (7a) is grammatical, since it would derive from a source such as (7b)?

(7)  a. Who do you expect to hear stories about?
    b. you expect [S PRO to hear [NP stories about who]]

In this case too, the ‘wh’-element has to cross two cyclic nodes: first NP, then S. Furthermore, such a movement would violate SSC, since it would ‘involve’ two positions (the initial and the final ones of ‘who’) across a structure $\alpha$ (= the embedded S) whose subject is not controlled by ‘who’. To overcome this
problem, Chomsky relied on the analysis of complementizers worked out by Joan Bresnan (1970; 1972). Rosenbaum’s treatment of complementizers assumed that they are transformationally introduced (see above: 8.4.4). By contrast, Bresnan argued that complementizers are introduced by phrase structure rules at the deep structure level: hence, in a language like English, the first position within each clause would be occupied by a constituent labeled COMP. Such assumptions necessarily led to a different analysis of the category ‘sentence’ with respect to that of early generative studies: the sentence was no longer conceived as simply constituted by a subject and a predicate, but by a complementizer (the ‘periphery’) and a subject-predicate ‘nucleus’. Such a more complex structure of the sentence is accounted for by the joint effect of the following two rules:2

(8)  

a. S’ → COMP S  
b. S → NP VP

Chomsky (1977b[1973]:98) assumed that the cyclic category is S’, while S is not. The COMP constituent could take the alternative values of ‘that’ (= finite non-interrogative clause), ‘WH’ (= interrogative clause) or ‘for’ (= infinitival clause; cf. Bresnan 1970). A sentence such as (7b) would therefore be represented as follows (cf. Chomsky 1977a[1973]:106):

(9) COMP you expect [S COMP PRO to hear [NP stories about who]]

(7a) would be generated by a cyclic application of the ‘wh-movement’ rule: namely, it would firstly move the ‘wh’-element into the COMP position of the embedded sentence, then into that of the main one. The subjacency condition would therefore be respected, since ‘wh’-movement never crosses two cyclic nodes at once: in the first step, only the NP node is crossed; in the second step, only the S’ one. By the same means, Chomsky (1977b[1973]:98) also accounted for the apparent violation of SSC: ‘who’ would firstly move to COMP of the embedded sentence, and then to COMP of the main sentence. The first step lies within the domain α of (A) above, hence it does not violate SSC. The second step was allowed by stipulation: movement from COMP to COMP would be subject neither to SSC nor to TSC. A good deal of the research of subsequent years tried to make this stipulation derive from independent principles.

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2 Symbol S’ has to be read ‘S-bar’. Rules (8) are actually formulated as follows in Chomsky (1977b[1973]:98):

a. S → COMP S’  
b. S’ → NP Aux VP

Then the value of S’ and S is the reverse of Bresnan’s. The latter, however, became standard in later years and it was also adopted by Chomsky.
(6) is the reverse of (7): to reach COMP position, ‘who’ has to cross both the NP and the S nodes in the same step. Note, in fact, that, representing (6b) as

(10) COMP He believes [NP the claim [S COMP John saw who]]

‘who’ would first have to move into COMP position of the most embedded clause; but it would still have to cross two cyclic nodes at once, namely the embedded S’ and the NP, to reach the initial COMP position. It would be forced to do so since NP lacks the COMP position: this is the basic difference between the two categories in Chomsky’s (1973) framework. Hence, according to Chomsky, such facts as the contrast (6a) vs. (7a) did not falsify the Subjacency Condition: quite the contrary, they supported it.

Another constraint formulated as early as in Chomsky (1964b), namely that the “‘wh’-transformation may not reapply to a given string”, was accounted for by relying on exactly the same explanation. It had to account for the ungrammaticality of a sentence like

(11) *What did he wonder where John put

Such a constraint was named (possibly after Chomsky 1977a) ‘wh-island constraint’ and became one of the most discussed topics within the Chomskian program. Chomsky (1977b[1973]:99) made (11) derive from deep structure (12):

(12) COMP he wondered [S COMP John put what where]

He then observed that, to derive (11) from (12), ‘where’ would have first to move into the COMP position of the embedded clause. But now, ‘what’ would have to move directly into the main clause COMP, since the embedded COMP position would be occupied: this kind of movement would violate SSC and TSC, hence the ungrammaticality of (11).

2.2 The birth of the notions of ‘trace’ and ‘Logical Form’

Chomsky (1973) introduced an idea which was to mark the development of his research program in the subsequent decades: the so-called ‘trace theory of movement rules’. He suggested that an NP moved by a transformation such as ‘Subject Raising’ (‘It-replacement’ in his own terms; ‘Pronoun Replacement’ according to Rosenbaum 1967) “leaves behind a ‘trace’ (...). The trace might be PRO, or it might be the null element” (Chomsky 1977b[1973]:131). This idea of a null element was not unprecedented in the history of syntax: think, e.g., of Bloomfield’s and post-Bloomfieldians’ notion of ‘zero-element’ (cf. above:5.2.3; 5.3.5; 6.1.4); or of that of Bally’s and Hjelmslev’s ‘zero-sign’ (cf. 6.2.3). Chomsky, however, did not refer to any of these scholars: his conjecture was only motivated by the observation that the original deep structure position of the ‘raised’ subject plays a role in determining the well-formedness of the
sentence. It can function as 'specified subject' in the sense defined in the pre­
ceding section. It has been seen that the 'specified subject' blocks the applica­
tion of transformational as well as of interpretive rules, such as 'Disjoint Ref­
erence'. Let's now consider the following sentences (from Chomsky
1977b[1976]:180):

(13) a. The men seem to John t to like them
b. John seems to the men t to like them

Symbol t ('trace') indicates the deep structure position of 'the men' and of
'John', respectively. They are originally subjects of the embedded clause and
they become subjects of the main clause, by means of the Subject Raising
transformation. Disjoint Reference may apply only in (13a): 'the men' cannot
be coreferential with 'them'. By contrast, 'the men' and 'them' can be corefer­
tential in (13b). By considering t a NP like any NP in subject position, an im­
mediate explanation of this contrast is achieved: in (13b), t is a specified sub­
ject, since it is not controlled by the NP 'the men', which can therefore freely
corefer with 'them'. In (13a), by contrast, t is controlled by 'the men': hence
the reference between 'the men' and 'them' is obligatorily disjoint, as would
happen in such sentences as (14):

(14) The men want [PRO to like them]

where the subject PRO is controlled by the subject of the main clause ('the
men'). Are trace and PRO instances of the same category, or of different cate­
gories? Chomsky (1973) did not give any definite answer. In the immediately
subsequent years, the first solution was the preferred one (see Koster 1978, but
also Chomsky & Lasnik 1977). Since the late seventies, however, PRO and
trace began to be considered as two different kinds of 'empty' categories, i.e.
of categories without phonetic realization. This topic will be taken up again in
a later section (10.3.1).

The notion of trace, introduced as a somewhat auxiliary one in Chomsky
(1973), became the focus of attention in immediately subsequent works, espe­
cially Chomsky (1975c:ch.3; 1976; 1977a,b). Chomsky aimed at showing that
trace, far from being a simple notational device, accounted for many phenom­
ena, not only at the syntactic level, but also at the semantic and phonetic ones.
At the latter level, Chomsky (e.g., 1977b:75) maintained that the trace pro­
duced a “curious effect”. Take, e.g., a sentence such as (15a); now, if 'want to'
contracts into 'wanna' in (15b), 'who' can only be interpreted as the object,
never as the subject of 'leave'. This puzzling fact can be easily explained,

3 This view of the trace, i.e. as constituent identical to a NP, or to a 'wh'-phrase, as opposed to
a single word, was actually held only since Chomsky (1977a). In this paper, Chomsky (p.83)
explicitly recognized that, in previous works (Chomsky 1976), trace has been referred to as a
terminal symbol: “That was an error".
Chomsky argued, by considering that (15a) has two possible derivations. ‘Who’ may have been moved into the sentence-initial position from the position of subject or from that of object of ‘leave’: in the former case, its trace $t$ would be in the position indicated in (15c); in the latter one, in that indicated in (15d):

(15) a. Who do you want to leave?
    b. Who do you wanna leave?
    c. Who do you want $t$ to leave?
    d. Who do you want PRO to leave $t$?

Hence a trace would intervene between ‘want’ and ‘to’ only in (15c), namely when ‘who’ has the function of subject of ‘leave’: it would “block” the contraction of ‘want to’ into ‘wanna’, and this would be its “curious phonetic effect”. In (15d), by contrast, PRO does not block contraction: hence (15b) may be derived, with ‘who’ interpreted only as the object of ‘leave’.4

The resort to the notion of trace to account for some aspects of the semantic interpretation of syntactic structures was especially important, from the point of view of the evolution of the Chomskian program: in fact, it was connected to the birth of the notion of ‘Logical Form’. Traces were interpreted as variables bound by quantifiers. Take, for example, the following sentence:

(16) The police know who the FBI discovered that Bill shot

Chomsky (1975c:93-4) maintained that the ‘wh’-word could be considered as “a kind of quantifier”.5 Thus, the “logical form” of (16) (Chomsky himself uses the quotes) can be taken to be (17):

(17) The police know for which person $x$, the FBI discovered that Bill shot $x$

‘Logical Form’ (17) is immediately obtained by (18), interpreting ‘who’ as a quantifier and the trace $t$ as the variable bound by it, in the sense of first-order predicate calculus:

(18) [the police know $S$ who, the FBI discovered $S$ that Bill shot $t$,]

---

4 Chomsky’s analysis was criticized by several scholars (e.g. Postal & Pullum 1982), and accepted and developed by others (e.g. Jaeggli 1980): controversies centered about both empirical data and proposed explanations. Until today, no winner has emerged from the “contraction debate”.

5 Such an interpretation of interrogative pronouns was not unprecedented, as was noted by Bach (1977:137). It is already found in Jespersen (1924:303), Carnap (1937:296) and Reichenbach (1947:340). The label ‘quantifier’ is not, however, used by any of these scholars: Jespersen says that in ‘wh’-questions (‘x-questions’, in his terms) “we have an unknown quantity”. Carnap and Reichenbach speak of interrogative ‘operators’.
(18), in its turn, is derived by movement of the ‘wh’-phrase from the position of the direct object of ‘shot’ to the initial position of the embedded interrogative sentence (the identity of subscripts $i$ indicates that $t$ is the trace of ‘who’).

The notion of Logical Form in generative grammar received further motivation in Robert May’s Ph. D. thesis (May 1977), which introduced the so-called rule of ‘Quantifier Raising’ (QR). As an example, this rule would derive, Logical Form (19) from a surface structure like (20):

\[
(19) \text{John saw everyone} \\
(20) [S [NP everyone, [S John saw [NP $t_i$]]]]
\]

(20) can be immediately translated into formula (21) of the first-order predicate calculus:

\[
(21) \text{for every } x, x \text{ a human, John saw } x
\]

In my opinion, the assumption of rules such as QR marked a turning point in generative grammar. QR in fact is a very powerful hypothesis: movement rules would apply even when we do not have any “perceptible” proof of their existence. The case of ‘wh-movement’ (as in (15)-(16), above) is rather different: one can show that a ‘wh’-phrase has “moved” by showing that it has left a “gap”, that this gap cannot be filled by any other constituent, that idioms can be “broken” and can still keep their idiomatic meaning, that prepositions can be “stranded” in a language such as English, and so on and so forth. No argument of this kind can be given for a rule such as QR: the only motivation behind it is to give an interpretation to a “logical” word, that is to say a word like ‘every’ or ‘some’. This interpretation is given in the language of first order predicate calculus: the generative grammar approach, in this respect, again looks rather similar to Reichenbach’s position, where quantifiers are a class of “logical terms in a semantical capacity” (cf. above:8.2). The notions of Logical Form (LF) and of ‘covert’ movement (also called ‘movement in LF’) gained an increasingly fundamental role in the development of the Chomskian program, especially from the eighties onwards, as will often be seen below (cf. 10.3.3; 10.4.2).

2.3 Restricting the format of grammatical rules: ‘structure-preserving constraint’ and ‘X-bar theory’

Principles such as those described in 10.2.1 (Subjacency, SSC and TSC) concerned the functioning of transformational rules; another aspect of the Chomskian program during the seventies was the search for principles concerning the format of the rules, both of the transformational and phrase structure kinds. The most important restrictions on the format of transformational rules were worked out by Joseph E. Emonds (1970; 1976).
Emonds stated that transformations necessarily belong to one of the following three types. 1) ‘Root transformations’: those which only apply in the sentence dominated by the highest S node (i.e., the ‘root’ of the phrase structure tree). 2) ‘Structure-preserving transformations’: those which may also apply in embedded sentences, but they only move or copy constituents into positions which cannot be generated by phrase structure rules. Such positions are already occupied by constituents belonging to the same category of the moved or copied constituents. 3) ‘Local transformations’, called ‘minor (movement) transformations’ in Emonds (1970): those which may apply in root sentences and in embedded sentences as well, but which can only operate on ‘adjacent’ constituents, i.e. those not separated by any other constituent. Local transformations obey the further constraint that at least one of the concerned constituents is a ‘nonphrase’ node, namely it cannot be a NP, or an AP, or a VP, or a PP (cf. Emonds 1976:3-4).

Let’s now give one example for each type of transformation. A case of root transformation is the rule of subject inversion in English (and in other Germanic languages). It applies in interrogative main clauses, but it cannot apply in interrogative dependent clauses, since it is not structure preserving. Its effect is to generate structures such as:

(22) is not generable by English phrase structure rules. Therefore, a transformation is necessary to generate it. Such a transformation, however, cannot apply within dependent sentences, as the ungrammaticality of (23) shows:

(23) *I have asked Bill if is John a good professor

The most typical example of a structure-preserving transformation is possibly passive transformation. In its “classical” formulation (cf., e.g., LSLT:356-357, and above, 8.4.2. ex. (21)-(22)), it moves the object NP into the position of the subject NP, and moves the subject NP into a PP position; past participles are considered as a subclass of adjectives, namely those which cannot be modified by ‘very’. Putting these observations in a tree diagram, one obtains the following:
This same structure is also generable by phrase structure rules, with, for example, an adjective such as 'tired' (cf. LSLT:357):

Passive is therefore a structure-preserving transformation and it can also apply in embedded sentences. As for local transformations, a typical example is 'Affix hopping' (see above:342).

Such restrictions on the kinds of possible transformations allowed Emonds to formulate his 'structure preserving constraint', once 'major transformational operations' had been defined as all except local ones: “Major grammatical transformational operations are either root or structure-preserving operations” (Emonds 1976:5).

In a sense, Emonds' work reached the same goal as X-bar theory (see above:8.4.5). Both aimed at defining the notion of 'possible rule': Emonds' theory applies to the transformational component, X-bar theory to the phrase structure component. And, in point of fact, X-bar theory, which was only sketched out in Chomsky (1970a), was systematically worked out in particular by Emonds himself and by Jackendoff. Jackendoff (1973) extended the X-bar scheme to Prepositional Phrases, which had not been dealt with by Chomsky (1970a). Emonds (1976:ch.1) introduced the notion of 'head-of-phrase', hence resorting to a standard structuralist notion. 'Heads-of-phrase' are N, V, A and P: Emonds (p.14) called the first three 'lexical' categories and the fourth one 'nonlexical'. Categories dominating the heads-of-phrase (namely, the X-level category) were named by Jackendoff (1977:30) 'supercategories' of X, or
‘projections’ of lexical categories (ibid.:fn1). The term ‘head-of-phrase’ was gradually replaced by the simpler ‘head’ and the label ‘projection’ was eventually preferred to ‘supercategory’. Emonds fixed the maximal level of projection at two bars (X”), Jackendoff extended it to three (X’’'). At the end of the seventies, the standard terminology of X-bar theory was established (cf., e.g., van Riemsdijk 1978a:31): X-level categories were called ‘heads’, X’-level categories, ‘intermediate projections’, and X” categories ‘maximal projections’. As in Chomsky (1970a), anything immediately dominated by X’, except X, was dubbed ‘complement’, and anything immediately dominated by X’’, except X’, ‘specifier’.

The conception of phrase structure underlying X-bar theory was apparently closer to that held by some structuralist linguists than to that found in works of the early generative period. In particular, it appeared as a development of Harris’ superscript notation (see above:289-290), as Emonds (1976:12) explicitly recognized. Postal (1964) had, however, rejected Harris’ superscript notation, and had put in doubt the adequacy of the very notions of endocentricity and head (cf. above:9.1.3). In contrast to this, Emonds (p.13) stated that “all phrases all endocentric, with the exception of S”.

Jackendoff even treated S as an endocentric category: he considered it as the maximal projection of the head V, namely as V’’’ (cf. Jackendoff 1977:37-47). Emonds justified the opposite position, namely that S is a category that cannot be reduced to a projection of V, by means of his notion of ‘recursive side’ (cf. Emonds 1976:19). He noted that recursion (namely, the possibility of embedding a potentially unlimited number of dependent clauses) normally takes place only to the right or to the left of heads, according to the language type. For example, VSO and SVO languages (to use Greenberg’s labels), are normally right-recursive, while SOV languages are left-recursive. But the subject NP of sentences also allows free recursion, even in SVO languages such as English: ‘The girl that John said that Mary claimed that Bill had dated kissed Henry’. Hence, since the subject (‘The girl’ etc.) is on the left of V (‘kissed’), if the sentence were a projection of V, such a head would have two recursive sides: on its left and on its right. Since this feature is not shared by any other head, Emonds’ conclusion was that the category S could not be reduced to a projection of V. Initially, Jackendoff’s position gained more acceptance than Emonds’: several works of the late seventies expressly replaced the label S with a projection of V (cf., e.g., van Riemsdijk 1978a; Koster 1978). Chomsky, however, adopted Emonds’ scheme (without explicit motivation) until the middle of the eighties: he assumed that the maximal level of projection was the X’ level and did not reduce the category S to a projection of V. Since Chomsky (1986b), the two level X-bar scheme was generalized to other categories, and this step involved a new representation of the categories S and S’, which how-
ever were not considered as projections of V, but of specific heads. I will come back to this topic below (10.3.3).

Let us now investigate the relation of Emonds' 'structure-preserving constraint' to trace theory. Recall that structure-preserving transformations only move or copy constituents into positions which are generable by phrase structure rules and that such positions are already occupied by constituents belonging to the same category of the moved or copied constituents. It is therefore necessary that such end positions be void of lexical content, while at the same time having a categorial label matching that of transformationally moved or copied constituents. Remember that passive transformation had been factored into two distinct transformations by Chomsky (1970a; see above:367): ‘Agent postposing’ and ‘NP-preposing’. Adopting trace theory, one may assume that first Agent postposing applies to (26), leaving a NP without lexical content, i.e. a trace, in the subject position of (27):

(26) The enemy destroyed the city by + [SN PASS]
(27) t was destroyed the city by + [SN the enemy]

Then NP preposing puts the object NP ('the city') into the position of such an empty node:

(28) [SN The city] was destroyed t by + [SN the enemy]

A structure like (28) is clearly neither a deep structure, nor a surface structure in the sense of Chomsky (1965): it is not a deep structure since it is derived by means of a transformational rule, and nor is it a surface structure since it contains an element which is “invisible”, namely the trace. Initially, Chomsky preserved the term 'surface structures', simply adding the qualification that they “are no longer those of the standard theory” (Chomsky 1975c:96). Later (e.g., Chomsky 1977b:6ff.), he used the term ‘shallow structure’, resorting to a name which had been introduced by Postal, in the Generative Semantics framework. After Chomsky (1980a), such structures were labeled ‘s-structures’, as they will be called throughout the present discussion. Even deep structures changed their name. The reason for this was Chomsky's desire to get rid of the belief that “assumptions about such structures [i.e., deep structures, G.G.] constitute the fundamental thesis of universal grammar” (Chomsky 1975c:82). He therefore chose for them (ibid.) the label ‘initial phrase markers’, which, however, did not obtain wide acceptance. Later the term ‘deep structure’ again occurred in works such as Chomsky (1977a), but was eventually replaced by ‘d-structure’ after Chomsky (1980a).6

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6 Sometimes the initials of ‘d-’ and ‘s-structure’ are written in capitals, sometimes not. The use generally adopted here is with lower-case initials, except in case of quotations which use capitals.
2.4 Abandoning grammatical rules: Filters and Case

The formulation of conditions on the functioning and on the form of rules, together with the idea of trace, resulted in a restriction of the notion ‘possible rule of grammar’. Furthermore, such conditions are not bound to any particular construction, such as relative clause, or passive, and so on: they would apply wherever a certain operation, e.g. the movement of NP, is accomplished. A consequence of this more abstract approach was the reduction of the set of postulated transformational rules, and the eventual abandonment of the notion itself of rule. Early works in generative syntax (LSLT; Chomsky 1957, 1962a; Lees 1968[1960]; etc.) listed a number of transformations which, as a minimum, exceeded twenty. After Chomsky (1973; 1975c), however, the idea developed that many apparently different rules are instances of one and the same rule. So, for example, Passive and Subject Raising would be both instances of a rule called ‘Move NP’. This idea reached its mature form in Chomsky (1977b[1976]:205), where it is stated that “at the core of syntax” there are only two rules, “each of considerably broader scope than has hitherto been imagined”: 1) NP-movement; 2) ‘wh’-movement. This reductionist program was implemented to a large extent in Chomsky (1977a), where it was maintained that a variety of operations until then treated as different rules (i.e., ‘question formation’, ‘relativization’, ‘comparative formation’, ‘topicalization’, ‘clef­ting’, and others) were actually instances of a single rule, namely ‘wh’-movement. The basis for this conclusion was the so-called ‘wh-diagnosis’ (cf. van Riemsdijk 1978b): all such rules are subject to the same constraints (CNPC and ‘wh’-island constraint), apparently violate SSC, TSC, and Subjacency Condition (see above:10.2.1), and leave a “gap” (namely, a trace) in the d-structure position of the moved constituent. The fulfillment of the reductionist program was announced in Chomsky (1980b:3): “transformational rules are re­stricted to the rule: Move α, where α is a category”.

As a matter of fact, such a reductionist program was only one aspect of the whole EST program, which, however, didn’t find its first systematic presentation before Chomsky & Lasnik (1977). Until then, indeed, studies within EST framework had shown a somewhat haphazard approach. The first of these (such as, e.g., Chomsky 1970b) were mainly replies to Generative Semantics arguments (cf. above:9.4.1). Works formulating ‘conditions of transformations’ or sketching ‘trace theory’ (Chomsky 1973; 1976) did not explicitly present an overall model of syntax, such as the ones found in LSLT, or in Chomsky (1957), or in Chomsky (1965). The new outline was expounded in detail in Chomsky & Lasnik (1977); it was taken up, with only minor changes, by subsequent works within the Chomskian program. However, the majority of both conceptual and technical solutions presented in that paper were abandoned shortly after its appearance.
According to Chomsky and Lasnik (1977:428), grammar is formed by "a base with a categorial component and a lexicon, a transformational component, and two systems of interpretive rules, a phonological and a semantic component". The base component is constrained by X-bar theory (cf. p.429) and generates deep structures, which are connected to surface structures by means of transformations. Surface structures are the input both of the phonological and of the semantic components: these components yield representations in 'Phonetic Form' (PF) and 'Logical Form' (LF), respectively (cf. p.428). The result is the following diagram of levels of representation (cf. Chomsky & Lasnik 1977:431):

Of course, 'surface structures' are to be understood in the sense of the 's-structures' of Chomsky (1980a) and subsequent works, namely as containing phonetically unrealized elements, such as traces (cf. above:10.2.2). The assumption that Logical Form, i.e. the semantic side of language, has surface structure as its input seemed to wholly reverse Chomsky's (1965) model: actually, the real innovation was the notion of trace, which radically changed the format of the so-called 'surface structures' (so that Chomsky eventually choose a new label for them). An essential difference with respect to the 'standard' model was rather the assumption that both phrase structure and transformational rules are "unordered and optional" (cf. p.431).

Of course, a system lacking rule ordering almost unavoidably generates a set of ungrammatical sentences: in technical terms, it 'overgenerates'. For example, how could the generation of sentences such as the following ones be avoided?

(30)  a. *It is unclear what John to do
      b. *John persuaded Bill [Tom to leave]

The base rules could optionally realize the subject NP of the embedded infinitival clause as 'John' or 'Tom'. The solution which informed Chomsky and Lasnik's paper was the notion of 'filter'. Namely, structures such as that contained in (30) would be excluded by a condition on surface structure which was formulated as follows (cf. p.460):

(C) *[αNP-to-VP] unless α is adjacent to and in the domain of a verb or [-N]
Since both sentences of (30) contain a sequence of the ‘filtered’ type, they are ungrammatical. The ‘unless’ clause of (C) was needed for the grammaticality, in English, of sentences such as

(31)  a. I believe [John to be incompetent]
     b. I’d prefer [for John to leave]

[-N] categories are Verbs and Prepositions, according to the classification of lexical heads worked out by Chomsky & Lasnik (cf. p.430); Nouns and Adjectives are [+N]. To complete the picture, it must be added that Verbs and Adjectives are classified as [+V] categories, while Nouns and Prepositions are [-V]. In (31a), the subject of the infinitival clause is “adjacent to and in the domain of” the verb ‘believe’; in (31b), it is “adjacent to and in the domain of” the preposition ‘for’. Hence both sentences are exempt from filter (C).

Sentences such as (30) were dubbed by Chomsky and Lasnik ‘structures of obligatory control’. Their only grammatical output is the following one:

(32)  a. It is unclear [what PRO to do]
     b. John persuaded Bill; [PRO, to leave]

In Chomsky (1973), the element PRO was assumed to be deleted by EQUI (cf. above:10.2.1). Chomsky & Lasnik (1977), on the other hand, assumed that it was interpreted by a rule of ‘construal’ (i.e., in the LF component of grammar). PRO would be interpreted as ‘arbitrary’ in cases such as (a), and as an obligatorily coreferent with an NP contained in the main clause in cases such as (b). This coreference is expressed by means of the indexing convention: in (32b), both ‘Bill’ and PRO bear the same index. PRO and trace were both called ‘empty’ categories, i.e. without phonetic content. Chomsky & Lasnik (1977:433) stated that they differ only in the way they are indexed: trace by movement, PRO by a rule of construal. The different distribution of infinitival subjects (cf. (31) vs. (32)) motivated one of the major distinctions of Chomsky & Lasnik (1977): ‘control’ vs. ‘non-control’ verbs.

In what follows, the ‘*NP-to-VP’ filter will often be referred to, as well as other filters among those proposed in Chomsky & Lasnik (1977). The picture offered by that paper was neat and systematic: filters ensured that several facts derived without further problems. Nevertheless, their explanatory power was undoubtedly limited: they rather appeared as ad hoc solutions. This was so much more astonishing since the opening pages of the article pleaded for explanatory adequacy, even at the cost of descriptive adequacy (cf. pp.426-433). Therefore, the main effort of Chomsky and other scholars sharing his research program was to strive for filters so general that they could be assumed to derive from principles, or as principles in themselves. This path was initiated shortly after the completion of Chomsky’s and Lasnik’s paper: Chomsky (1980b), the first effort in this direction, was actually circulating as early as January 1978,
as a “first draft”. More or less in the same period, some papers by other generative linguists, for the most part European, deeply modified the EST framework. All these papers together paved the way for the “Pisa lectures”.

The principles which Chomsky (1980b) resorted to in order to give his “*NP-to-VP filter” a more substantive foundation were two very traditional notions: Case (which Chomsky always writes with a capital initial) and government. Therefore the new filter read as follows (cf. Chomsky 1980b:25):

(D) *N, where N has no Case

Chomsky (ibid.) stated that filter (D) applies to ‘lexical’ Ns, i.e. those containing a ‘phonetic matrix’: hence, trace and PRO do not need Case, since they are ‘phonetically empty’. Chomsky (ibid.) obviously noticed that Case has “a phonetic effect, in English, only in the case of pronouns and ‘wh’-phrases”. Nevertheless, the existence of a syntactic Case was assumed by him to be universal.

Again relying on grammatical tradition, Case was assumed to be assigned under government. Chomsky’s innovation lay in reformulating the notion of government in purely structural terms, “in a configurational language such as English” (ibid.). The essential prerequisite for such a definition of government was the notion of ‘c-command’ (i.e., ‘constituent-command’), introduced by Reinhart in her dissertation (1976):

(E) Node A c(onstituent)-commands node B if neither A nor B dominates the other and the first branching node which dominates A dominates B. (Reinhart 1976:32)

The c-command condition had been worked out by Reinhart in order to account for the coreference restrictions between antecedents and pronouns: Ross’ and Langacker’s conditions (see above:358-359) had shown certain inadequacies. As Reinhart (ibid.) explicitly recognized, c-command was simply the converse of the relation ‘in construction with’ introduced by Klima (1964). By means of the notion of c-command, government was defined by Chomsky (1980b:25) as follows:

(F) α is governed by β if α is c-commanded by β and no major category or major category boundary appears between α and β.

---

7 The opposition ‘configurational’ vs ‘non-configurational’ languages was introduced into the Chomskian program by Kenneth Hale and his associates (cf. Hale, Jeanne & Platero 1977; Hale 1979). Such works maintain that some languages (like, e.g., the Australian language Walbiri) have a non-ordered base structure.

8 “A constituent (...) is ‘in construction with’ another constituent (...) if the former is dominated by (that is, occurs somewhere down the branch of) the first branching node that dominates the latter” (Klima 1964:297).
As has been just said, Chomsky's assumption was that Case was assigned under government. In particular, three kinds of Case would be assigned, according to the different kinds of governors (cf. ibid.):

\[(G)\]
\[\begin{align*}
&\text{a. NP is oblique when governed by P and certain marked verbs} \\
&\text{b. NP is objective when governed by V} \\
&\text{c. NP is nominative when governed by Tense}
\end{align*}\]

To understand exactly what (c) entails, one has to keep in mind that the structure of the sentence assumed in Chomsky (1980b) would have the following representation:

\[
\begin{array}{c}
\text{(33)} \\
\text{S'} \\
\text{COMP} \\
\text{S} \\
\text{NP} \quad \text{Tense} \quad \text{VP}
\end{array}
\]

S' is the category whose immediate constituents are S and the initial element COMP (see above:431). By comparing diagram (33) with definitions (E) and (F), one can see that Tense governs the NP-subject and therefore assigns nominative Case to it. In the immediately following years (especially since Chomsky 1981a), the element Tense in such a representation as (33) was replaced by INFL, meaning 'Inflection': in fact, a finite clause does not only contain tense features, but also agreement ones. The category INFL was therefore assigned the task of representing this whole bundle of features. Further developments of the Chomskian program represented the tense and agreement features not as a single head INFL, but as two separate heads (cf. below:10.4.1).

Let's now come back to the notion of Case. Its introduction into the EST-framework also effected a new formulation of the Tensed Sentence Condition (which was renamed PIC, ‘Propositional Island Condition’, in Chomsky 1977a). TSC was labeled ‘Nominative Island Condition’ (NIC) in Chomsky (1980b:36) and was defined as follows (ibid.):

\[
\text{(H) A nominative anaphor cannot be free in S'}
\]

This definition clearly presupposes two other definitions, namely ‘anaphor’ and ‘free’. The term ‘anaphor’ was assigned a more restricted meaning than the standard one by Chomsky: for him, anaphors were “PRO, trace and reciprocal” (i.e., ‘each other’; Chomsky 1980b:10). Pronouns were therefore not considered anaphors, even when they are anaphorically used in the standard sense (e.g., in a sentence such as ‘John says Mary loves him’, if ‘him’ is interpreted as coreferent with ‘John’). ‘Free’ does not have, in this connection, the value it
has in symbolic logic, where one speaks of free and bound variables. Chomsky (1980b) assigned to these terms a different meaning, which is possibly connected to the ones they have in Harris’ work (cf. above: 5.3.6):

(I) We say that an anaphor $\alpha$ is bound in $\beta$ if there is a category c-commanding it and coindexed with it in $\beta$; otherwise, $\alpha$ is free in $\beta$. (Chomsky 1980b: ibid.)

The ‘coindexing’ referred to in the above definition is the usual device to indicate coreference. Hence, if an anaphor (or any other element) has no possible coreferential element within the domain $\beta$, it is ‘free’. If $\beta = S'$, the anaphor would be free in $S'$ and thus violating NIC, i.e. condition (H). On the basis of these definitions, a sentence such as (34), which it is reproduced here for convenience as (34)

(34) *The men expected [S that each other would win]

would be ungrammatical because it violates the NIC. The anaphor ‘each other’ ($\alpha$, in (I) above) is nominative since it is governed by the finite Tense of the embedded $S'$ (i.e., $\beta$). Now, the only possible antecedent of the anaphor, namely, ‘the candidates’, lies outside of this $S'$: therefore ‘each other’ is free in $S'$, contrary to what the NIC prescribes.

The former SSC was renamed ‘Opacity’ and was restated by Chomsky (1980b: 13) as follows:

(J) If $\alpha$ is in the domain of the subject of $\beta$, $\beta$ minimal, then $\alpha$ cannot be free in $\beta$.

‘To be in the domain’ means ‘to be c-commanded’. Given a sentence structure such as (33), above, both Tense and VP as well as anything dominated by them are in the domain of the subject NP. Opacity would account for the ungrammaticality of (35) (= (2a)) in the following way:

(35) *The men want [S John to like each other]

‘Each other’ is contained within the VP of the embedded sentence, i.e. ‘like each other’. Hence, according the notions of c-command and domain, it is in the domain of its subject, namely ‘John’. Now, the only possible antecedent of ‘each other’, i.e. ‘the men’, lies outside this domain, and the sentence is ungrammatical, since it violates Opacity condition (J).

SSC and TSC did not only change their name, becoming Opacity and NIC, respectively, but also changed their status: they were no longer conceived of as conditions on rules, but as conditions on representations, specifically on representations within Logical Form. To a certain extent, this implemented the program expounded by Chomsky & Lasnik (1977): transformations apply “blindly”, being optional and unordered, and the task of accounting for the grammaticality vs. ungrammaticality of sentences is assigned to the interpretive
components. Such a path was explicitly taken also by Rouveret & Vergnaud (1980). Both this essay and Chomsky (1980b), however, departed from Chomsky & Lasnik (1977) by assigning a much larger role to the LF component than to the phonological one: to put it another way, conditions on phonetic form (i.e., ‘filters’) were mainly replaced by conditions on logical form. The only filter in the sense of Chomsky & Lasnik (1977) which retained a major role was the Case filter (D), which Rouveret & Vergnaud (p.102) restated as a filter that simply lists the “good contexts” for lexical NPs.

The reinterpretation of the former ‘conditions on rules’ as ‘conditions on representations’ could not automatically account for the possibility of interpreting ‘them’ in (2b) or ‘they’ in (3b) as coreferential with ‘the men’. The two sentences are reproduced here as (36a,b):

(36) a. The men want [John to like them]
   b. The men expected [that they would win]

These possibilities of coreference had originally been explained by assuming that SSC (now renamed Opacity) and TSC (now renamed NIC) block the application of Disjoint Reference rule (see above:428). Chomsky (1980b: Appendix) worked out a complex system of indexing that could account for such facts, while retaining the status of Opacity and NIC as conditions on LF-representations. This mechanism can be summarized by saying that pronouns in the domain singled out by Opacity and NIC can be coindexed, i.e. represented as coreferential, only with possible antecedents outside of it. If, by contrast, a pronoun and an NP which c-commands it lie within the same domain, they can never be coindexed. This is the case of ‘The candidates expected [the men to like them]’: ‘the men’ and ‘them’ cannot refer to the same set of individuals (while ‘the candidates’ and ‘them’ can, for the reasons just given). Unlike pronouns, ‘lexical NPs’ (e.g., ‘John’, ‘Mary’, ‘the book on the shelf’, etc.) cannot be coindexed with any other NP c-commanding them: this prohibition can be overcome neither by Opacity nor by NIC. For instance, in (37) ‘John’ cannot be bound by ‘he’, even if the former lies in a ‘nominative island’. ‘He’ and ‘John’ must refer to two different individuals:

(37) He expected that John would win

Hence the effects of the Disjoint Reference rule and of its blocking by SSC or TSC were reached by appealing to NIC, Opacity and the indexing mechanism.

Another important modification to the early picture of trace grammar was the redefinition of trace and PRO: the ‘empty’ categories, namely those without phonetic realization. As stated above (cf. p.433), they were initially treated as different instances of one and the same category, which were assumed to differ only in the way they acquired their index: trace by means of a movement rule, PRO of a rule of construal. Besides, no difference was made between traces
left by NP-movement (NP-traces) on the one hand, and those left by ‘wh’-movement (‘wh’-traces), on the other. Several papers in the late seventies, however, argued that these three different kinds of empty categories had to be kept distinct.

Rizzi (1980; the article began circulating in late 1977) argued that some violations of the so-called ‘wh-island’ (see above:432) which occur in Italian can be accounted for if it is assumed that the ‘wh’-movement transformation does not obey TSC and SSC (cf. Rizzi 1980:166) while it still obeys Subjacency. As can be seen, Rizzi’s statement still referred to the ‘conditions on rules’. However, as he explicitly noted (p.175), it could be very easily translated in a framework of ‘conditions on representations’: it was sufficient to say that ‘wh’-traces do not obey NIC and Opacity while NP-traces (as well as reciprocal and reflexives) do.

This same result was reached by other linguists as well. Rouveret & Vergnaud (1980:115;190) remarked that ‘wh’-traces should be exempt from the Case filter, exactly like NP-traces, but they aren’t. Consider, e.g., the following pair of sentences:

(38) a. John is certain [t to win]
    b. *Who is it certain [t to win]

According to EST analysis, (38a) would be generated by applying NP-movement (‘Raising’); (38b), by applying ‘wh’-movement. However, the former sentence is grammatical, the latter is not. The grammaticality of (38a) is not surprising: the trace t, not being lexical, is exempt from Case filter (D). One would expect, however, that the trace of ‘who’ in (38b) would also be exempt from it, contrary to what actually happens. ‘Wh’-traces therefore seem to behave exactly as lexical NPs: cf., e.g., ‘*It is certain John to win’. Therefore the idea developed that ‘wh’-traces are intrinsically different from NP-traces. Kayne (1981; the essay dates back to 1978) remarked that the behavior of ‘wh’-traces is identical to that of traces left by the movement of quantifiers tout/tous in French. His conclusion was that such an identity is due to the fact that both rules “involve the movement of quantifier-like elements” (p.90). Being assimilated to traces of quantifiers, ‘wh’-traces began to be named ‘variables’. Such a status had already been assigned to them in Chomsky (1975c); cf. above:434. In that work, however, such a label also extended to cases of NP-traces. Sentence (39a) was represented as (39b) (cf. Chomsky 1975c:110):

(39) a. John seems [s t to be a nice fellow]
    b. for x=John, x seems [s x to be a nice fellow]

Now such a conception was held only for ‘wh’-traces: cf. (16)-(18) above.

Rouveret & Vergnaud (1980) also argued that traces were different by PRO, not simply by the different way such categories were indexed. More precisely,
they stated that “PRO and lexical NP or trace are in complementary distribu-
tion” (p.123). This complementarity was shown, for example, by contrasts such
as (40a) on the one hand vs. (40b,c) on the other:

(40)  a. *John believes [PRO to have left]
   b. John believes [Bill to have left]
   c. John is believed [t to have left]

Thus, three kinds of empty categories were distinguished at the end of the sev-
enties within the Chomskian program: NP-trace, ‘wh’-trace, and PRO.

At the same time, a difference in the behavior of empty categories across
languages was discovered by Taraldsen (1978) and by Kayne (1980). The im-
 pact of such research on general syntactic theory was especially significant
since they showed that a putatively universal constraint was apparently ine-
effective in some languages. More specifically, the NIC seemed to be inoperative
in Italian, where sentences such as (41) are perfectly grammatical (the symbol
‘e’ denotes the empty category position, which is that of the structural subject):

(41)  a. e parla
   ‘(he/she) speaks’
   b. e hanno telefonato molti amici
   ‘have telephoned many friends’

In the framework of Chomsky (1980b), the ‘e’ element would be a nominative
anaphor, since it is governed by the finite verb, and it would also be free, since
no coindexed element c-commands it in its S’: hence a NIC violation should
occur, yet it does not.

Moreover, Italian was apparently exempt from the so-called ‘that-trace’ fil-
ter of Chomsky & Lasnik (1977), unlike, for example, English or French:

(42)  a. Chi pensi che t abbia telefonato?
   b. *Who do you think that t telephoned?
   c. *Qui penses-tu que t a téléphoné?

These facts had already been noticed by Perlmutter (1971:ch.4). Taraldsen and
Kayne explained them within the EST framework. Their explanations were
slightly different, but neither of them rejected the universal value of the NIC:
rather, they assumed that some special factor was at work in languages such as
Italian, which would be inoperative in languages such as English or French. In
particular, Taraldsen, explicitly “drawing on a traditional insight”, ascribed the
possibility of having null (i.e., empty) subjects in languages like Italian to the
agreement feature of the verb: such a feature would bind the empty nominative
anaphor, and the NIC would still hold.
3. The ‘Principles and Parameters’ model

3.1 The Pisa lectures: ‘government’ as the unifying notion

At the end of the seventies the EST looked like this: 1) the search for principles had reached the formulation of three very general conditions: Opacity, NIC and Subjacency. The former two were conceived as conditions on representations, the third still as a condition on movement rules. Opacity and NIC accounted for the distribution of non-reflexive pronouns vs. lexical NPs and reflexives. 2) The inventory of empty categories had been considerably increased since at least three different kinds of them were now assumed: NP-trace, ‘wh’-trace and PRO. A further instance seemed to be the null subject in languages like Italian, but no specific label had yet been proposed for it: as has been seen, it was generally treated as an ‘anaphor’. This notion itself, however, was problematic, since not all empty categories consistently behaved as anaphors: ‘wh’-trace behaved as an anaphor with respect to the ‘that-trace’ filter (cf. 42b, c), but not, for instance, with respect to Opacity. 3) Languages seemed to systematically vary with respect to certain features of Universal Grammar.

‘Government and Binding’ (GB) theory attempted to give a solution to this whole set of problems by putting them in a very systematic framework. One could rightly say that GB-theory was the most systematic theory worked out by Chomsky since LSLT. The reference work for such a theory is Chomsky (1981a); the short monograph of the following year (Chomsky 1982a) could be considered as a kind of added chapter to it. The theory took its shape in the period between 1978 and 1981, with some later changes and additions that will be reviewed in what follows. The most important stage of this development was represented by the so-called “Pisa lectures” of April 1979 (so-called because they were held at Scuola Normale Superiore of Pisa). The 1981 volume differs from the Pisa lectures in several aspects: first of all, the topics investigated are more numerous; secondly, some matters are formulated in a slightly different way (e.g. the ‘Binding Principles’); finally, some new principles were introduced (e.g. ‘theta-theory’; see the following section). The Pisa lectures will be presented here on the basis of a transcript edited by Jean-Yves Pollock, as well as on the personal experience of the author.9

As its name itself suggests, the leading idea (to use Chomsky’s own words) of the theory was to explain the phenomena of binding as effects of government relations. Such a path was already hinted at by Rouveret & Vergnaud (1980:192), who proposed the ‘Case Island Condition’ (CIC):

(K) An anaphor x must have an antecedent in the minimal binding domain containing the element that assigns its Case to x.

9 Another printed source of the ‘Pisa lectures’ framework is Chomsky (1981b), which is the paper Chomsky read at the 1979 colloquium of GLOW (“Generative Linguistics in the Old World”), also held in Pisa, shortly before Chomsky’s lectures.
CIC was tentatively proposed by Rouveret and Vergnaud as a replacement for NIC. The difference lay in the greater weight that CIC gave to government: since Case, according both to Chomsky and to Rouveret & Vergnaud, was assigned under government, the critical domain for the assignment of the antecedent to a given anaphor was assumed to be the category in which such anaphor happens to be governed. One can therefore find in Rouveret and Vergnaud’s proposal the most immediate antecedent of what was to become the key notion of GB-theory, namely ‘governing category’ (as recognized by Chomsky 1981a:225fn.33; 1981b:134). Governing category was defined as follows (Chomsky 1981a:188):

(L) $\alpha$ is a governing category for $\beta$ if and only if $\alpha$ is the minimal category containing $\beta$ and a governor of $\beta$, where $\alpha = NP$ or $S$

Hence, not only the sentence, but also the NP was considered a governing category. In a sense, this step was the automatic development of the similarity seen between the two categories since Chomsky (1970a): see above (367; 430). As far as the GB approach developed, the investigation of the similarities vs. the differences of Ss and NPs gained increasing attention: see e.g. Cinque (1980); Giorgi & Longobardi (1991).

The exact definition of ‘government’ implied by that of governing category (L) became one of the most debated topics of the whole GB period: many different definitions were proposed for it (see especially Chomsky 1981a:162-170; Aoun & Sportiche 1983). The reasons for this variety of definitions lay in their different empirical consequences: not all government relations according to a given definition were also government relations according to another, and vice versa. For the present purposes, however, it is sufficient to refer to its definition given in Chomsky (1980b) and reproduced in (F) above.

A condition was added to the notion of government, namely that some categories are ‘absolute barriers’ to it. Such categories were assumed to be S’ and NP in the Pisa lectures (cf. also Chomsky 1981b:134) and all ‘maximal projections’ (namely, S’, N’’, A’’, P’’, V’’) in Chomsky (1981a:164). So, for example, in a sentence like ‘*The men want [s’John to like each other]’ (=(35)), the verb ‘want’ cannot govern the embedded subject ‘John’, since they are separated by the absolute barrier S’. By contrast, the grammaticality of a sentence like ‘John believes [s Bill to have left]’ (=(40b)) was explained by assuming that verbs such as ‘believe’ are ‘S’-deleters’ in English (but not in other languages, such as French, German or Italian). Hence only the category S (not S’) would divide ‘believe’ from ‘Bill’, and the latter would be governed and Case-marked by the former.

Another step taken by Chomsky was to reconsider the different kinds of phonetically empty categories, which had been brought to light by the research
of Rizzi, Kayne, and others. He isolated variables, i.e. traces of 'wh'-movement or of quantifier movement. By variables Chomsky meant "empty elements bound by an appropriate operator" and labeled this kind of binding 'operator binding'. This kind of binding was different from that which gave the title to Chomsky (1980b) and which was named 'antecedent-binding'. The former notion was logical, the latter "a syntactic notion relating to the syntax of LF" (Chomsky 1981a:184). Chomsky (ibid.) preferred to speak of 'antecedent-binding' ('\( \Lambda \)-binding') as opposed to 'peripheral-binding' ('\( \bar{\Lambda} \)-binding', to be read 'A-bar binding' and meaning 'not A-binding'; henceforth 'A'-binding'), "where the former holds when the c-commanding element is in A-position and the latter when it is not" (ibid.). A-positions are those of the subject, of the object and of the indirect object, defined in the standard configurational way of Chomsky (1965; see above:377). Other positions are A'-positions, namely 'not A-positions'. A typical A'-position is COMP. "The theory of binding is a theory of A-binding" (Chomsky 1981a:184).

In the Pisa lectures, with explicit reference to the treatment of quantification in Wittgenstein's Tractatus (which, however, is no longer found in Chomsky 1981a), Chomsky maintained that variables have the same status as names: "In a finite domain of known individuals the universal quantifiers are conjunctions and the existential quantifiers are disjunctions and variables are precisely names" (Lecture 2). Since variables are names, then it is not surprising that they do not obey Opacity (SSC) or NIC (TSC), exactly as lexical NPs. Rizzi's (1980) observations (see above:447) therefore received a principled explanation.

Hence NP-traces were no longer grouped together with 'wh'-traces: they were classified as anaphors, on a par with reciprocals, reflexives and 'bound idioms', namely pronouns such as 'his' in 'John lost his way'. PRO was put in a larger class of 'pronominals' together with pronouns: pronouns are pronominals with a phonetic matrix, PRO is a pronominal without it. Anaphors and pronominals would be instances of two different categories of Noun Phrases. A third category, 'R-expressions', was assumed to include "noun phrases with heads that are in some intuitive sense 'potentially referential' (e.g., 'John', 'wood', 'sincerity', 'book', etc.) and variables" (Chomsky 1981a:102).

Given all such premises, Chomsky could formulate his 'Binding Principles' as follows (1981a:188):\(^\text{10}\)

(M) A. An anaphor is bound in its governing category.
B. A pronominal is free in its governing category.

\(^{10}\)The Binding Principles were formulated in a partly different way from (M) in the oral presentation of the Pisa lectures; this earlier formulation can be found in Chomsky (1981a:225fn.35). However, both formulations involve the notions of government and government category in an essential way and their empirical coverage is the same.
C. An R-expression is free.

‘Bound’ in (M) means ‘A-bound’, in the sense specified above; an element which is not ‘bound’ is ‘free’. ‘Governing category’ is defined in (L) above.

Let us now see how GB-theory was able to account for the different phenomena concerning the distribution of anaphors, pronouns, lexical NPs, NP-traces, ‘wh’-traces and PRO. To make the point clearer, some of the crucial examples are repeated below:

(43) *The men expected [S that each other would win]
(44) *The men want [S' John to like each other]

The ungrammaticality of sentences such as (43) (=34)) would be explained by principle A of the Binding Theory (M): here, the anaphor ‘each other’ is free in its minimal governing category, namely the embedded S’, but it must not be. (44) (=35) is ungrammatical for the very same reason: ‘each other’ is again an anaphor free in its governing category. In the framework of Chomsky (1980b), (43) was excluded by the NIC, (44) by Opacity: in the GB-theory, they were both excluded by one and the same principle. NIC and Opacity still held, but as “theorems” of the GB-theory (Chomsky 1981b:137; 139). These results led Chomsky to prefer this new version of his theory over the preceding one.

Let’s now consider sentences (45) (=36), above):

(45) a. The men want [S John to like them]
    b. The men expected [S' that they would win]

‘Them’ and ‘they’ can corefer with ‘the men’ by virtue of principle B of the Binding Theory: both pronouns are free in their minimal governing category, i.e. the embedded S’. By contrast, in a sentence such as ‘The candidates expected [S the men to like them]’, ‘the men’ and ‘them’ cannot corefer, because, if they did, ‘them’ would not be free in its governing category: it would be bound by ‘the men’. In (46) (=37)), finally, the NP ‘John’ of the embedded clause cannot corefer with ‘he’ of the matrix clause:

(46) He expected that John would win

This fact would be explained by principle C: ‘John’ in the embedded clause is an R-expression; therefore it cannot be coindexed with ‘he’, even if this latter is in another clause, namely the main one.

Accounting for sentences (47) (=38)) needed some supplementary assumptions:

(47) a. John is certain [t to win]
    b. *Who is it certain [r to win]

The ungrammaticality of (47) was explained by assuming that ‘certain’ is an ‘S’-deleter’, which governs the subject position of the embedded clause but
does not assign Case to it. Also verbs like ‘seem’ were assumed by Chomsky to be ‘S’-deleters without being Case assigners. The governing category of trace t would therefore be the main clause. This same trace, being a NP-trace, is not Case-marked (the embedded clause has no finite tense): hence, according to principle (A) of Binding Theory, it should be bound in its governing category, and it is, by the raised subject ‘John’. (47b) is ungrammatical since trace t, in this case, is a variable and it should be Case marked: but it is not since the embedded clause has no finite tense and the adjective ‘certain’ is not a Case-assigner (cf. Chomsky 1981a:175).

As already said (cf. p.450), this same property of effecting S’-deletion was also ascribed to verbs of the ‘believe’-class (cf. (31a), above): the only difference with respect to those of the ‘seem’-class would be that they also assign (objective) Case. With this much background, and with the help of the so-called ‘PRO-theorem’, GB-theory could account for the different grammaticality of sentences (48) and (49) (= (32) and (40), above):

(48) a. It is unclear [what PRO to do]
b. John persuaded Bill [PRO to leave]
(49) a. *John believes [PRO to have left]
b. John believes [Bill to have left]
c. John is believed [t to have left]

PRO can only appear in the subject position of non-finite sentences such as (48). PRO was defined as a ‘pronominal anaphor’, since (a) it “is like overt pronouns in that it never has an antecedent within its clause or NP” (Chomsky 1981a:191) and (b) at the same time it “also resembles anaphors in that it has no intrinsic referential content” (ibid.). If PRO is a pronominal anaphor, it would be subject to both conditions A and B of (M), a contradictory conclusion. The only way to avoid it is to assume that “PRO has no governing category and is therefore ungoverned” (ibid.). This is the content of the ‘PRO-theorem’. PRO, according such a theorem, cannot occur in a case such as (49a): it would be governed by ‘believe’, which deletes S’, the absolute barrier to government. Therefore (49a) is ungrammatical. By contrast, (49b) is perfectly grammatical: the embedded subject ‘Bill’ would be assigned Case by ‘believe’, which governs it. Notice that, by means of this analysis, Chomsky was able to eliminate the motivation for any ‘Raising to Object’ transformation (as he had always maintained since Chomsky 1973): ‘Bill’ has no need to rise until the main clause in order to get Case since this would be assigned to it directly by ‘believe’, which deletes the S’-boundary. This same deletion assumption explains why (49c) is also grammatical. Trace t of ‘John’ is not marked for Case: it does not receive Case from the embedded verb since it is not finite, nor can receive it from ‘believed’ since a participle is ‘adjectival’ in nature, hence not a V in the sense of (G, (b)), above. Therefore, according to principle
A of the Binding Theory in (M), the trace should be bound in its governing category. Such a category is the main clause because ‘believed’ has effected the S'-deletion: in this category, t is bound by ‘John’, and the sentence is grammatical (cf. Chomsky 1981b:138).

Let’s now turn to one of the most puzzling facts brought to light at the end of the seventies: the exemption from the NIC apparently shown by languages such as Italian (cf. (41)-(42), above). Chomsky devoted the bulk of his last Pisa lecture (Lecture 3) to the analysis of that problem. Such an analysis was especially significant for two reasons: on the one hand, it represented the first systematic implementation of the ‘Principles and Parameters’ approach; on the other, it introduced a technical notion, ‘proper government’, to which a good deal of research within the Chomskian program was devoted in the following decade. Let us investigate the two aspects in turn.

The Principles and Parameters approach was the first real effort made within the Chomskian program to provide a systematic account of cross-linguistic differences. This approach had been first implemented by works such as those of Kayne, Rizzi, and Taraldsen referred to above. The universal features of language were dubbed ‘principles’, and the dimensions along which languages can vary, ‘parameters’. Given this perspective, the NIC would be a principle; the possibility that such languages as Italian (or Spanish, or Greek, etc.) are exempt from it would be the effect of a given parameter which, by contrast, is inoperative (“has the negative value”, as the GB-theorists put it) in such languages as English or French (and many others). The solution resorted to by Chomsky to account for this parameter essentially followed Taraldsen’s (1978) lines. Taraldsen, however, still referred to NIC, while NIC had since been replaced by other principles in Chomsky’s Pisa lectures. It was therefore necessary for Chomsky to work out another solution, which he found in the notion of ‘proper government’.

The NIC had been originally proposed to account for the ungrammaticality both of sentences such as ‘*the men expected that each other would win’ (=34)), and of sentences such as ‘*Who do you think that t telephoned?’ (=42b)). Chomsky, in the Pisa lectures, assumed that the two phenomena were essentially different. An instance as (34) was still ascribed to the NIC, now derived as a theorem from Binding principles (M), while the ungrammaticality of sentences such as (42b) was considered the result of another principle. As a matter of fact, while the (rough) equivalent of (34) is ungrammatical in Italian as well, it was the opposition between the ungrammaticality of (42b) and the grammaticality of its Italian equivalent, (42a), that motivated Taraldsen’s investigations. Furthermore, within English itself, ‘wh’-traces seem to obey NIC (as in (42b)), while they clearly do not obey SSC, as is clear from such sentences as (50) (cf. also Chomsky 1981b:130-131):
(50) Who do you think Mary kissed?

Chomsky saw the reason of these contrasts in the different structural position of the subject vs. that of the object. Recall that, according to the structural definitions of such notions assumed by Chomsky (see above:377), the subject would lie outside VP and the object inside it. The consequence drawn by Chomsky was that subjects are not governed by verbs while objects are. Now, the difference between (42b) on the one hand and (50) on the other would simply lie in the fact that in the former the ‘wh’-trace is in subject position, while in the latter it is in object position. Chomsky then proposed the following principle, labeled by him the ‘Empty Category Principle’ (ECP; cf. Chomsky 1981a: 250):

(N) ECP: \[ \text{NP} e \] must be properly governed

‘Wh’-traces both in (42b) and (50) are instances of \[ \text{NP} e \]. Given what has been said in the preceding paragraph, only the trace in (50) would be properly governed, while the trace in (42b) would not: therefore (50) is grammatical and (42b) is ungrammatical. ECP was possibly the principle emerging from the Pisa lectures which was to gain most attention during the eighties.

Let us now return to the parameter which opposes French and English to Italian. In the Pisa lectures, Chomsky essentially adopted Taraldsen’s solution: the difference between the two classes of languages lay in the different properties of their agreement morphemes. More specifically, Chomsky hypothesized that a PRO subject could also occur in tensed sentences. This, however, would be possible only at the s-structure level: for PRO must be ungoverned at the LF level, and in finite sentences it would be governed by Tense. Therefore, tensed sentences with a PRO subject are ungrammatical in any language. It would be possible, however, to delete PRO, making it another empty category: \[ \text{NP} e \]. Now, according to principle (N), this category must be governed. Since it is in subject position, it can be properly governed only in languages such as Italian, by means of the agreement morpheme (Chomsky’s technical solution was actually more complex). Now, languages like Italian can “drop” their PRO in subject position of tensed clauses, while languages like English cannot: hence languages of the first kind were labeled ‘PRO-drop’, and those of the second, ‘non PRO-drop’. This option allowed by Universal Grammar was called ‘PRO-drop parameter’.

The PRO-drop parameter was somewhat differently analyzed in Chomsky (1981a:257ff.), but the basic assumptions and the results aimed at were the same as in the Pisa lectures. Indeed, it was assumed that a PRO element could occur in subject position of tensed sentences in languages such as Italian or Spanish, and that some machinery was therefore necessary to avoid finite tense governing PRO. A different treatment was instead suggested by Rizzi
Rizzi noticed that the ‘null subject’ of finite tensed sentences in languages like Italian (i.e., the symbol $e$ in (51)) may have a definite interpretation or a ‘dummy’ one, both of which are identical to those of phonetically realized pronouns in languages such as English or French:

(51)  
a. $e$ parla
     ‘He speaks’
b. $e$ sembra che Gianni sia partito
     ‘It seems that John left’

The definite interpretation is assigned to the null subject of (51a) by the extralinguistic context, just as happens with ordinary pronouns. Since the PRO subject of infinitival clauses, i.e. the pronominal anaphor of Chomsky (1981a), cannot receive such a contextual interpretation, nor cannot it take any expletive value (as $e$ in (51b)), Rizzi maintained that null subject and PRO were different categories. Therefore, Rizzi spoke of a ‘null subject’ parameter, not of a ‘PRO-drop’ parameter, since there was no PRO to drop.

Relying on Rizzi’s analysis, Chomsky (1982a) introduced a new label, pro, to indicate the null subjects of such sentences as (51) above. Hence, the inventory of empty categories eventually amounted to four: NP-traces, pro, PRO and variables (i.e., ‘wh’-traces). According to Chomsky, this classification was the best one since it automatically derived from the assignment of positive or negative value to the features [anaphor] and [pronominal]. It would be, in other words, the simplest and most systematic one. The four kinds of empty categories would be therefore defined as follows (cf. Chomsky 1982a:78):

(O)  
a. NP-trace: [+anaphor, -pronominal]
b. pro: [-anaphor, +pronominal]
c. PRO: [+anaphor, +pronominal]
d. variables: [-anaphor, -pronominal]

One further advantage of such a classification, according to Chomsky (ibid.), was that the four classes of empty categories (O) almost exactly matched those of phonetically realized expressions. Indeed, ‘each other’ and reflexive pronouns are phonetically realized [+anaphor, -pronominal] elements; personal pronouns are [-anaphor, +pronominal]; and lexical NPs, whose heads are nouns such as ‘John’, ‘book’, etc., are [-anaphor, -pronominal]. The only gap in the system is the lack of a phonetically realized category corresponding to PRO, but this gap is due to principled reasons in Chomsky’s framework. In fact, PRO cannot be governed, while phonetically realized elements must, since they need Case and Case is assigned under government (cf. (F)-(G), above). Hence no phonetically realized elements can occur in PRO position.
3.2 After the Pisa lectures: 'thematic roles' and 'chains'

The topics discussed so far were introduced by Chomsky in his oral presentation of the Pisa lectures and were either taken up wholesale, or in a slightly modified form, in his 1981a and 1982a volumes. Chomsky (1981a), however, also contained some quite important novelties. One of them (first presented in a talk given in 1980 and published as Chomsky 1982b) was the notion 'thematic role' ('θ-role', or 'theta-role'). It had a close similarity to Fillmore's 'deep case', or to the 'thematic relations' of Jackendoff (1972), as Chomsky (1981a:35) explicitly recognized: hence examples of θ-roles would be 'agent' 'goal', etc. (cf. ibid.). On the other hand, all these notions, however similar they might be, had a rather different value depending on the syntactic theories in which they were framed. First of all, while for Fillmore and the other linguists more or less directly connected to Tesnière the role of subject had no special status, such a status was preserved for it within the Chomskian program. GB-theory clearly distinguished the structural position of subject from the thematic role of the element which can occupy it; the importance of such a distinction will be seen in a moment. But it was the peculiarity of the subject position that was of a fundamental importance, contrary to what happened in Fillmore's 'Case Grammar'. According to GB-syntacticians, the element in subject position does not receive its θ-role directly from the verb, but from the verb and its other arguments: Williams (1981) named the subject the 'external argument'. Furthermore, both in Fillmore's Case Grammar and in GB-theory, θ-roles (or 'deep cases') are assigned by lexical properties, but the relationships between lexical properties and syntactic rules are much more restricted within the latter approach. In fact, Case Grammar only assumed that deep cases form an unordered underlying structure, which is converted into surface structure by means of no further specified syntactic rules. In the GB-model, by contrast, d-structures are linearly ordered and the relations between thematic roles and syntactic positions are subject to the principles (P) and (Q), no equivalent of which can be found in Fillmore or Jackendoff's works. Chomsky called them 'projection principle' and 'θ-criterion', respectively:

(P) Representations at each syntactic level (i.e., LF, and d- and s-structure) are projected from the lexicon, in that they observe the subcategorization properties of lexical items. (Chomsky 1981a:29)

(Q) Each argument bears one and only one θ-role, and each θ-role is assigned to one and only one argument. (Chomsky 1981a:36)

'Arguments' alluded to in (Q), are overt anaphors (e.g., 'each other'), pronouns (namely, pronouns and PRO), R-expressions (hence, lexical NPs as well as variables), and clauses (cf. Chomsky 1981a:100). 'Non-arguments' are expletive elements like impersonal 'it' (e.g., 'it seems that John has left') or ex-
istential ‘there’ (e.g., ‘there arrive three men’). Also NP-traces are classified among non-arguments, since they would “transmit” their θ-role to the moved NP. For instance, in a passive sentence such as (52a), or in a subject raising sentence such as (52b), trace $t$ would transmit its role (‘patient’ in (52a), ‘agent’ in (52b)) to the NP moved into the respective subject positions:

$$(52) \begin{align*}
\text{a. The city was destroyed } t \text{ by the enemy} \\
\text{b. John is certain } [t \text{ to win}] 
\end{align*}$$

To illustrate the content of these principles, let’s again consider the treatment of (40b), ‘John believes [Bill to have left]’. As was said above (p.453), Chomsky accounted for it without resorting to any ‘Raising to Object’ movement. Now he was able to exclude such a movement for principled reasons, namely the joint effect of the projection principle (P) and the θ-criterion (Q). If the NP ‘Bill’ were the subject of the embedded clause at d-structure and the object of the main verb at s-structure, as a Raising to Object analysis assumes, the θ-criterion would be violated: the same NP would receive two different θ-roles. One could propose a “softer” interpretation of such a criterion, namely that a given argument cannot receive two different θ-roles at one and the same level of representation, which would mean that the NP ‘Bill’ could be the subject at the d-structure level and the object at the s-structure. Such an interpretation, however, would be excluded by the projection principle: the verb ‘believe’ would subcategorize for an S at the d-structure level and both an NP and an S at the s-structure level.

The introduction of the notion ‘θ-role’ also had important consequences for the whole apparatus of syntactic rules: as a matter of fact, it eventually took upon itself much of the task previously assigned to phrase structure rules. To see why, consider a phrase structure rule such as

$$$(53) \text{VP} \rightarrow \text{V NP} \quad \text{On the one hand, (53) says that a verb phrase may contain an NP besides the verbal head; on the other hand, it also states the constituent order, namely that the verb precedes its complement. The first information, however, is fully redundant: all members of the class of verbs which subcategorize for an NP allow us to build up a VP like (53). This class is formed by those verbs which assign an ‘object’ θ-role, i.e., transitive verbs of traditional grammar, or ‘2-valency verbs’ in Tesnière’s terms (cf. above:7.2.1). Therefore, there is no need for any syntactic rule to account for the several kinds of constituents: the properties of the different lexical heads (called since Stowell 1981 their ‘θ-grids’, namely the arrays of θ-roles assigned by them) and X-bar theory are enough. Concerning the order of elements, several linguists working in the Principles and Parameters framework attempted to deduce it from general properties, pa-}$$
rameterically varying from language to language. Such scholars faced the same problems as typologically-oriented linguists (cf. above:9.3.2): noticing that the order of head with respect to complement across the different constituents - while it varies cross-linguistically - is (approximately) identical within one and the same language, they proposed what was eventually called the 'head-complement parameter' (an initial proposal in this direction is Graffi 1980a; more mature formulations can be found, e.g., in Stowell 1981, Koopman 1983, Travis 1984, Coopmans 1985, Giorgi & Longobardi 1991). According to this parameter, languages basically vary in putting the head (N, V, A, P) before the complement (e.g., English, Italian, Swahili, etc.) or after it (e.g., Japanese, Quechua, Turkish, etc.). Cross-linguistic differences would be accounted for by the head-complement parameter; the identity across constituents within the same language type, by X-bar theory. Therefore, in a language like English, the order V - NP stipulated by rule (53) could be straightforwardly deduced by fixing the value of the head-complement parameter: the head V must precede the complement NP. Pursuing this insight, Stowell (1981) proposed to dispose of the phrase structure component entirely: lexical properties, X-bar theory and the head-complement parameter, together with some supplementary principles, could fully replace it. As will be later seen (10.4.3), the head-complement parameter was abandoned in the 'minimalist' period.

An approach essentially analogous to Stowell's was adopted also by Chomsky (1981a). Nevertheless, a single phrase structure rule was still present throughout the book, namely the following one (cf., e.g., p.25):

(54) S → NP INFL VP

Rule (54) was due to the need to account for the special properties of the subject position: namely, that it can also be occupied by elements to which no θ-role is assigned. Therefore, the subject would be a grammatical function (GF) which can bear a θ-role (GF-θ), or not (GF- θ, viz. ‘GF non-theta'; cf. Chomsky 1981a:44). By contrast, the other grammatical functions, such as direct or indirect object, must always be assigned to elements bearing a θ-role. This last statement was not agreed upon by all syntacticians: for example, linguists working in the LFG framework denied its empirical adequacy. It was however assumed without further discussion within the Chomskian program. If no θ-role is assigned to subject position, it plainly cannot be generated by virtue of the lexical properties of any lexical head: a rule such as (54) is therefore needed to account for the presence of a subject position, which Chomsky assumed to be obligatory in any type of clause. This general property of clauses was named the ‘Extended Projection Principle’ (EPP) by Chomsky (1982a:10).

That the subject position can also be occupied by elements to which no θ-role is assigned was well-known (although, of course, the label ‘θ-role’ was a
novelty introduced by Chomsky): remember, e.g., the question of impersonal sentences, around which many discussions of the psychologistic period of syntax centered (cf. above:3.3.). Such elements also occur in constructions like, for example, ‘There arrives a man’, or ‘It seems that John will leave’: a widespread label for them is ‘expletives’, and it was also used by Chomsky and his followers. But focusing on the possibility of the subject position being ‘non-thematic’ also allowed Chomsky to offer a more systematic and principled account of some phenomena, which had inspired a good deal of his research program, namely those of NP movement. The ‘Subject to Object Raising’ transformation had been shown to be excluded by the $\theta$-criterion and the Projection Principle. Now, a further question arises: why is raising possible to subject position only?

The other case of NP movement is passive. As has been noted since Harris (see above:220), only if the verb is morphologically passive can its object become its subject: from ‘John loves Mary’, one can derive ‘Mary is loved by John’, not ‘Mary loves John’. Such facts could find a unified account if we relate them to the lack of a $\theta$-role in the subject position both in the case of raising to subject and of passive. In the former case, the $\theta$-role is missing because of a lexical property; in the latter, because of a morphological property, as will be seen in a moment. A further class of sentences containing a subject with no $\theta$-role was thoroughly investigated by Burzio (1981; published in a revised form as Burzio 1986), developing some observations originally made by Perlmutter within the Relational Grammar framework (see above:415). Burzio came to the conclusion that, if the direct object NP is not assigned Case by a given verb, the subject of this verb is assigned no $\theta$-role (cf. Burzio 1981:168; 1986:184-185; Chomsky 1981a:124-125). This statement (labeled ‘Burzio’s generalization’ by Chomsky) can rightly be considered the starting point of a new conception of the notion of Case.

Let us examine the three cases of Burzio’s generalization: one of them, namely the passive, is due to a morphological feature; the remaining two to lexical properties. In 8.4.5 and 10.2.3, above, it has been seen that Chomsky (1970a) had factored passive transformation into two different operations, namely ‘Agent postposing’ and ‘NP preposing’. In later years, only NP preposing was considered to be the core property of Passive, because of the phenomenon of ‘agentless passives’ (such as, e.g., ‘Mary is loved’). The ‘standard’ treatment of such sentences assumed that their agent is deleted after postposing. However, it is often impossible to recover such a supposed deleted agent: it could be ‘by someone’ or ‘by everyone’. The d-structure of such a sentence would have the following (simplified) representation:

\[
(55) \ [s_{\text{NP}}[\Delta] \ [\text{VP]vis\loved}] \ [\text{NP}Mary]]
\]
The symbol $\Delta$ indicates that the subject position is empty, without any element bearing a $\theta$-role. The past participle ‘loved’, like any item belonging to such a word class, does not assign Case to the NP in the direct object position, namely ‘Mary’. Hence Burzio’s generalization clearly applies to passive constructions. The only way to generate a grammatical output from a d-structure such as (55) is to move the direct object NP into the subject position, yielding (56):

$$(56) \left[ s [np [Mary]] [vp [\text{loved}]] \right]$$

This movement is possible since the subject position of (55) is not assigned any $\theta$-role, hence the $\theta$-criterion (Q) is not violated.

An identical analysis applies to raising to subject constructions. Verbs like ‘seem’ do not assign any $\theta$-role to the subject position, by virtue of their lexical properties, nor assign accusative Case to any of their objects, an optional ‘experiencer’ and a subordinate clause. Cf. (57):

$$(57) \left[ s [np [\Delta]] [vp [\text{seem} ([pp \text{to Mary}) [s [np [John]] [vp \text{to be ill}]]]]] \right]$$

Again, the NP ‘John’, since it does not receive Case from the verb ‘seem’, nor from the inflection of its clause which is [-Finite] (cf. above:444), must raise from its position into the subject position of the main clause:

$$(58) \left[ s [np [John]] [vp [\text{seem} ([pp \text{to Mary}) [s [np [t_i]] [vp \text{to be ill}]]]]] \right]$$

The $\theta$-criterion is respected in this case as well since the main clause subject position was not assigned any $\theta$-role.

The third class of constructions without $\theta$-role assigned to subject position and without accusative Case assigned to the direct object is formed by the verbs called ‘unaccusative’ by Perlmutter and ‘ergative’ by Burzio. As has been seen in 9.4.2, such verbs are intransitive verbs which take, in Italian, the auxiliary essere (‘to be’) to form compound tenses:

$$(59) \left[ s [np [\Delta]] [vp [\text{sono arrivato}]] [np [io]] \right]$$

The verb arrivare (‘arrive’) would assign its only $\theta$-role to the NP in direct object position, hence the subject position would be devoid of $\theta$-role. Like Perlmutter, Burzio also assumed that the “inverted subject” in (59) is actually a direct object. The behavior of verbs such as arrivare is therefore identical to that of the passive participles and raising verbs, and the movement of the object NP into subject position takes place as in the other cases:

$$(60) \left[ s [np [io]] [vp [\text{sono arrivato}]] [np [t_i]] \right]$$

Structures such as (56), (58) and (60) were said to be instances of ‘chains’ by Chomsky (1981a), whose ‘links’ would be the moved NP (‘Mary’, ‘John’, and $io$, respectively) and its trace $t$. This particular kind of chain was called ‘A-
chain', since the final position of the moved NP is an A-position, namely that of the subject. An A-position is "a potential θ-position" (Chomsky 1981a:47). The adjective 'potential' refers to the fact that in some cases such a position may not contain any argument: this is just what happens to subject position. A-positions contrast with A' (i.e., non-A) positions, such as the COMP position or the various adjunct positions. Therefore, NP-movement forms A-chains, 'wh'-movement forms A'-chains. This notion of chain in itself was no more than a new label for a long-familiar phenomenon, namely the movement of categories leaving a trace. However, it took on great importance when the notions Case and θ-role came to be defined in terms of it, in the last chapter of Chomsky (1981a). In a somewhat simplified form, Chomsky's statement can be rephrased by saying that each chain must contain a link (and no more than one) in a position to which Case is assigned, and a link (again, no more than one) which bears a θ-role (cf. Chomsky 1981a:334-335). These conditions are plainly satisfied by the A-chains exemplified by (56), (58) and (60). In A'-chains, the trace of the moved 'wh'-element bears both Case and θ-role: remember that 'wh'-traces are variables, namely empty categories with Case (cf. above:453). The investigation of the properties of chains has remained a central topic of the Chomskian program until now.

3.3 Developing the Principles and Parameters model

Chomsky (1981a) stimulated a considerable amount of research in the field of 'Principles and Parameters' - much larger than anything previously done within the Chomskian program or any other framework connected with generative grammar. In particular, the notion of parameter gave a new meaning to the phrase 'comparative syntax': it referred no longer (or not only) to a branch of historical-comparative grammar, but also to cross-linguistic investigation of several languages, often genetically unrelated, to show their shared principles as well as their systematic differences.

Some of the parameters around which the discussion focused have been quoted above: think, e.g., of the head-complement parameter or of the null-subject parameter (on which see especially Jaeggli & Safir 1989). Another parameter which gained special attention was related to the notion of anaphor: it was shown that, in some languages, anaphors can be bound also from outside their governing category. Such anaphors were dubbed 'long' anaphors and their possibility of occurrence across languages was investigated in several works (cf., e.g., Giorgi 1984; Everaert 1986).

Borer (1983) faced a more general problem: what is the source of parametric variation across languages? Such a problem was especially important from the realistic perspective of the Chomskian program: if crosslinguistic differences could be located anywhere, the child acquiring language would have to
check a variety of possibilities, in order to properly fix the grammar of the lan-
guage s/he is exposed to. But such a checking process would require rather a
long time: this contrasts with the remarkable speed with which the child ac-
quires language. Borer therefore assumed that “all interlanguage variation” can
be reduced “to the properties of inflectional system” (p.29). For instance, pho-
etically realized subjects of infinitival clauses are possible in English (“It is
convenient for the rich for the poor to do the hard work”), but not in other lan-
guages, such as French. This is due to the fact that the preposition ‘for’ assigns
an inflectional feature, namely Case, to infinitival subjects, while a preposition
with such properties does not occur in French (cf. p.28). The source of para-
metric variation would therefore lie in the morphological component.

The investigation of an increasing number of languages also brought about
the discovery of phenomena previously almost unnoticed. In particular, the
analysis of German and Dutch, of Celtic languages, and also of some non-
Indoeuropean languages, led linguists working within the Chomskian program
to assume that not only maximal projections in the X-bar sense (such as NPs or
the several kinds of ‘wh’-phrases), but also that heads move. A movement of a
head had already been assumed, and labeled ‘Verb-second’ by Koster (1975),
Thiersch (1978), and den Besten (1983; the essay actually dates back to the late
seventies), to account for Dutch and German word order. These languages
show an SVO order in main clauses and an SOV order in subordinate ones: the
above-mentioned scholars accounted for this difference by assuming that the d-
structure order is SOV, and the SVO order is generated by the movement of the
verb in the second position of the main clause. Emonds (1980) argued that the
VSO order of languages such as the Celtic ones can be derived from a SVO d-
two African languages of the Kru family, Vata and Gbadi, and argued that both
show Verb-movement phenomena, like Dutch or German (more specifically,
the verb would move to COMP in Dutch and German, to INFL in Vata and

Such results were generalized by Travis (1984) and M. Baker (1988), who
based their investigations on a larger number of languages. They maintained
that Verb-movement is a special case of a general phenomenon of ‘head-
movement’, or ‘X°-movement’ (cf. Travis 1984:131; Baker 1988:19). For in-
stance, the phenomenon of ‘incorporation’ in Amerindian languages is a case
of Noun-movement into a Verb (cf. Travis 1984:ibid; Baker 1988:20). In sub-
sequent years, the phenomenon of Noun-movement was deeply investigated by
Longobardi, in relation to the overall structure of the NP (see, e.g., Longobardi
1994). Head-movement became a topic of syntactic research in the Chomskian
program on a par with NP-movement and ‘wh’-movement: it also had to obey
some restrictions, in order to give grammatical outputs. The most important of
such restrictions was the so-called ‘Head Movement Constraint’ (HMC) (Travis 1984:131; Baker 1988:53): “An X can only move into the Y which properly governs it”. The movement of heads was therefore assumed to be ‘bounded’, just as NP-movement and ‘wh’-movement are. The topic of bounding received special attention during the eighties, as will be seen below.

Coming back now to the investigation of parameters, we can see that one of them was to play an essential role in determining the further developments of the Chomskian program: that of ‘overt’ vs. ‘covert’ movement. ‘Overt’ means any kind of movement which has a visible effect, namely an effect on the Phonetic Form, for example on word order; ‘covert’ movements are the invisible ones, which only have effect on Logical Form, and therefore are also called ‘LF-movements’. May’s (1977) Quantifier Raising (QR) rule was the first postulated case of LF-movement (cf. above: 10.2.2). Later, Huang (1982a) analyzed ‘wh’-questions in languages such as Chinese or Japanese as a further instance of covert (or LF) movement. Huang started from the observation that, in such languages, the ‘wh’-phrase does not occur in sentence-initial position, but rather in the position where it occurs in d-structure in languages such as English. Nevertheless, ‘wh’-questions are interpreted identically in both types of languages. Huang accounted for these similarities vs. differences by assuming that ‘wh’-movement is covert in Chinese and overt in English: in Chinese, the movement of the ‘wh’-element to sentence-initial position would not take place between d-structure and s-structure, as in English, but between s-structure and Logical Form. The parameter which differentiates English from Chinese from this point of view is therefore that of overt vs. covert movement. Chomsky later resorted to this parameter to explain a variety of cross-linguistic differences (see below:474).

Parallel to the research on parameters, studies on principles were also carried further. The Binding Principles underwent some revisions, especially in order to account more adequately for binding phenomena within Noun Phrases. The most thorough of such revisions of Binding Theory is that found in Chomsky (1986a:164-184). The “search for deeper principles” cannot avoid facing the ‘island’ phenomena, accounted for in terms of ‘subjacency’ since Chomsky (1973): this was the domain of what was called ‘bounding theory’ in Chomsky (1981a). As was noted, while the early Specified Subject Condition and Tensed-S Condition had been firstly reformulated as conditions on representations (as Opacity and Nominative Island Condition, respectively) and then deduced as theorems from the Binding Principles, Subjacency in Chomsky (1981a) essentially still held the same format it had in Chomsky (1973). A good deal of research of the Principles and Parameters period was therefore devoted to a restatement of the Subjacency Condition and to the effort of explaining the island effects as due to the action of general principles, especially
those already resorted to in order to account for other sets of phenomena. Since islands concern restrictions on movement and movement leaves empty categories (NP-traces or variables), the natural idea was to resort to the principle accounting for the distribution of empty categories, namely ECP (cf. above:(N)). ECP had been part of a general theory of empty categories (i.e., NP-trace, 'wh'-trace and PRO) since Chomsky (1981a; see especially pp.274ff.); this perspective was further deepened in Chomsky (1982a). Lasnik & Saito (1984) restricted the theory of proper government only to traces: thus the problem of accounting for island phenomena ended by virtually coinciding with that of accounting for the distribution of empty categories left by movement. Kayne (1984; see especially ch. 3, 7, 8) showed that ECP effects could be made to derive from the assumption that syntactic structures, both on d- and s-levels, must obey certain structural conditions.

Such a path was followed by other scholars. Huang (1982b) suggested that movement was forbidden from inside constituents occupying positions of adjuncts (e.g., adverbials) or subjects: he called this constraint ‘Condition on Extraction Domains’ (CED). This condition implies that subject and adjunct position share a structural property which, by contrast, is not shared by the object position.

Huang’s ideas were taken up by Chomsky (1986b), who introduced the notion of ‘barrier’: “Movement is optimal when it crosses no barriers, and it degrades sharply with crossing of more than one barrier” (Chomsky 1986b:88). The island violations were interpreted as movements crossing more than one barrier. Informally, a barrier can be defined as a maximal projection which is not the complement of a head assigning a θ-role (‘maximal projection’, ‘complement’ and ‘head’ have the technical meaning assigned to them within X-bar theory; cf. above:437-438). Which are the heads which assign a θ-role and which are those that do not? ‘Thematic’ heads (N, V, A, later called ‘lexical’) assign a θ-role, ‘functional’ heads (INFL, COMP, Determiner, Preposition) do not. This distinction between these two kinds of heads was introduced by Abney in some unpublished papers and in his dissertation (Abney 1987). It was to play a central role in the evolution of the Chomskian program. Obviously, this use of ‘functional’ had nothing to do with any type of functional syntax.

Examined in slightly more detail, Chomsky’s proposal claims that barrierhood effects would be avoided if the element moves “step by step”, i.e. without crossing more than one barrier at once. It should be kept in mind that each of these steps, given the standard assumptions of the Chomskian program, leaves a trace, hence an empty category. Thus, a chain (in the technical sense introduced above:462) of empty categories is created each link of which has an ‘antecedent’ separated from it by no more than one barrier: this relation was called ‘antecedent government’ by Lasnik & Saito (1984). If an empty category
is antecedent-governed, the Empty Category Principle (ECP) is satisfied, and the trace is legitimate. Hence, if all links of a chain are antecedent-governed, then ECP is always satisfied and the sentence is grammatical; if this is not the case, because one or more steps of the movement cross more than one barrier, an island effect is produced. Therefore, island violations were explained as ECP violations; ECP in turn was assumed to be "reduced to antecedent government and treated simply as a 'chain phenomenon'" (Chomsky 1986b:79).

Starting from the remark that, in some cases, apparently identical barriers do not produce the same effects, Rizzi (1990) proposed an alternative treatment of island conditions. Rizzi (p.2) labeled Chomsky's view of barriers 'Rigid Minimality' and argued that it had to be replaced by a partly different system, 'Relativized Minimality'. According to Rigid Minimality, all categories of a certain kind are invariably barriers for the movement of the same classes of elements. According to Relativized Minimality, the crucial factor would be "the intervention of a typical potential antecedent governor" (cf. Rizzi 1990:7).

What are such 'typical potential antecedent governors'? They are all related to the notions of A-chain vs. A'-chain (see above:462): within an A-chain, this governor is an element in an A-position; within an A'-chain, an element in an A'-position. As will be remembered, A-positions are those of subject, direct object and indirect object; all the remaining positions are A'-positions. If such a typical potential antecedent governor intervenes between the 'proper' antecedent and its trace, a Relativized Minimality effect is produced and the sentence is ungrammatical. If, on the other hand, a typical potential antecedent governor does not occur, the sentence is grammatical.

The debate on the notions of barrier and Minimality probably represents the most mature stage of Principle and Parameters theory. In the immediately following years, the Chomskian program turned towards its 'minimalist' phase. This will be reviewed in the next sections, beginning with the presentation of some other directions of research of the late eighties, which were taken up by the Minimalist Program.

4. The strive for simplicity or the 'Minimalist Program'
4.1 New proposals on syntactic representations

During the eighties (especially during the second half of the decade), the representation of syntactic structures changed rather radically in comparison to the standard within EST and the early phase of the Principles and Parameters period. In general, one could say that it became much more abstract. This higher degree of abstractness was reached, on the one hand, by a heavier resort

11 Other works by several scholars may be assumed to belong to this line of research, each with its own proposals: see, e.g., Longobardi (1985), Manzini (1992), Moro (1993).
to functional categories and, on the other, by the generalized assumption that syntactic representations are invariably binary, namely that each node immediately dominates no more than two nodes.

Chomsky (1986a:160-161; 1986b:3) extended X-bar scheme to clausal categories by making S' the projection of the functional head C(OMP) and S that of the functional head I(NFL). Given such assumptions, the structure of clauses would be represented as follows (where 'Spec' = 'specifier', in X-bar sense):

\[
\begin{align*}
&\quad S' \\
&\quad \quad \bullet C'' (=S') \\
&\quad \quad \quad \bullet Spec C \\
&\quad \quad \quad \quad \bullet C' \\
&\quad \quad \quad \quad \quad \bullet C \\
&\quad \quad \quad \quad \quad \quad \bullet I'' (=S) \\
&\quad \quad \quad \quad \quad \quad \quad \bullet N'' \\
&\quad \quad \quad \quad \quad \quad \quad \quad \bullet I' \\
&\quad \quad \quad \quad \quad \quad \quad \quad \quad \bullet I \\
&\quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \bullet V''
\end{align*}
\]

Functional categories are in general more abstract than lexical ones since they are not always phonetically realized by means of free forms in Bloomfield's sense (cf. above:173/183). For instance, the functional category I(NFL) is often realized by bound forms, in English and in a variety of other languages: 'he speak-s'. In the late eighties, several linguists (Moro 1988; Pollock 1989; Belletti 1990) proposed that these two features of the functional head I(NFL) be split into two different heads: T(ense) and AGR(eement). T would have the values [± Finite]; AGR those of Singular vs. Plural and I, II or III person. Both T and AGR would be heads of projections of their own: TP ('Tense Phrase') and AGRP ('Agreement Phrase'), T'' and AGR'' respectively, according to X-bar notation. Such proposals were supported by a variety of empirical arguments related to the behavior of subject and predicate in copular sentences (Moro) and to the order of auxiliary, main verbs, adverbs and negation in English vs. French (Pollock) and Italian (Belletti).

In the same period, Kayne (1985; 1989) argued that another AGR head was also needed to account for the agreement between verb and direct object, as it is realized, e.g., in the French construction Les lettres qu'il a écrites vs. Le livre qu'il a écrit. Hence two new different functional heads, each with its respective projection, were distinguished: AGRs (where S=subject), and AGRo (where O=object). The combination of these different proposals gave an analy-
sis of sentence structure which was considerably more complex than (61), namely:

(62) \[ \begin{array}{c}
\text{Spec C} \\
\text{C'} \\
\text{C} \\
\text{AGR_S''} \\
\text{N''} \\
\text{AGR_S'} \\
\text{T''} \\
\text{Spec T} \\
\text{T'} \\
\text{T} \\
\text{AGR_O''} \\
\text{Spec} \\
\text{AGR_O'} \\
\text{AGR_O} \\
\text{V''} 
\end{array} \]

The sentence structure in (62) was assumed in the first stages of the Minimalist Program; cf., e.g., Chomsky (1995a[1993]:173).

Let's now turn to the second of the two new features of syntactic representations in the 80s: the binariness of syntactic structures. As will be remembered from several of the preceding sections (cf., e.g., 7.1.2; 7.2.2; 7.3.1; 7.3.4), the binary analysis of constituents was assumed, if not as a strict principle, then at least as a leading criterion by the majority of structuralist syntacticians both American and European: for instance, by Nida, Wells, Fries, de Groot, or Mikus. By contrast, such a criterion was not followed by generative grammarians until the eighties: many structures (e.g., those containing a verb of the 'give' class) were represented as tripartite-branching. The sentence itself was still represented as a tripartite-branching structure in Chomsky (1981a) (cf. (54), above); its representation became binary only in Chomsky (1986b) as was seen at the beginning of the present section (cf. (61)). One could reasonably think that such a new way of conceiving and representing sentential structure was also the direct effect of the acceptance of a principle proposed by Kayne since the early eighties: the binary branching principle (see Kayne 1983). Kayne's main argument for such a principle was of a theoretical nature: binary branching would be forced by the need of an 'unambiguous path'. Informally speaking, a 'path' is the set of branches which connects any two nodes in a given phrase-marker. An unambiguous path "is a path such that, in tracing it out, one is never forced to make a choice between two (or more) unused branches, both
pointing in the same direction” (Kayne 1983:132). Given this definition, a three-branching node such as A in (63) would make the path from A to, say, D, E, or F, ambiguous, since two branches (namely, B and C) would end up as “unused”:

\[\text{(63)}\]

Kayne (ibid.) argued that the notion of an unambiguous path is primary to that of c-command (cf. (E), above), which would actually derive from it. Therefore, since all antecedent-anaphors are defined in terms of c-command, they must be restated in the form of unambiguous paths. Moreover, since unambiguous paths need generalized binary branchings, all syntactic representations must only contain binary branching nodes.

Kayne’s theoretical assumptions had important empirical consequences for the analysis of a variety of phenomena, such as verbs of giving (‘double object constructions’), or of the predicates of the ‘consider’-type class. Kayne (1983: see especially ch.7) proposed binary representations of such structures in alternative to the standard non-binary ones. Kayne’s views of syntactic representations as strictly binary structures underwent a further refinement in the nineties by means of his theory of ‘antisymmetry of syntax’, which will be discussed in 10.4.3.

Another representation (different, however, from Kayne’s) of double object constructions in strictly binary terms was put forward by Larson (1988). To fully understand it, it is necessary to be acquainted with a revision of the notion ‘subject’, which also greatly influenced the later development of the Chomskian program. As is well known, the ‘standard’ definition of subject in generative grammar was that of “the NP directly dominated by the category S” (cf. above:377). The new binary sentence structure presented in Chomsky (1986b) (namely, (61) above) also demonstrated such a view: the subject was defined as the specifier of I”, but I” had replaced the traditional category S, and its specifier was directly dominated by it. H. Koopman and D. Sportiche argued for a new definition instead, the so-called ‘VP internal subject’ hypothesis: the NP subject would be dominated by the VP. Such a hypothesis was first proposed in a talk given at the 1985 GLOW (“Generative Linguistics in the Old World”) conference. It was developed in several unpublished papers and received its final form in Koopman & Sportiche (1991).

The position of the subject as a specifier of I” was assumed by Koopman and Sportiche to be a s-structure position: the d-structure position of the subject would be that of a ‘sister to VP’, forming ‘V\text{\textsuperscript{max}}’, together with it (cf. p.212).
Note that the subject was not assumed to be the specifier of VP, as, for instance, in Jackendoff (1977) and related work (see above:438); cf. Koopman & Sportiche (1991:239). They found empirical support for their analyses in the existence of VSO languages, where the NP and VP apparently form a single constituent and which show an alternative SVO order, according to Greenberg’s (1966[1963]) Universal 6. These facts would be easily accounted for by means of the hypothesis that the basic position of subjects is within the VP, with a possible raising of the NP into the specifier position of INFL. That the VP-internal position of subjects is universal was considered by Koopman and Sportiche as a consequence of their “null assumption concerning language variation”, namely “that it does not exist”. Hence, if the VP-internal subject hypothesis proves preferable for VSO languages, it should be assumed universally, hence also for SVO or SOV languages (cf. pp.218-219). Koopman and Sportiche recognized that their proposals raised some problems: firstly, since the specifier position of INFL” never receives a θ-role, it could not be an A-position. Remember that an A-position was defined as “a potential θ-position” (see above:462). Secondly, the status of the E xtended P rojection P rinciple had to be reconsidered: are expletives required in Specifier-INFL” position or in Specifier-V max position (cf. pp. 226-227)? The first problem received only a tentative solution; the second was explicitly not dealt with. They were instead thoroughly investigated by Chomsky in his Minimalist Program (see below:480-481).

Let’s now turn to Larson’s (1988) analysis of double object constructions and its more general consequences on the representation of syntactic structures, the so-called ‘Larsonian shells’. Larson’s thesis was that “dative complement constructions like ‘John sent a letter to Mary’ involve an underlying clausalike VP whose ‘subject’ is ‘a letter’ and whose ‘object’ is ‘to Mary’” (p.335). Larson’s arguments mainly relied on interpretive phenomena (such as, e.g., ‘I presented Mary to herself’ vs. ‘*I presented herself Mary’, or quantification facts, negative polarity items, etc.) the explanation of which would require a structure where the direct object c-commands the indirect one. He therefore proposed the following structure:
The verb V would raise into the empty V position ('e', in (64)): a further case of 'head movement' (cf. Larson 1988:343 and above:464]).

Larson's assumption of a strictly binary structure for indirect object constructions was based on several hypotheses. One of them consisted in "an interpretation of θ-theory according to which if a predicate α determines η thematic roles, then it also determines η argument positions, whether its roles are actually assigned to those positions or not" (p.383). As a result of such hypotheses, the representation of a clause whose predicate belongs to 'give'-class would be the following one, where the subject is internal to VP (γ is the 'agent', β the 'theme', and α the 'goal'; cf. Larson 1988:384):

\[
(64) \quad \text{VP} \\
\quad \text{SpecV'} \\
\quad \text{VP} \\
\quad \text{V} \\
\quad \text{e} \\
\quad \text{NP} \\
\quad \text{a letter} \\
\quad \text{VP} \\
\quad \text{V'} \\
\quad \text{to Mary} \\
\quad \text{send} \\
\]
Representations such as (65) were dubbed ‘Larsonian shells’ and were taken up by the Minimalist Program (see below:479-480).

4.2 Main features of the Minimalist Program

The Minimalist Program (henceforth MP, or also simply ‘Minimalism’) took shape in some papers written in successive years (Chomsky & Lasnik 1993; Chomsky 1991; 1993) since the late eighties, which eventually appeared as the first three chapters of Chomsky (1995a), whereas the fourth chapter of the book is original. Another paper presenting some ‘minimalist’ views is Chomsky (1995b); it was actually written and in circulation before chapter four of Chomsky (1995a), with which it overlaps to a rather large extent. The work in progress character of MP is reflected by the fact that some topics are differently treated throughout such papers. Moreover, later presentations of MP (especially in oral form) have brought about noticeable changes to the framework described in Chomsky (1995a). Chomsky has stressed many times that the label ‘program’ which qualifies Minimalism, contrasting with ‘theory’ which is applied to the Principles and Parameters approach, denotes the fact that this new phase of his investigation into language is less systematic and less comprehensive than the preceding one. In what follows, some main conceptual features of MP will be investigated, without aiming at exhaustiveness. As far as some technical solutions are presented, the main reference will be Chomsky (1995a).12

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12 Two useful introductions to MP are Marantz (1995) and Moro (1995). In what follows, I will largely rely on them, and especially on the latter. Given the date of their completion, however, they do not take into account the fourth chapter of Chomsky (1995a).
To understand Minimalism, it would be useful to sketch its ultimate goals on the one hand, as well as its most immediate antecedents on the other. The ultimate goal could be taken to be the answer to the question “How perfect is language?”, that Chomsky raises many times (cf., e.g., 1995a:9; 221; 1995b:389). He assumes that “the language faculty is nonredundant, in that particular phenomena are not ‘overdetermined’ by principles of language” (Chomsky 1995a[1993]:168). He concedes (ibid.) that the property of being nonredundant is unexpected: human language is a biological system, and biological systems in general show redundancy. Nevertheless, he feels entitled to draw such a conclusion from the history of his own research program concerning Universal Grammar. It could have shown, on the one hand, that language-specific properties reduce to a minimum; on the other, that they tended
to yield simple and more natural theories, laying the groundwork for an eventual minimalist approach. There is no necessity that this be the case (...) In practice, however, the two enterprises have proven to be mutually reinforcing and have proceeded side by side. (p.5)

The idea of simplicity, which was seen to have been a constant of the Chomskian program, now appears to be the really essential one: human language is maximally simple, hence linguistic theory must reflect this simplicity in its organization. MP is an effort to implement this general idea: hence it characteristically strives for ‘economy’. Economy must be reached within three domains: 1) economy of levels of representation, i.e. levels which are shown not be necessary must be disposed of. 2) Economy of principles, i.e. their number must be as small as possible. 3) Economy of derivations, i.e. they must be as “costless” as possible. In the actual formulation of MP, the three domains appear as strictly connected: reaching the maximal economy in one of them often implies a revision of one or both of the others.

The most immediate antecedents of Minimalism are to be found in the array of problems and proposals characterizing Principles and Parameters theory in the late eighties, which have been sketched in the last preceding sections. A word containing the stem ‘minimal’ was at the center of that debate, namely ‘Minimality’. Chomsky & Lasnik (1993) (=Chomsky 1995a: 89ff.) accepted Rizzi’s idea of ‘Relativized Minimality’, but they considered it as only descriptively adequate. The real explanatory principle would be a general principle of the economy of derivations, approximately of the form ‘Minimize chain links’. Besides, Chomsky had focused on some apparently “uneconomical” aspects of language, the reason for which had to be accounted for. One of them was the existence of movement operations: in fact, they would seem to make derivations more complex, hence to violate economy. Another question was related to the ‘principle of Full Interpretation’ (FI), according to which “every element of PF and LF (...) must receive an appropriate interpretation” (Chom-
sky 1986a:98). For example, at the LF level, FI excludes the possibility of having such structures as ‘[who] John saw Bill’ meaning ‘John saw Bill’, known as ‘vacuous quantifications’. Given a principle like FI, however, the occurrence itself of expletives becomes a puzzle: expletives are elements without interpretation, which nevertheless occur in human languages. Both movement and Full Interpretation uniquely characterize human language: in symbolic languages, constituents do not move and not all elements must be interpreted (e.g., vacuous quantification is allowed). A good deal of Chomsky’s effort in the minimalist period was devoted to showing that both imperfections (namely, movement and the occurrence of expletives) are only apparent, since they derive from the language design with a minimum of assumptions.

MP is also linked to the immediate preceding phase of the Chomskian program by some assumptions about the form and the elements of syntactic representations, namely those which have been presented in section 10.4.1: binary branching, Koopman and Sportiche’s internal VP-subject hypothesis and Larsonian shells. But the notion worked out in the late eighties which was to lead to a good deal of the MP was that of functional head: hence a structure such as (62) was the starting point of the minimalist analyses (e.g., Chomsky 1995a[1993]:ch.3). In subsequent papers (especially Chomsky 1995a:ch.4), it was thoroughly revised: AGR heads were abandoned, and only T is retained (cf. pp.348-355). Nevertheless, this step has not to be interpreted as an effort to eliminate functional heads entirely, but only those which do no not appear motivated, as Chomsky argued was the case with AGR: this was therefore a consistent application of minimalist principles, in his view. Another achievement of the eighties which represents an essential prerequisite of MP is the opposition overt vs. covert movements (see above:464), namely between the movements that have an effect on the phonetic representation of sentences and LF-movements. It will be apparent that covert movements, i.e. those which apparently do not change the form of the sentence, are considered the most economical ones, according to minimalist assumptions.

Let’s now turn to the first group of economy problems listed above, namely how many and which levels of representation are really necessary. On this matter, Minimalism radically revised the assumptions of the generative grammar of the preceding forty years: the only recognized levels are P(honetic) F(orm) and L(ogical) F(orm); d-structure and s-structure are given up. Chomsky (1995a[1991]:132) first cast into doubt the s-structure level: it was qualified as a “derivative concept”, whose only function would be that of relating the three levels of d-structure, PF, and LF. This position was restated in Chomsky & Lasnik (1993), where one also encounters the notion of ‘interface’ levels: PF and LF are defined as ‘external interface levels’, and d-structure ‘internal interface level’ (cf. Chomsky 1995a:21). In Chomsky (1993), only the two
external interface levels are preserved: Phonetic Form and Logical Form. Both these levels are needed by “virtual conceptual necessity” (Chomsky 1995a [1993]:169): a linguistic object cannot dispose of its phonetic or semantic sides. By contrast, s-structure is dispensable since some phenomena that were previously accounted for at such a level (namely, some binding phenomena) could equally be accounted for at LF: being no longer necessary, s-structure becomes superfluous (see Chomsky 1995a[1993]:191-199). What about d-structure? In the preceding models, d-structure was the contact-point (or the ‘internal interface level’) between the lexicon and the syntactic (more properly, ‘computational’) system. In the minimalist model, the syntactic system can have access to the lexicon at several points in the derivation, hence no d-structure level is needed anymore. The derivation then “progressively” forms the phrase marker, obeying only one condition: it must always “extend its target”, i.e. it has to form a phrase marker which includes that to which it has already applied (cf. p.190). This condition has the same effect which in Principles and Parameters theory was reached by means of the Projection Principle and of the θ-criterion (cf. (P) and (Q), above): hence both become dispensable. In this way, the economy of principles (i.e., group 2 of economy problems) is also realized. In a later paper, Chomsky (1995a:ch.4) argued that the extension condition itself is deducible from more general minimalist assumptions (cf. pp.327-328).

The “progressive” character assigned to derivations within the MP involved a deep revision of the devices formerly assumed to account for the generation of syntactic representations. Early minimalist studies (Chomsky 1995a[1993]:189ff.) resurrected the notion of generalized transformation, which had disappeared from generative grammar since (at least) Chomsky (1965); cf. above:8.4.3. The only condition imposed on generalized transformations was that their output satisfy X-bar conditions. In later papers (Chomsky 1995a:ch.4; 1995b), X-bar theory itself was abandoned, and replaced by more minimalist assumptions. As will be remembered, the task of X-bar theory was to define the notion of ‘possible phrase marker’. Within MP, this task is assigned to just two operations, ‘Merge’ and ‘Move’. ‘Merge’ is “an operation that forms larger units out of those already constructed” (Chomsky 1995b:396). The “larger unit” formed by Merge has as its label one of the two objects that have been merged. The object which becomes the label is the one that ‘projects’, i.e. the head. For example, given the two objects ‘the’ and ‘book’, the possible results of their merging are (66a) and (66b):\)

\[\text{[13] Actually, the only structure given by Chomsky is (66b), according to the analysis which became the standard after Abney (1987), which assumes that determiners are heads of projections of their own, of which NPs are complements; the conceptual point is however the same, even if}\]
As will be noticed, no projection symbols appear anymore (X' or X''), nor any category symbols (D or N). 'The' in (66a) and ‘book’ in (66b) would be both heads and maximal projections. “Standard X-bar theory is thus largely eliminated in favor of bare essentials” (Chomsky 1995a:246; 1995b:398). X-bar theory had made phrase structure rules dispensable (see above:459): now, X-bar theory itself is disposed of. One can note that trees such as those of (66a,b) look very similar to the earliest tree-like representations proposed in the first decades of 19th century (cf. above:ch.4fn.42) and to the trees of Tesnière’s or of Prague Functional Generative Description (cf. above:5.3.6; 9.3.2). All of them, indeed, use words, rather than category symbols, as labels of projections.

Merge can recursively apply, bringing about more complex trees than (66), e.g. trees with one or more specifiers. Move has the same effects as Merge, in the sense that it generates the same kinds of syntactic objects. Only its source is different: it does not take any syntactic objects to merge them into a larger one, but raises an object α from inside a category K to ‘target’ another object K within the same category (cf. Chomsky 1995a:250). Merge and Move therefore generate derivations, in the “progressive” form alluded to above. Since the only admitted levels are PF and LF, derivations can be assessed only by reference to them. A derivation which yields a legitimate P(honetic) Form and a legitimate L(ogical) F(orm) is said to ‘converge’; one which does not, is said to ‘crash’. A derivation may crash at both PF and LF levels, or just at one of them: in the latter case, it ‘crashes at PF’, or ‘crashes at LF’ (cf. Chomsky 1995a[1993]:171). For example, a derivation which brings about a PF where a vowel is specified is [+high, +low] crashes at PF; a derivation which brings about a LF containing vacuous quantifiers crashes at LF.

It is necessary for the “progressive” access to the lexicon to stop at a certain point of the derivation; otherwise, one could claim that a sentence like ‘John eats’ could be derived, for example, from ‘John eats pizza every morning at 8.00 in his bedroom’. This boundary point is called ‘Spell-Out’ and it is the point where the derivation is interpreted in PF. After this point, access to the lexicon is blocked. Derivation proceeds after Spell-Out to reach LF, but it cannot insert new lexical items. If it could, a derivation such as the one just sketched would be legitimate. Nevertheless, movements can still take place in LF, with no effect on PF: these are the so-called covert movements. Movements which apply before Spell-Out and therefore affect Phonetic Form are

the representation (66a) is adopted. Note that the Abney analysis had been anticipated by Frei (1968; cf. above:7.3.4), by Bartsch & Vennemann (1973) and Vennemann & Harlow (1977).
overt movements (cf. Chomsky 1995a:189; 229; 1995b:394-395). Covert movements are not only rules such as Q(uantifier) R(aising) (see above:435), but also Verb movements in several languages, like, for example, English. Compare the English sentences (67) with their Italian equivalents (68):

(67)  a. *John reads carefully many books  
      b. John carefully reads many books  
(68)  a. Gianni legge attentamente molti libri  
      b. *Gianni attentamente legge molti libri

In English an adverb cannot occur between the verb and the direct object; in Italian, the opposite is the case. Assuming, as is reasonable, that in both cases the adverbs (‘carefully’ and *attentamente) are Verb Phrase adverbs, the solution to the contrast between (67) and (68) could be offered by the hypothesis that in Italian, but not in English, the verb leaves the Verb Phrase and moves to a higher position, where it receives its inflectional features (third person, present, etc.). But the English verb too shows inflectional features: where does it get them from? Chomsky’s (1995a[1993]) hypothesis was that verbs, as with words in general, are drawn from the lexicon already provided with all their inflectional features. They only have to ‘check’ them at a determinate point in the structure. In particular, inflectional features of verbs are to be checked in a position which is higher than the Verb Phrase. In Italian, this checking takes place before spell-out, since the verbs move overtly; in English, the verb moves covertly, that is to say, only in Logical Form.

This analysis obviously raised many problems. First: why are movements overt in some languages and covert in others? Second: it will have been noticed that the movements described above are assumed to take place “step by step”. Why is this so and how can improper movements be avoided? Third, and more general: why do movements occur? Such problems had already been touched on in former periods of the Chomskian program: within the MP, they became the main focus of the research. As a whole, they relate to what has been labeled the ‘economy of derivation’.

The basic notion to which Chomsky (1995a) resorted in dealing with this whole set of problems is that of ‘feature’, interpreted as a morphological property. The opposition overt vs. covert movement would be due to a difference between ‘strong’ vs. ‘weak’ features. Chomsky (1995a[1993]:198) maintained that the inflectional features (i.e., tense and agreement) of the verb are strong in French (and in Italian, one may add), while they are weak in English. Strong features must be checked overtly, weak features, covertly. Constituents containing strong features must move overtly to check them with the relevant functional heads; those containing weak features, move only covertly. The contrast Italian vs. English illustrated by (67) and (68) would therefore be explained in this way. Covert and overt movements are not considered on a par,
however: the most economical solution is always that of covert movement. In other words, a basic feature of human language would be a principle dubbed ‘Procrastinate’ (cf. Chomsky 1995a[1993]:198): to delay all movement operations as long as possible, namely to a stage later than Spell Out. The covert movement of English verbs would therefore be a case of the Procrastinate principle.

The avoidance of improper movements would be obtained by an application of another general principle: ‘Shortest Move’, in the terminology of Chomsky (1995a[1993]:ch.3), and ‘Minimal Link Condition’ in that of Chomsky (1995a:ch.4). Such different labels reflect some differences in the formulation of the principle throughout the development of MP. Its core contents can however be paraphrased by saying that any constituent must move into the first higher position matching its category: then all heads must move into the next higher head position, all NPs into the next higher NP positions, and all ‘wh’-phrases into the next higher ‘wh’-position. Discovering the reasons for movement is possibly the most difficult problem that faces the Chomskian program and generative syntax as a whole: it is therefore not surprising that, on the one hand, it was at heart of the MP, and, on the other, that the proposed solutions changed somewhat between the early minimalist works and the most recent ones. At the outset, Chomsky mainly focused on the factors which cannot be taken as explaining movement. For example, it cannot be assumed that constituents move in order to bring about a grammatical output, but only “for their own interest”. Movement of constituents would therefore be governed by a principle dubbed ‘Greed’:

(R) Move \( \alpha \) applies to an element \( \alpha \) only if morphological properties of \( \alpha \) itself are not otherwise satisfied. (Chomsky 1995a[1993]:201)

Greed would itself derive from a more general principle governing economy of derivations, named ‘Last Resort’:

(S) A shorter derivation is preferred to a longer one, and if the derivation \( D \) converges without application of some operation, then that application is disallowed. (p.200)

The joint effect of the principles ‘Procrastinate’, ‘Greed’, and ‘Last Resort’ is therefore that movement is always a costly operation, which is allowed only when it is forced by the need of checking features, and that covert movement is always preferred to the overt one.

This picture underwent some changes in Chomsky (1995a:ch.4). There Chomsky explicitly asks the question ‘Why Move?’, which itself is the title of a section (see p.316). The answer could be the following one: “because some otherwise uninterpretable features must be deleted and deletion is accomplished by constructing a proper checking relation via movement”. This is an
informal rephrasing of Chomsky's "final version" of the Last Resort principle (p.280). Uninterpretable features are therefore the only triggers of movement. They 'attract' the moved constituents: and, as a matter of fact, the operation Move is renamed 'Attract/Move' (p.298). For instance, 'wh'-movement would be the effect of an attraction of the 'wh'-phrase by the 'wh'-features contained in the COMP head. Given such a framework, the principle itself of Greed becomes dispensable (cf. p.267): since the only possible trigger of movement is attraction by otherwise uninterpretable features, no element may be attracted if its features are already checked "in place". On the other hand, if a given feature does not have any element to attract, it cannot be checked, and the derivation does not converge. Since the contents of features are morphological properties (Case, 'wh'-, number, person, etc.), the reason for movement reduces to a morphological property (more exactly, to an inflectional morphological property). Chomsky assumes that even cross-linguistic (i.e., parametric) differences are located exclusively in the functional heads (cf., e.g., Chomsky 1995b:388), hence developing proposals brought forward by Borer and Baker in the eighties (see above:463). Basing himself on these same principles, Chomsky (pp.286-289) also accounts for the occurrence of expletives. One could say that, within the overall architecture of the MP, both apparent "imperfections" of human language (namely, movement and the occurrence of non-interpretable elements) converge in bringing about its essentially perfect, non-redundant structure.

Hence the overall picture of syntax which emerges from the MP is based on a sharp separation of the inflectional features from the argument structure, or θ-grid: as Chomsky himself says (p.312), "θ-theory is virtually complementary to the theory of checking". To see this more clearly, consider again a structure such as (62), above; even if it does not match the most recent minimalist assumptions (the inventory of functional heads is now partly different and rigid X-bar schemes have been given up), it is still representative of the spirit of the whole approach. It is almost exclusively constituted by the 'morphological' area, i.e. that of functional heads, which extends as far as the label V"; below this label, the 'argument' area would begin. To represent the latter area, Chomsky (1995a:312-316) combined and partly reformulated the proposals of Larson (1988; see above:(65)) and Hale & Keyser (1993b). Like Larson, Chomsky introduced an empty verbal head, indicated by a 'light' v (represented by a lower-case 'v'): then the V" projection of (62) would be replaced by v_{max}. Within it, the external argument (see above:457) would occupy the position of Specifier. VP would appear as the complement of v. For instance, the argument

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14 For an analysis of expletives and of the reasons for movement which is alternative to Chomsky's, i.e. based on structural, and not morphological properties, see Moro (1997:ch.2; 2000).
structure of a sentence such as ‘we build airplanes’ would be represented as follows (cf. Chomsky 1995a:315):

\[(69)\]

Sentences containing ergative verbs in Burzio’s sense (see above:461) would lack the element in the position of Spec of \(v_{\text{max}}\). As in (64)-(65), above, the main verb \(V\) would raise to the empty (‘e’) position dominated by ‘light’ \(V\).

By means of such representations as (69), the original value of the notion ‘external argument’ would be recovered while still preserving the VP internal subject hypothesis, which would otherwise contradict each other: for the external argument must lie outside of the VP by definition. Now, the subject is external to the VP, but it is lower than INFL or any other functional category, as argued by Koopman & Sportiche (1991), whose results therefore still hold. It will be remembered (cf. above:470) that Koopman and Sportiche had left two open problems: (1) the definition of A-positions, since, given the VP internal subject hypothesis, the Specifier position of INFL would no longer receive a θ-role; and (2) the location of expletives, whether as specifiers of INFL” or specifiers of \(V^\text{max}\). The first problem was tackled in the first minimalist papers (cf. Chomsky 1995a[Chomsky & Lasnik 1993]:64; [Chomsky 1993]: 196): former ‘A-positions’ were renamed ‘L-related’ positions, meaning ‘related to lexical features’. Lexical features, in this sense, are those assigned both to functional heads INFL, T, and possibly AGR. A position is L-related if it is the complement or the specifier of a head bearing an L-feature. For instance, the Specifier position of AGRs”” in (62) would be an L-related position; whereas that of Specifier of C”” is not an L-related position. The terms ‘L-related position’ and ‘not L-related position’ therefore replaced ‘A-position’ and ‘A’-position’, respectively.

What is the position of expletives? Structures such as (69) are representations of pure thematic relations: they can only contain elements which have a θ-role, assigned by the head \(V\). The subject NP cannot therefore be an expletive, since it would lack a θ-role. Expletives can only be inserted in the Specifier position of AGRs”” given a representation such as (62), or of IP (=I”) given one such as (61). Their only function is that of satisfying the Extended Projection Principle, namely the requirement that all clauses have a subject.
This subject, however, is a 'structural' subject, which must be kept distinct from the 'thematic' subject position, such as that of 'we' in (69). Of course, the thematic subject would raise to the structural subject position, as argued by Koopman and Sportiche. One has only to add that such a raising may be overt or covert: if the former option is selected, in a language like English, sentences do not contain expletives; if the latter one is selected, expletives occur.

The very abstract picture of syntax which emerges from the MP has therefore as its goal that of answering the major questions and the technical problems listed at the beginning of this section. Proposals such as those of Koopman & Sportiche, or Larson, or others, were resumed and reshaped in order to solve the "apparent imperfections" of the "perfect" system "human language". Two such apparent imperfections are movement and the presence of expletives. Now they are accounted for as a virtually automatic consequence of human language design, and especially of the features that oppose it to other symbolic systems also called languages. This essential difference would lie in precisely the presence of a 'morphological' (or 'inflectional', or 'functional') area distinguished from a 'thematic' (or 'argument') area: the elements within the former area 'attract' the elements from within the latter. This attraction may be overt or covert: in the former case, the result is the displacement of constituents; in the latter, a special interpretation of some constituents (as, for example, 'wh'-phrases in languages such as Chinese), or the occurrence of expletives.

4.3 'The antisymmetry of syntax'

I want to conclude the present survey of the Chomskian program about syntax by illustrating the essential contents of a theoretical proposal which has not been put forward by Chomsky himself, but by a linguist strictly associated with him for about three decades, namely Richard Kayne. This proposal, formulated in Kayne (1994), shares with the MP the same basic feature which characterize the Chomskian program as a whole: the effort to reach an increasingly higher level of simplicity, by means of deducing the already achieved results from still more abstract and general principles.

As its starting point, Kayne's proposal assumes the notion of 'asymmetric c-command' and his theory of binary branching developed in the preceding decade (see 10.4.1). Binary branching theory states that every syntactic phrase marker must have an abstract form such as that of (70) (and such is actually the case with (61), (62), (64), (65), (69), above):
The notion of asymmetric c-command is defined as follows:

(T) X asymmetrically c-commands Y iff [i.e., ‘if and only if’; G.G.] X c-commands Y and Y does not c-command X. (Kayne 1994:4)

In a binary branching structure such as (70), the relation of asymmetric c-command is ‘locally linear’ (ibid.): this means that, given any two nodes X and Y such that X asymmetrically c-commands Y, if a third node Z asymmetrically c-commands Y, Z will asymmetrically c-command X or X will asymmetrically c-command Z. In (70), for example, B asymmetrically c-commands G; a third node, e.g. D, also asymmetrically c-commands G, and it is asymmetrically c-commanded by B. It is easy to check that such a ‘linear ordering’ also holds for all other nodes which are in an asymmetrical c-command relation within a binary branching structure. By contrast, such a ‘local linearity’ does not hold in a non-binary branching structure such as (63), reproduced below as (71):

Consider, e.g., B and C: both asymmetrically c-command, for example, F, but neither does B asymmetrically c-command C, nor does C asymmetrically c-command B: B and C c-command each other. A further premise of Kayne’s hypothesis is the distinction between ‘terminal’ and ‘non-terminal’ nodes, which has been a core notion of generative grammar since its beginnings: terminal nodes are those which belong to a terminal string (see above:8.4.3), non-terminal nodes are those which belong to a non-terminal string. For instance, ‘Bill’ is a terminal node; NP (N', in X-bar notation), a non-terminal node. This distinction is no longer preserved within the MP (cf. above:(66)): and this is possibly the deepest conceptual difference between Chomsky’s and Kayne’s frameworks.

Kayne’s basic assumption is that the locally linear relation among non-terminal nodes is matched by a linear ordering relation among the terminal nodes dominated by them. This is what he calls the ‘Linear Correspondence Axiom’ (LCA; p.6). To obtain the actual linear ordering of word and mor-
phemes, it is therefore necessary that, if a terminal node $x$ precedes another terminal node $y$, a non-terminal node $A$ dominating $x$ asymmetrically c-commands at least one non-terminal node $B$ dominating $y$.

Kayne (1994:8-11) argues that the principles of X-bar theory derive as theorems from the LCA. To see how he reaches this further result, it is necessary to remark that his notion of c-command is partly different from that originally stated by Reinhart and reproduced in (E), above. The difference between the two notions lies in the choice of what can be named the “structural top” that covers both nodes entering in a c-command relation: while it is the ‘first branching node’ in the original definition, it is simply the ‘first node’ according to Kayne. To see the different consequences of these two definitions, consider the following abstract tree from Kayne (1994:7):

(Upper-case letters indicate non-terminal nodes, lower-case letters terminal nodes). According to the definition (E) of c-command, node $P$ would c-command node $M$ since the first branching node dominating $P$, namely $L$, also dominates $M$. According to Kayne’s definition, $P$ does not c-command $M$, since the first node over $P$ is $N$, which does not dominate $M$. Of course, $M$ c-commands $P$ according to both definitions: however, it does not do so asymmetrically according to definition (E), hence it would be impossible to establish if $m$ precedes $p$ or $p$ precedes $m$. Given Kayne’s definition, by contrast, $M$ asymmetrically c-commands $P$, then the linear order ‘$m$ precedes $p$’ is brought about.

Let’s now turn to X-bar principles in the light of Kayne’s theory. They can be summarized as follows: every phrase must have one head and no more than one head. Kayne shows that structures violating such principles are all actually structures violating LCA. For instance, if one would represent ‘see John’ as (73a), where the phrase VP dominates two heads, $V$ and $N$, the antisymmetry condition would be violated, since $V$ and $N$ c-command each other. The correct representation is therefore (73b), i.e. that conforming to X-bar, where the intervening category NP (the complement) allows $V$ to asymmetrically c-command $N$: 
'Headless' structures would have the form of (74), where $M$ and $P$ would be two maximal projections, and $Q$ and $R$ two other non-terminal nodes, possibly heads:

In (74), $M$ asymmetrically c-commands $R$: then the terminal node dominated by $M$, namely $q$, should precede that dominated by $P$, namely $r$. But $P$ asymmetrically c-commands $Q$: and therefore $r$, since it is dominated by $P$, should precede $q$, which is dominated by $Q$. This contradictory result shows that a linear ordering of terminals is impossible to establish, given a structure like (74). The source of this impossibility lies in the fact that $M$ and $P$ c-command each other and thus they don’t exhibit an asymmetrical c-command relation.

Kayne’s LCA has also consequences for cross-linguistic comparison. The most pervasive one is that the universal basic order should be SVO. Kayne reaches this conclusion in two steps: first, by arguing that the LCA allows only the orders Specifier-Head-Complement (S-H-C) and Complement-Head-Specifier (C-H-S). The only theoretically possible orders would be SVO and OVS. (The subject is assumed to be in the specifier position of VP.) The second step consists in arguing that SVO and not OVS is the only order actually possible, as empirical evidence shows since Greenberg’s (1966[1963]) essay (cf. Kayne 1994:35-38 and above:328]). The first step is motivated by anti-symmetry considerations: the specifier asymmetrically c-commands the head, and the head asymmetrically c-commands the complement. Hence the elements dominated by the Specifier node and those dominated by the complement node necessarily fall on opposite sides of the head (cf. Kayne 1994:34). The second
step would be “ultimately related to the asymmetry of time” (p.38), which requires that the specifier occur first, then the head, and finally the complement. The consequence of LCA is therefore that asymmetric c-command is matched by a linear precedence ordering:

(U) Let X, Y be nonterminals and x, y terminals such that X dominates x and Y dominates y. Then if X asymmetrically c-commands Y, x precedes y. (Kayne 1994:33)

Kayne therefore denies the existence of the ‘head-complement parameter’, which had been proposed by several researchers in the Principles and Parameters age (see above:459): the head universally precedes the complement, both cross-linguistically and across constituents. Since SVO is the only possible order, other actually occurring orders (such as SOV) would be transformationally derived. Kayne devotes a good deal of his book to argue that this is the case. The assumption of the antisymmetry of syntax and the LCA also render several other analyses impossible which were standard in the history of generative grammar and within the Chomskian program itself: Kayne provides alternatives compatible with his assumptions for each of them.

Chomsky (1995a:335) deems Kayne’s proposal “very much in the spirit of the Minimalist Program”, even though he does not accept it in all its aspects: in particular, he remarks that Minimalism and the ‘antisymmetry of syntax’ are not truly compatible, since the latter still refers to X-bar theory, while his ‘bare phrase structure’ theory does not (1995a:334-340; 1995b:413-420). However, Chomsky (1995a:340) shares Kayne’s “major empirical conclusions, specifically the universal order SVO”. In the domain of word order, the Chomskian program therefore seems to have reached a position which is rather close to that held by general grammarians, and which has been the starting point of our survey of syntactic theories (cf. above:2.1.1). This remark is not intended to mean something like nihil sub sole novi: but it can possibly synthesize the aim of the present volume, namely to bring to light some of the continuous as well as some of the broken threads within the syntactic research of the last two centuries.
REFERENCES

Abbreviations:
MSL = Mélanges de la Société Linguistique de Paris. Paris
GRM = Germanisch-Romanische Monatschrift. Heidelberg 1909---
IF = Indogermanische Forschungen. Göttingen 1891---
KZ = Zeitschrift für vergleichende Sprachforschung auf dem Gebiete der
indogermanischen Sprachen, begründet von A. Kuhn. 1852---
LeSt = Lingua e Stile. Bologna 1965----
Lg = Language. Baltimore 1925----


REFERENCES


---------. 1949a. “Syntactic relations and linguistic typology”. Cahiers Ferdinand de Saussure 8.5-20.


-----.. 1805. Anfangsgründe der Sprachwissenschaft. Ibid.
REFERENCES


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---------& Lioba Moshi. 1990. “Object asymmetries in comparative Bantu syntax”. *LI*
21:147-85.

offered to Otto Jespersen on his Seventieth Birthday* ed. by N. Bogholm, A.
(Reprinted in Brøndal 1943:1-7).
(Reprinted in Brøndal 1943:8-14).
Brøndal 1943:90-97).
Oxford: Pergamon Press.

Brugmann, Karl. 1904. *Kurze vergleichende Grammatik der indogermanischen
---------. 1917. “Der Ursprung des Scheinsubjekts ‘es’ in den germanischen und in
den romanischen Sprachen”. *Berichte der sächsischen Gesellschaft der
---------. 1918. “Verschiedenheiten der Satzgestaltung nach Massgabe der seelischen
Grundfunktionen in der indogermanischen Sprachen”. *Berichte der sächsischen
--------- & Hermann Osthoff. 1878. *Morphologische Untersuchungen auf dem
Bühler, Karl. 1918. “Kritische Musterung der neuern Theorien des Satzes”.
Philadelphia: John Benjamins, 1990.)
Burzio, Luigi. 1981. *Intransitive Verbs and Italian Auxiliaries*. Ph. D. Diss.: MIT.
Paul.
REFERENCES


REFERENCES


du cinquantenaire de M. Louis Hjelmslev, 134-155. Copenhague: Nordisk Sprog-
og Kulturforlag.


Dik, Simon C. 1968. Coordination. Its Implications for the Theory of General


Grammar”. Moravcsik & Wirth 1980.45-75.

Gruyter.

--------. 1997b. The Theory of Functional Grammar, Part 2: Complex and Derived
Gruyter.

Philadelphia: John Benjamins.


--------. 1902. “Die sprachwissenschaftliche Definition der Begriffe ‘Satz’ und


Doroszewski, Witold. 1933. “Quelques remarques sur les rapports de la sociologie et
de la linguistique: Durkheim et F. de Saussure”. Psychologie du langage (=

Foundations of Language 5.488-519.

Dowty, David R. 1978. “Lexically governed transformations as lexical rules in a
Montague Grammar”. Li 9.393-426.


Elffers-van Ketel, Els. 1991. The Histortography of Grammatical Concepts. 19th and
20th-Century Changes in the Subject-Predicate Conception and the Problem of
their Historical Reconstruction. Amsterdam & Atlanta: Rodopi.

Elison, Benjamin & Velma Bernice Pickett. 1967. An Introduction to Morphology and
Syntax. Santa Ana, California: Summer Institute of Linguistics.

Diss.: MIT.

Preserving, and Local Transformations. New York-San Francisco-London:
Academic Press.

1.33-54.
REFERENCES


--------, 1959. “Strukturelle Syntax und inhaltsbezogene Grammatik”. Sprache -
Schlüssel zur Welt. Festschrift für Leo Weisgerber hrsg. von Helmut Gipper, 134-
--------, 1965/70. “Aufbau der Mitteilung und Gliederung der gesprochenen Kette”.
Zeitschrift für Phonetik Sprachwissenschaft und Kommunikationsforschung
--------, 1973. Prolegomena zu einer deutschen Grammatik. 4th printing. Düsseldorf:
Schwann.
Frei, Henri. 1929. La grammaire des fautes. Paris & Genève: Geuthner. (Reprint
Genève: Slatkine, 1971.)
--------, 1941. “Qu’est-ce qu’un dictionnaire de phrases”. Cahiers Ferdinand de
Saussure 1.43-56.
--------, 1966. “Mode de réduction des syntagmes”. Cahiers Ferdinand de Saussure
22.41-51.
--------, 1967. “Quasi-phrases et phrases-poteaux”. To Honor Roman Jakobson, 688-
--------, 1968. “Syntaxe et Méthode en linguistique synchronique”. Enzykloplädie der
Geisteswissenschaftlichen Arbeitsmethoden, 4. Lieferung: Methoden der
Oldenbourg.
Kawamoto 1970.103-108.
Fries, Charles Carpenter. 1952. The Structure of English. New York: Harcourt, Brace,
& Co.
Funke, Otto. 1923. “Über Prinzipienfragen der Sprachwissenschaft”. Englische
Studien 57.161-186.
60.140-157.
384.
--------, 1874-75. “Weiteres zur vergleichenden Syntax. Wort- und Satzstellung”.
ZVS 8. 29-165; 300-338.
--------, 1901[1891]. Die Sprachwissenschaft. 2nd ed. Leipzig: Tauchnitz. (Newly
edited by Gunter Narr & Uwe Petersen, with an essay by Eugenio Coseriu.
Tübingen: TBL, 1972.)
Gardiner, Alan H. 1951[1932]. The Theory of Speech and Language. 2nd ed. Oxford:
Clarendon Press.
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& al. 1930. “Quelles sont les méthodes les mieux appropriées à un exposé complet et pratique de la grammaire d’une langue quelconque”. Actes du premier congrès international des linguistes. 33-63.


Kalepky, Theodor. 1927. “Sind die ‘verba impersonalia’ ein grammatisches Problem?”. Die neueren Sprachen 35. 161-175.


REFERENCES


---------. 1965. “Some fundamental insights of tagmemics”. Lg 41.65-76.


REFERENCES


Poggi, Stefano. 1977. I sistemi dell’esperienza. Psicologia, logica e teoria della
Pollard, Carl & Ivan Sag. 1994. Head-driven Phrase Structure Grammar. Chicago:
The University of Chicago Press.
IP”. LI 20.365-424.
---------. 1924. “Aufgaben der indogermanischen Syntax”. Stand und Aufgaben der
Sprachwissenschaft. Festschrift für Wilhelm Streitberg, 126-151. Heidelberg: Carl
Winter.
Postal, Paul M. 1964. Constituent Structure: A Study of Contemporary Models of
---------. 1969. “Anaphoric islands”. Papers from the 5th Regional Meeting of the
Chicago Linguistic Society ed. by Robert I. Binnick, Alice Davison, Georgia M.
---------. 1880b. Nachträige to W. v. Humboldt, Über die Verschiedenheit des
menschlichen Sprachbaues und ihren Einfluss auf die geistige Entwicklung des
Noordhoff.
Quine, W. v. O. 1961[1953]. From a Logical Point of View. 2nd ed. Cambridge,
Mass.: Harvard University Press.
---------. 1969. “Linguistics and Philosophy”. Language and Philosophy ed. by
Quirk, Randolph, Sidney Greenbaum, Geoffrey Leech & Jan Svartvik. 1972. A
---------. 1985. A Comprehensive Grammar of the English Language. London:
Longman.
Phonetik Sprachwissenschaft und Kommunikationsforschung 38.590-610.
Rask, Rasmus. 1838. Samlede tildels forhen utrykte afhandlinger. Udgivne efter
REFERENCES

Reis, Marga. 1978. “Hermann Paul”. Beiträge zur Geschichte der deutschen Sprache (Tübingen) 100. 159-204.
REFERENCES


Thiersch, Craig. 1978. Topics in German Syntax. Ph. D. Diss.: MIT.


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