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THE SEMANTICS OF DETERMINERS

Edited by
JOHAN VAN DER AUWERA
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The ‘Antwerp Colloquium on Determiners’, held at the UIA campus of the University of Antwerp, Belgium, 20 and 21 February 1979, was an effort to bring together European and American linguists and philosophers to discuss their work on determination. With two exceptions, this volume represents the proceedings. A paper by Asa Kasher and Shalom Lappin, ‘Certain Determiners are Not Existential Quantifiers’, was not received in time for publication. Instead, I have included a paper by John Hawkins, ‘On Surface Definite Articles in English’.

The theme of the conference was chosen to reflect a major research interest of the Antwerp linguistic community. Clearly, this interest is presently shared by many linguists and philosophers. I hope, therefore, that this book will be more a contribution to the field than a report on a conference.

This book shows an empirical, a theoretical and a stylistic diversity. As far as the empirical diversity goes, it must first be said that the symposiasts have not restricted themselves to English. Some papers deal with French and German, and, to a lesser extent, with Dutch, Polish, Russian and Hebrew. In different ways, many contributions focus on the semantics of definite and indefinite articles, often leading to a discussion of one or more of the following problems: anaphoricness, specificness, opacity and transparency, referentiality and attributiveness, partitivity and genericness. The relation of determiners to other parts of grammar, especially relativisation and predication, is also frequently investigated. A minority of papers deal with quantifiers.

By ‘theoretical diversity’ I mean that there is no one paradigm unifying all the papers. Indeed, this collection reflects elements of the Extended Standard Theory, Generative Semantics, Montague Grammar, (Gricean) Pragmatics and Speech Act Theory. Some may regret this heterogeneity. I believe, however, that a pluralistic spirit is the only sound attitude vis-à-vis the present state of linguistics and philosophy.

Some measure of stylistic diversity, finally, is due to the minimum of editing, a strategy prompted by the desire to speed up the publication process.

I am grateful to all the authors contributing to this volume, to my colleagues of the University of Antwerp, and, for some stylistic help, to Viki Rose.

Johan Van der Auwera
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ANY AS UNIVERSAL OR EXISTENTIAL?*

Alice Davison

1 Introduction

1.1 Some Well Known Facts

The occurrence of the indefinite determiner and pronoun any is restricted to two kinds of environments, and the interpretation of any is dependent on them. Unlike most quantifiers in English, any is dependent both for its interpretation and its well formed use on other elements in the sentence in which it is used. Sentences such as (1) are strange:

(1) a. *Anybody came.
   b. *Anything wasn't there.

Any has an existential understanding, like some or a, in what I want to designate Class A Contexts: positions commanded by negation, both overt and implied (Horn, 1972, forthcoming), if in both indicative and subjunctive conditionals and in yes/no questions.

(2) a. I didn't see anything out there.
   b. We didn't have information that John had told anything to the police.
(3) a. If there are any whooping cranes here, my brother would know about it.
   b. Even if he had said anything, they wouldn't have believed him.
(4) a. Does any saucer fit this cup?
   b. Is anything the matter?

In the second and third contexts, it is possible to substitute some (cf. R. Lakoff, 1969) with the more positive conveyed expectation that such a thing exists. In the first context, it is sometimes possible to substitute a, or one (cf. LeGrand, 1974).

Any has a 'generic' or 'universal' interpretation in another set of contexts, Class B, which is much less well defined than Class A and much more sensitive to extra-sentential factors about context of utterance and the intentions of the speaker to refer. These contexts will be
discussed in later sections, but roughly speaking, they include \textit{may}, \textit{can} and \textit{will} but not \textit{must}; the generic present but not the progressive, past or perfect, imperatives but not statements, expressions of wishes, indirect expressions of requests, \textit{wh}-questions, and in certain negative contexts.

\begin{enumerate}
\item[(5)a.] Anyone can/may/*must leave at any time.
\item[(5)b.] (??Tomorrow) anyone will help you.
\item[(6)a.] (??Today) anyone has the price of a hamburger.
\item[(6)b.] ??Anyone is building a house.
\item[(6)c.] ??Anyone has arrived on time.
\item[(6)d.] ??I talked with anyone yesterday.
\item[(7)a.] Come in any time.
\item[(7)b.] ??We came any time.
\item[(8)a.] Take anything.
\item[(8)b.] ??If only he would eat anything! (not taken as part of a conditional sentence)
\item[(8)c.] ??You should eat anything.
\item[(8)d.] ??Would you/could you eat anything? (Odd as an indirect request with generic meaning for \textit{any})
\item[(9)a.] ?Who went anywhere today? (Odd in generic reading)
\item[(9)b.] ??When did John eat anything? (Odd if = 'when was John an omnivore?')
\item[(10)] *Anyone can't do that.
\end{enumerate}

These environments may overlap, as Horn (1972) notes, and when this is the case, the clause is ambiguous between the 'generic' and the 'existential' readings of \textit{any}.

\begin{enumerate}
\item[(11)a.] If (*just) anyone can do that, we will reward that person heavily.
\item[(11)b.] If (just) anyone can do that, why should we pay John a huge salary?
\end{enumerate}

Following Horn (1972), I will use \textit{just} as an indicator of the generic reading; it need not be directly associated with \textit{any}, however, as (12) shows.

\begin{enumerate}
\item[(12)] If anyone can (just) walk in, we'd better put a lock on the door.
\item[(13)a.] If (just) anyone can swim the English Channel, I can. (Horn, 1972, 3.67)
\end{enumerate}
b. If (just) anyone can be promoted to general, then anyone can be promoted to general.\(^2\)

The sentences in (13) are ambiguous without just; with just, the two clauses in (13) b. have identical interpretations, so that it appears to mean ‘If p then P’. Without just, (13) b. has both this interpretation and another one, in which any is taken as equivalent to some in the if clause, which is a Class A environment. The same interpretation does not hold for the main clause, which contains only a Class B environment, and thus allows only the ‘generic’ interpretation. (13) b. would thus have an interpretation ‘If some person can be promoted to general, then any/every person can be promoted to general.’ Definition of classes of environments which favour one interpretation of any would predict that such ambiguities would occur, and they do.

Environments in Class A may combine to create the possibility of ambiguities. If and negation may combine, as in (14), or question and negation as in (15):

(14)a. If Clyde does not do any of these jobs, let me know.
   b. If there is some job that Clyde does not do, let me know.
   c. If Clyde fails to do (all of) these jobs, let me know.
(15)a. Did John not look anywhere?
   b. Is there some place where John did not look?
   c. Is it the case that John looked nowhere?

It is my (as yet unsubstantiated) feeling that the c. readings are the preferred ones, taking any to be in the scope of negation rather than if or Question. If so, then one would have to postulate some hierarchical relationship among them, such as Horn’s scales (1972). This point will be discussed further in connection with relative strength of quantifiers (cf. Ioup, 1975) and conversational implicature.

Not much has been said about the relationship between environments of Class A and those in Class B; for example, what factor might they have in common which permits the occurrence of any? Class A includes ‘non-actual’ environments, constructions whose meaning is compatible with the sentence as a whole being negated as well (as negation itself, overt or implied) (cf. Borkin, 1971). Class B includes modals and tenses having more than one possible referent — if one can speak of tenses referring to events or states of affairs. Class B excludes modals and tenses, and constructions which refer to a single definite state of affairs, or implicate such reference. The generic use of any is
associated with sentences having no constituents taken from Class B, however, provided that there is a relative clause modifying the indefinite NP containing any. This relative clause provides some point of comparison with Class A.

For example, many of the bad sentences previously cited can be 'cured' with a relative clause, actually a restrictive relative clause:

(16) a. Anybody who can afford to is building a house. (cf. (6) b.)  
    b. Anyone who is really interested has arrived on time. (cf. (6) c.)  
    c. You should eat anything which is recommended by your chiropractor. (cf. (8) c.)  
    d. Where did anyone go today who went outside? (cf. (9) a.)

Of course it is by no means clear that the original sentences are ungrammatical, or are necessarily deviant in all contexts of utterance. The fuzziness of judgements and the fugitive quality of the ill-formedness will be taken up in later discussion.

The resemblance between conditional clauses and restrictive relative clauses of a certain kind has often been remarked; see Ziv (1976) for a discussion of the 'conditional' quality of some sentences with extraposed restrictive relative clauses. Relative clauses seem to induce the generic interpretation of any, while if introducing conditional clauses can form the environment in which the 'existential' use of any occurs. For example:

(17) a. ?We let in anyone at 4 o'clock.  
    b. We let in at 4 o'clock anyone who knew the password.  
    c. If someone/anyone knew the password, we let him/them in at 4 o'clock.  
(18) a. ?John went anywhere.  
    b. If John went anywhere, he kept the place a secret from us.  
    c. John kept any place he went a secret from us.

The b. and c. versions are compatible as descriptions of the same state of affairs, in many cases at any rate, but they differ in interesting ways as to whether anyone knew the password, or whether John actually went anywhere, and if so, whether the number of people or places was likely to be more than one. The answers seem to depend not on the meaning of any in the two sets of circumstances (and the surface structure is non-committal so far as the lexical item any is concerned;
Any (E) is not itself marked as different from any (G)), but rather on very general properties of if and relative clauses, and what they may convey conversationally.

There is a further though more remote connection between the existential and generic readings, and the environments of Class A and Class B. Suppose that we wish to test sentences containing any which has the generic interpretation, to see what is necessarily part of the meaning of this use of any, or semantically presupposed by it. The tests are to combine such a sentence or the equivalent proposition with negation, yes/no question or to see if the presupposition being sought can be suspended with an if clause (cf. Horn, 1972). But since these are Class A environments, we would be able only to predict that the existential sense would be possible.

1.2 Previous Analyses

Discussions of any in linguistics have centred around two questions. (1) Are the generic and existential uses of any distinct; do any (existential) and any (generic) reflect different underlying quantifiers or just one? Horn (1972), examining work by Klima and Fillmore, considers whether any in Class A environments is a suppletive variant of some (unstressed) or a, and if any in Class B environments is a reflex of the universal quantifier. He and others maintain that uses of any are not distinct, and that they are all reflexes of the universal quantifier, reflexes having the very particular and unusual quality for a quantifier in natural language of always having widest scope. (Among such writers are Reichenbach, 1947; Quine, 1960; Vendler, 1967; and LeGrand, 1974, 1975.) This position is buttressed quite solidly by rules of logical equivalence which equate ∀ outside the scope of negation and material implication with ∃ inside the scope of negation or material implication. Assuming that if in natural language can in fact be equated with material implication — a position hotly debated in its own right — it is impossible to distinguish on the grounds of truth conditions between uses of any in environments of Class A in contrast with Class B. There is also a one-way implicational relationship between ∀ and ∃; and while some (as reflex of ∃) may conversationally imply not all (Horn, 1972) it does not exclude all by virtue of its (some’s) meaning.

1.3 Another position

In this chapter I want to consider a position on any which as far as I know has not been defined as such and has not been seriously considered before, though something similar was proposed for superlatives
by Fauconnier (1975). This position does not draw a semantic distinc-
tion between uses of any in environments of Classes A and B, but it
assigns any to the existential quantifier rather than the universal quan-
tifier. This position may seem perverse at first blush. Indeed it may seem
quite wrong, since it is possible to derive ∃ from ∀, but not the other
way around. I want to propose that the 'generic' reading is conversa-
tionally implied by sentences in which any occurs, but is not conver-
sationally implied (or conventionally or materially implied) solely by
any. Rather the 'generic' reading is a combination of any (as ∃) and the
meaning of the Class B environments. I want to propose that such an
analysis will account for many of the peculiarities or 'generic' readings
in English and other languages; and that the properties of any are not
unique to English. In English, furthermore, there are similar cases of
conversational implicature (Nunberg and Pan, 1975) dependent on the
same 'environments' within the sentence. In making this proposal, I am
not claiming that surface structures alone are relevant to semantic in-
terpretation. Rather, I want to claim that it is a fact of natural lan-
guage that surface structures do not fully determine the possible inter-
pretations a sentence may have, and that understanding a sentence has in a
particular context of use may be partially determined by conversational
implicature.

For example, I claimed that kooii in Hindi means 'some', although in
given sentences it is ambiguous between 'some' (referential) and 'none':

(19) a. Kooii nahiI aayaa (Davison, 1978)
some not came

b. 'No one came.' (preferred reading all other things being
equal)
c. 'Someone (referential but usually non-specific) didn't
come.'

Kooii occurs in positive sentences with the meaning 'some'; there is no
reason to consider it ambiguous between this meaning and 'no one' or
to postulate a discontinuous constituent kooii ... nahiI which is dis-

tinct from just the occurrence in the same sentence of an indefinite and
a negative. In this case in this language, the lexical and syntactic in-
formation which is evident in the surface structure underdetermines the
meaning assigned to the whole. The interpretation of sentences like
(19) a. is filled in partially by contextual information, partially by con-

versational implicature from what is overtly expressed in the sentence,
including both lexical items and word order.
I am therefore not advocating a position in which semantic interpretation rules operate on surface structure or where conversational implicature changes meaning. Rather, I wish to explore a position in which interpretations assigned to one constituent are derived from the meaning and relations expressed elsewhere in the sentence, particularly in cases where meaning is underdetermined by surface structure and where interpretations (particularly of quantifiers) do not correspond with straightforward precedence (order-dominance) relations.

2. Any as Universal Quantifier

2.1 Counter Arguments

Because of the implicational relationship between \( \forall \) and \( \exists \), and other relations sketched in the preceding section which hold between the generic and the existential readings of *any*, it is not possible to argue conclusively that the *any* as \( \forall \) (only) analysis is wrong. Here it will be argued that it is expensive to maintain; that it requires the assumption of a much more remote level of representation than some other possible analysis which uses a representation more closely fitting the relations preserved in surface structure. The \( \forall \) analysis also requires the statement of otherwise unexplained exception features to account for the differences between *any* in English and other quantifiers *all*, *each* and *every*, which are assumed to be reflexes of \( \forall \). Many of these differences fall out from an alternative analysis, which derives both the generic and existential uses of *any* from an underlying semantic representation containing \( \exists \). The generic reading of *any* is derived by conversational implicature, and is based on the assumption of a set of possible referents defined by other constituents in the sentence. Additional support for this analysis will be proposed on the evidence of the use of indefinites in other languages without a *some*/*any*/*none* distinction. The same indefinites or interrogatives used for indefinite (singular) reference are also used, under specific conditions, for generic reference.

2.2 Any and Conversational Implicature

One way that *any* deviates from other quantifiers with \( \forall \) meaning is apparent in negative sentences when the indefinite NP is in subject position and precedes the negative. As is well known, sentences such as (20) a. are ambiguous between the readings (20) b. and (20) c. (Carden, 1970, etc.):
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(20)  
a. All the boys didn’t leave.
   b. Not all the boys left. (Negative-Quantifier)
   c. All the boys//didn’t leave; as for all the boys, they didn’t leave. (Neg.-Verb)

What is true for all is also true for each and every, though not each does not occur as a paraphrase of the (b) reading:

(21)  
a. Every cat doesn’t like catnip.
   b. Not every cat likes catnip. (Neg-Q)
   c. Every cat//doesn’t like catnip; every cat dislikes catnip. (Neg-V)

(22)  
a. Each dog doesn’t have a collar.
   b. Some dogs have collars, others don’t. (Neg-Q)
   c. Each dog//doesn’t have a collar; all dogs lack collars. (Neg-V)

The meaning which is closest to the order relations in the surface structure is the c. reading. The $\forall$ quantifier is to the left of negation, and outside its scope. The verb and constituents to the right of the verb are in its scope. The meaning which deviates from the precedence relations in the surface is the b. reading; the quantifier precedes the negative, but is interpreted as being in the scope of negation. The b. reading is favoured when the sentence has the ‘tilde’ intonation described as a holistic entity (Liberman and Sag, 1974). According to Liberman and Sag (1974, p. 421), the ‘tilde’ on NEG S conversationally conveys ‘contradiction of preceding statement’; the negation then has ‘wide’ scope including the quantifier. In the traditional square of opposition, NEG $\forall x (fx)$, or $\exists x (NEG (fx))$, is the contradictory of $\forall x (fx)$.5

The (b) reading or NEG-Q reading can be analysed as a conversational implicature, cancellable by contextual manipulation, as in Liberman and Sag (1974, p. 423), and it is a possible implicature from all but not from some:

(23)  
a. Some of the boys didn’t leave.
   b. $\neq$ None of the boys left.

The (b) or NEG-Q reading is also completely impossible with sentences with the generic use of any:

(24)  
a. Anybody can do that.
Any as Universal or Existential?

b. *Anybody can’t do that.  ≠ Not all persons can do that. ⁶

(25)  
  a. Any cat has one tail.  
  b. Any cat doesn’t have one tail.  ≠ Not all cats have one tail.

(26)  
  a. Anything may happen.  
  b. *Anything may not happen.  ≠ Not everything may happen.

(27)  
  a. Any sucker will be fleeced in a Three Card Monte game.  
  b. ?Any sucker won’t be fleeced in a Three Card Monte game.  
     (≠ Not all . . .)

By the way, the disambiguating use of just to indicate the presence of the generic reading will be ruled out here, because just can be negated independently:

(28)  
  a. Just John didn’t say that. (with tilde intonation)  
  b. Not just John said that.

(28)  
  a. and (28) b. are equivalent, and just has approximately the meaning of only; if negated it conveys that others besides John said p.

(29)  
  a. Just anybody can’t walk in and sit down in my office.  
  b. I won’t let just anybody walk in and sit down in my office.  
  c. I won’t let anybody walk in and sit down in my office.

(29)  
  a. and b., with just, conveys that some people are allowed to come in, etc., but (29) c., without just, conveys that no one is allowed to come in, etc.

As the generic reading is not necessarily linked to the use of just, and can be associated with any without just, it is possible to consider (24) b.- (27) b. as the negations of generic any in (24) a.- (27) a. The results are not always well formed, but where they are, the NEG-Q reading is impossible. This is so even when the tilde intonation is associated with the negative sentence. If ‘tilde’ conveys conversationally that negation is to be taken as having widest scope, including the quantifier in subject position, then the NEG-Q reading ought to be possible; but instead any has widest scope.

This property, of having widest scope in all contexts, might be considered a property of the lexical item Any. ⁷ However, there are other cases which do not involve any where generic NPs cannot be in the scope of negation.
(30) a. The owl is nocturnal.
b. The owl isn’t nocturnal. (≠ Not all owls are nocturnal.)

(31) a. A sonnet has 16 lines.
b. A sonnet doesn’t have 16 lines. (≠ Not all sonnets have 16 lines.)

(32) a. Darkrooms are supposed to be light-proof.
b. Darkrooms aren’t supposed to be light-proof. (≠ Not all darkrooms.

The, a and unmarked plural (i.e. without other quantifiers) have generic readings, as in (30) a. – (32) a. The negative counterparts (30) b. – (32) b. have only one reading, NEG-V. The NEG-Q reading is impossible. Nunberg and Pan (1975) propose that the generic reading of the, a and ‘plural’ is conversationally conveyed by the literal meaning of the determiner or plural, and subject to contextual manipulation. That is, the generic reading would be ruled out in a context referring to actual specific events or individuals.

The differences in meaning of the, a and -s ‘plural’ are responsible, in Nunberg and Pan’s analysis, for the subtle differences in the absoluteness of the generic reading. There are such differences; for example, a allows exceptions to a generic statement without its being falsified, the may be used in sentences describing non-definitional properties, while a may not (Nunberg and Pan, 1975, pp. 414, 419). All three differ from any in various ways. Thus it would not be possible to say that a, the and plural are any in disguise, and that they have ‘widest scope’ for that reason. Rather, it seems pretty likely that both any and other determiners have a generic interpretation by virtue of conversational implicature. We might go further and say that conversationally implicated meanings are always widest scope meanings. If the, a, plural and any implicate all in some context, it is widest scope all and cannot be in the scope of anything else. If ‘tilde’ on a negative sentence implicates widest scope negation, the negation has in its scope the left-most negatable constituent which is actually a part of the sentence. This would, for example, mean a or the in (30) or (31), but not all (or however the generic reading is to be paraphrased), because all is not part of the sentence; it is a conversational inference.8

2.3 How the Generic Reading is Calculated

The contexts which favour the generic reading of any are the following, (33), abstracted from sentences (5) – (17):
By contrast, those which do not favour the generic reading are:

(34) a. *must* and its paraphrases  
    b. progressive aspect  
    c. perfect aspect  
    d. simple past tense  
    e. negation (as in (24)–(27))

Let us first consider these categories in the abstract, and then examine instances of their use, to see how absolutely (34) rules out the generic interpretation.

The contexts in (33) have in common the property of suggesting that there exist a number of possible cases in which the proposition containing indefinite *any* might be true. The futurity indicated by *will* and conveyed by imperatives leaves open all the possible occasions on which the proposition might be true. It is also suggested that the state of affairs is not (yet) actual, hence that the speaker cannot be referring to specific single individuals. Progressive and perfect aspect, on the other hand, suggest that the speaker is referring to an actual event which has the properties of completion (perfective), or being ongoing (progressive, iterative). The past tense alone conveys actuality of the event, when it occurs in a statement; note that if the sentence is a question, the speaker need not convey reference to an actual event, and *any* is possible if the sentence also contains past tense, or progressive or perfect aspect. The simple present typically refers to a set of events or states rather than a single one; at least so it is represented in tense logic (cf. Bennett and Partee, 1978). In the 'historical' present, however, reference to a specific event rules out *any*.

(35) a. In the beginning of the fifth set, Mr Rosewall breaks Mr Hoad's serve.  
    b. In the beginning of the fifth set, anybody breaks Mr Hoad's serve.

(35) a. could be generic or it could be used to describe a particular match. (35) b., on the other hand, has only a generic interpretation, if that.
Restrictive relative clauses might be explained in the terms of conditionals; but the success of this explanation is somewhat marred by the lack of convincing accounts of conditional sentences in natural language and by differences noted in connection with (17) and (18); restrictive relative clauses are often presupposed to be true, conditional clauses never are. Even if the conditional clause analysis works, it is possible for there to be other explanations, which might simply reinforce the properties of relative clauses as conditionals. The use of a relative clause—at least in the cases where it enables any to be well formed in the generic interpretation—implicates the existence of a set of individuals having a certain property. Actually, a restrictive relative implicates the existence of a set of individuals, and a subset of them having a certain property. If there were just one such individual, it would be misleading not to use the, one or a. Hence relative clauses conversationally convey that the speaker is not referring to a specific and actual individual.

Must in both the epistemic and deontic senses seems to suggest that the speaker has in mind a specific or actual referent; or at any rate, the speaker would have to have a specific referent in mind in order for it to be possible to verify the truth of such a statement in which must is used deontically, or a specific state of affairs (proposition) if must is used epistemically. Any is more compatible with modality which does not imply specific reference to an individual or to a set of individuals. (36) b. — (38) b. somehow fail to communicate enough to inform a hearer of a true proposition:

(36) a. Someone is certain to leave.
   b. *Anyone is certain to leave.
   c. Anyone is likely to leave.

(37) a. It is necessary to see someone.
   b. *It is necessary to see anyone.
   c. It is possible to see anyone.

(38) a. Someone is obliged to build the fire.
   b. *Anyone is obliged to build the fire.
   c. Anyone is allowed to build the fire.

While I don't feel that the difference between must vs. can, may is captured in a very perspicuous way by the description above, there is nevertheless a difference along these lines which is illustrated in (36) — (38), one which carries over to other paraphrases of the modals. In Horn's terms (1972, 3.17), the contexts allowing any (G) come from
the middle of a scale ranging from *necessary* (with the corresponding quantifier *all*) to *impossible*, with the corresponding quantifier *none*. That is, the contexts favouring *any*, *generic*, come from the point on the scale where the corresponding quantifier is *some*.

If the contexts described above favour the generic reading of *any*, we would also expect them to favour the generic reading of *the*, *a* and plural. Conversely, the contexts in (34) ought to rule out the generic reading. Consider (39) -- (42):

(39) a. A porpoise may swim at 60 mph.
   b. The hornet can build nests in impossible corners.
   c. Warblers will fly at very high altitudes.

(40) a. A porpoise is swimming at 60 mph. (*generic*)
   b. The shrew is eating 8 times its own weight every day.
       (*generic*)
   c. The hornet has built nests in impossible corners. (*generic*)
   d. A shrew has eaten 8 times its own weight every day.
      (*generic*)

(41) a. Dogs have blunt or pointed muzzles.
   b. Dogs had blunt or pointed muzzles (in 63 BC). (?generic)
   c. The/a dog roams in packs.
   d. The/a dog roamed in packs (in the streets of Rome).
      (*?generic*)

(42) a. The symphony must have three movements. (*?generic*)
   b. The symphony must have three movements in order to be called traditional. (?generic)

The sentences in (40) and (41) b., d., (42) refer (without more context than is given here) to specific individuals or to *some* exemplars of the species. As Nunberg and Pan (1975) have noted, *a* allows fewer exceptions to the norm, and conveys that the predicate is a definitional one. So *a* conveys a more categorical generic reading than *the*, and consequently we might expect differences in compatibility with generic-inducing contexts (though I have not noted them above). Plurals are generally more compatible with the generic-suppressing contexts, partly because it is not very easy to distinguish between readings such as b. and c. or (43) a..

(43) a. In ancient times, dogs roamed the streets in packs.
   b. In ancient times, there were dogs roaming the streets in packs. (non-committal as to how many relative to the total number of dogs)
Finally, relative clauses which implicate the existence of classes of individuals overcome the effects of a generic-suppressing context, as do adverbials and other indications in the context that the class of individuals is meant:

(44)  
a. In this season, the warbler is migrating to the north.  
b. More and more the wolf is retreating to unpopulated areas.

(45)  
a. A dog which does not have an owner roams the streets.  
b. In the spring, a robin looks for food after it has built a nest.

(46)  
The warbler which settles in the north must delay its migration until the thaw.

The above sentences all have a more plausible generic interpretation than similar sentences (39) — (42).

In summary, the contexts which allow *any* and other generic determiners are ones which do not indicate reference to actual states of affairs or to specific individuals. Negation, yes/no questions and conditional clauses have these properties also; a negative statement describes a non-actual state of affairs, while conditional clauses may mention individuals which the speaker does not believe exist. They may also contain propositions which need not be true. If the speaker asks a question about the truth value of a proposition, then the speaker is assumed not to have in mind an actual state of affairs; if it were already known that the questioned proposition was true, the speaker would have insincerely asked the question (all other things being equal). The two classes of contexts differ, however, in whether they implicate a class of non-actual states of affairs, as the ambiguities in (11) — (13) show.

Although the contexts of both classes may have similar effects, the fact that there are differences of interpretation is partly due to the syntactic relations between *any* and the (surface structure) indication of reference to non-actual contexts. Class A contexts contain and are to the left of *any*; the entire proposition containing *if* is within the scope of *if* or question; *any* is odd if it precedes the negative:

(47)  
a. *Anybody didn’t go.  
b. *I think that anybody didn’t go.  
c. I don’t think that anybody went.

Class B contexts, on the other hand, are in collocation with *any*, as
relative clause modifier of the indefinite NP, or as tense/modal information which, in surface structure at least, precedes or follows the indefinite and has no particular relationship of precedence to any.10

Vendler treats any as related to all (1967, p. 92) and offers as a characterisation of the cases where any may be used the notions ‘Freedom of choice’ (1967, pp. 80–1) or ‘blank warranty’ (1967, p. 85). The cases he considers include imperatives (requests), conditional clauses and sentences with the modals will and others. He notes some cases where past tense (and definite reference) make the use of any ill formed, and these are explained as cases where choice is no longer possible because the event has occurred: ‘Any calls for choice but after it is made it loses its point’ (1967, p. 81).11 Relative clauses which make any well formed are mentioned, but the crucial factor for Vendler is the modal within them, not the fact that they are relative clauses. He could not therefore explain why some sentences with past tenses and any are well formed. For instance, I see no difference in acceptability between (48) and (49):

(48) a. Anybody who John might have appointed would be incompetent.

b. John might have appointed anybody.

(49) a. Anybody who John appointed was incompetent.

b. *John appointed anybody.

Vendler may have been misled by some of his examples. I imagine that he would agree that the choice involved with any is a choice (on the part of the speaker) as to who or what the sentence might refer to. Yet while John in (49) has made his choice (cf. Vendler’s example Take any apple; Any doctor will tell you . . . vs. I took any apple, I asked any doctor) the speaker has not made any choice in who is referred to. The openness of choice in this case is unconnected with tense or modals.

McCawley (1977) notes the ‘choice’ does not characterise negative past tense sentences, where any is well formed, in any very illuminating way. (It does not characterise questions either, as far as I can see.) Yet ‘choice’ of referent is compatible with many cases where any is well formed, and Vendler (1967) is full of relevant observations made, as it were, in passing; I don’t find the chapter a complete and explicit proposal for distinguishing well formed uses of any from ill formed ones, and for accounting fully for the interpretations it may have. On the other hand, ‘choice’ of reference is a consequence of reference to non-actual events, or to a non-specific individual in a class of events.
3 Properties of quantifiers

3.1 Existential Presupposition

*Any* does not convey the presupposition that there exists a referent for the NP it occurs in, while *all, each* and *every* do convey this presupposition; Vendler (1967) and others have noted this. Both positive and negative sentences with *any* and the universal quantifiers differ in this respect:

(50) a. Every one of my friends smokes a pipe. (Vendler 1967, p. 87)

b. Anybody who is my friend smokes a pipe. (ibid.)

(51) a. I don’t know everyone with yellow lips. (Lyons 1977, p. 459)

b. I don’t know anyone with yellow lips. (ibid.)

Anyone uttering (50) a. or (51) a. is committed to belief in the existence of friends of that person or people with yellow lips, but uttering (50) b. or (51) b. imposes no commitment.

If *any* is a reflex of *V*, it would have to be specially marked as lacking commitment (on the part of the speaker) to the existence of a referent. I cannot see that Vendler’s ‘choice’ is of help here. While it might cover quite adequately the case in which *Take any apple(s)* is responded to by taking no apples, it does not offer a ready explanation for cases in which there are no friends or no people with yellow lips. An analysis of (50) b. and (51) b. in terms of underlying conditionals would cover these cases, though such an analysis would be hard to provide for (52) or (53):

(52) Anybody has change for a quarter.

(53) Take any (one) of the apples. (McCawley, 1977, p. 376)

(52) doesn’t offer much in the way of contents for the antecedent clause of a conditional, since the context allowing *any* is the simple present and the NP has the semantic content ‘indefinite person’, while (53), if represented in a biclausal representation, is a more generous offer than the English sentence actually is (McCawley, 1977, p. 376).

Sentences such as (53) do convey the assumption that there are apples, in spite of the use of *any*. The definite article *the* does this, as well as the fact that an offer has to have content in order to be reasonable, in accordance with normal expectations about conversation.
captured by Grice (1975). Likewise for (52) to be informative, as a statement, there would have to be persons about which (52) could be true. It is important, however, to separate out the properties which a sentence has by virtue of its containing any or some other quantifier, and those which it has by conversational implicature. Thus any may occur in sentences in which the indefinite NP refers to something, but it need not be used in such a context. The same is true of some, though there are cases where it appears not to be the case.

McCawley (1972, p. 529) notes that all and some both convey the belief in existence of the referent, as in (54):

(54)  

(a) All unicorns have accounts at the Chase Manhattan Bank. 
(ibid.)  
(b) Some egg-laying mammals have webbed feet. (ibid.)

This is the case here, but I think that the factor which is responsible is not the use of the quantifiers, but the fact that the sentences are assertions, which purport to be true and informative, therefore about something both by virtue of being speech acts and by virtue of Gricean conversational implicature. Replacing (54) a. by a conditional sentence should alter or remove the effect of the felicity conditions on speech acts, and Gricean implicature. (55) does show a contrast between any, all and unstressed a, which I will use as a reflex of the existential quantifier.

(55)  

(a) If all unicorns have accounts at the Chase Manhattan Bank, Manufacturers Hanover will be jealous.  
(b) If any unicorns have accounts at the Chase Manhattan Bank, Manufacturers Hanover will be jealous.  
(c) If a/some unicorn has an account at the Chase Manhattan Bank, Manufacturers Hanover will be jealous.

(54) b. and c., with any and a, are non-committal as to whether there are unicorns, while (54) a., containing all, does require that there are unicorns for the sentence to be well formed. Some (unstressed) is harder to judge, perhaps because of the implicature 'not all' which according to Horn (1972) is not just invited but forced, all other things being equal (1972, Ch. 2). However, subjunctive conditionals illustrate a contrast between all and some:

(55)  

(a) If all unicorns had had accounts at the Chase Manhattan, the history of banking would have been altered.
b. If some unicorn had had an account at the Chase Manhattan, the history of banking would have been altered.

(56) a. If all unicorns had walked in yesterday and opened accounts, yesterday couldn’t have been a stranger day.
b. If some unicorn had walked in and opened an account, yesterday couldn’t have been a stranger day.

Some doesn’t suggest that there are unicorns, while all does, in (55) and (56).

I have discussed this point at some length because I want to propose that if any is a reflex of ∃, and if the existential quantifier does not presuppose existence, as shown by the behaviour of other reflexes of it, then the property of any would follow naturally. Any would then be an indefinite quantifier/determiner like some, but without the ‘forced’ implicature of ‘not all’ in addition. Thus it is non-committal as to existence even in statements and requests.

3.2 Relative ‘Strength’ of Quantifiers

In the preceding section, I have argued that any differs from ∀ and more closely resembles some or ∃. In this section I want to discuss some ways in which any resembles all and other universal quantifiers. Ioup (1975) argues that precedence relations (left-right order, dominance) do not fully account for the understandings that two quantifier sentences may have; a quantifier to the left of another may be in the scope of the second quantifier. She proposes two hierarchical scales to explain the readings obtained and the possibilities for ambiguities. One is based on the quantifiers present, so that a quantifier higher on the scale may have in its scope one lower on the scale, regardless of the order relations. The other is based on grammatical function, ranging from ‘topic’ to direct object; NPs whose grammatical function is higher on the scale will have wider scope than one which is lower on the hierarchy, regardless of linear order. Ioup analyses ‘strength’ in terms of five levels, the first and last of which involve unambiguous interpretation, the intermediate levels involving ambiguity with or without preferences of interpretation.

The scale of quantifiers ranges from each, every and all at the high end to some (pl.) and a few at the low end; in fact the scale resembles one of Horn’s scales of predicates based on the number of possible referents in the set that the quantifier could have. It might be possible to place any on this scale (neither any nor negation are discussed in the article) so as to see whether it resembles some or all. Any ought to go
at the high end of the scale, as it has 'widest' scope; but curiously \textit{some} (sg.) is also placed at the high end of the scale, at a point between \textit{every} and \textit{all}. Ioup mentions that this \textit{some} is anomalous in certain ways.

There are some reasons to believe that topics and subjects are particularly subject to conversational implicature (cf. Davison (to appear) on passive sentences). I proposed earlier that conversational implicatures have widest scope, based on the literal meanings of elements present in the sentence (section 1.1). Here we may be dealing with a similar case of conversational implicature or a strategy which involves maximising the reference indicated by a quantifier. Such a strategy would obviously be linked to the meaning (reference relative to the set of possible referents) of the quantifier. It is thus not surprising that topic- or subject-hood increases the likelihood that reference will be maximised. If \textit{any} is equivalent to \textit{some} without the implicature, perhaps conventionalised, of 'not all', then it would be an obvious candidate for having its reference maximised. One way that this could be done would be for \textit{any} to refer, in principle at least, to the whole set of possible referents. \textit{Some} is compatible with \textit{all}; it simply does not stipulate that reference is to the entire set, either collectively or as a series of references to individuals.

The moral to be drawn in this section has two parts: (1) Ioup's hierarchies do not in themselves offer an easy explanation of what \textit{any} is; but (2) the hierarchies suggest that in natural language the interpretation of quantifiers is subject to many factors besides linear order, particularly inferences of a conversational nature 'encouraged' by topic/subject position and focus. \textit{Any} would then be a prime candidate for maximising reference even if it is basically an existential quantifier. Note that \textit{any} is not really identical with \textit{all} etc., as it has only an 'individual' interpretation, not a collective one:

(57) a. All the women built a garage. (collectively or individually)  
(Ioup, 1975)  
b. Any of the women built/can build a garage. (individually, *collectively)

(57) b. has only the interpretation that involves characterising each woman as an individual with respect to building a garage, while (57) a. has two possible interpretations. (\textit{Any} resembles \textit{each} in contrast to \textit{all} (cf. McCawley, 1977, p. 373).)
3.3 A Brief Note on Verification

As is only too well known, *any* differs from *all, each* and *every* in the conditions in which it can be determined whether the utterance/proposition containing the quantifier is true. With *any*, it is necessary to inspect one individual or one case, and not all the members of the set of individuals or possible cases.

(58) a. Any member of the team can climb Everest. (Lyons, 1977)
     b. Every member of the team can climb Everest. (ibid.)

(59) a. Anyone can/will tell you the way to the exhibition.
     b. Everyone can tell you the way to the exhibition.

In the case of *every*, it is necessary to exhaust the set of possible referents, either individually ((58) b.) or collectively ((59) b.). While the difference of *any* from *all, every* etc. would be arbitrary if *any* were related to $\forall$, it would follow from its being related to $\exists$ that one need find only one positive case to generalise from that case to ‘more than one’, ‘possibly all’, by the strategy of maximising reference.

The above remarks are made with the assumption that the case (picked randomly since *any* is indefinite and non-specific) is positive. The negative case is a little less clear. A single negative case is enough to falsify *all*, but with $\exists$, it is necessary to exhaust the set of possible cases in order to find at least one of which the proposition is true. It is my impression that a single negative case is not enough to falsify *any*, though probably many negative cases would discourage the recipient of information like (59) a. or (60) a.

(60) a. Any zebra has stripes.
     b. All zebras have stripes.

If the first person addressed did not know the way or if the first animal of zebra parentage inspected did not have stripes, one would assume that there are some small number of anomalies, and try again with expectations of hitting upon one of the good cases fairly soon.

4 Cancellation and Reinforcement of Conversational Implicature

In the preceding sections I have proposed that *any* has the semantics of the existential quantifier and that the ‘generic’ reading and the ways in which *any* resembles the universal quantifier are the result of conver-
sational implicature. The implicated reading is the opposite of 'not all', implicated by *some. A paraphrase of this meaning might be 'possibly, probably all'. It would also follow from Grice's Maxim of Manner that *some and *any would differ in conveyed meaning even if they share a basic common core of meaning.

If the generic reading is conversationally implicated, then this meaning ought to be able to be cancelled or reinforced, and to be subject to contextual manipulation. For example, *any is generally odd in sentences with past tense and implicated reference to a specific event. But the past tense may describe generic states of affairs as well as individual ones. The generic reading is possible if the context makes clear that no single time or event is being referred to.

(61) a. Anybody knows how to tie a square knot.
   b. *Anybody knew how to tie a square knot.
   c. In those days, anybody knew how to tie a square knot, but these days, only Scouts do.
(62) a. *Anybody is investing in tax-free municipal bonds (on Tuesday).
   b. These days, anybody is investing in tax-free municipal bonds the minute their brokers suggest a good deal.
(63) a. *Anybody has run the 4 minute mile (yesterday).
   b. So many people are interested in running that anybody has run the 4 minute mile by the time he's worn out the first pair of running shoes.

((62) b. and (63) b. may not be impeccable but I find them considerably more plausible as well formed sentences than (62) a. and (63) a.)

Likewise it is possible to sabotage otherwise good cases of *any by adding contextual information which suggests reference to a specific event.

(64) a. Anyone will tell you the way to the exhibition.
   b. *Tomorrow at 4 precisely, anyone will tell you the way to the exhibition.
(65) a. Anyone can predict the force of the explosion.
   b. ??When I give the figures to one person, anyone can predict the force of the explosion.
(66) a. Anyone has change for a quarter.
   b. *Yesterday, when I have to make a phone call, anyone has change for a quarter.
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(67) a. Anybody leaves the minute they can.
   b. *Tomorrow after 4 p.m., anybody leaves the minute they can.

*Any* is strange in sentences where the simple present is used in narration to describe a past event (66) or for strongly expected future events (67). These shifts in acceptability are a bothersome obstacle to a semantic or lexical approach — one which stipulates that *any* is acceptable in certain combinations — but it follows automatically if the acceptability of the generic reading is dependent on conversational implicature.

*Any* can be followed by hedges, cancellations and reinforcements in ways not possible with *all* etc., but in ways which resemble *some*.

(68) a. Take some or all of the apples.
   b. *Take some and all of the apples.
   c. Take some if not all of the apples.
   d. Take some or perhaps all of the apples.
   e. Take some but not all of the apples.

(69) a. Take any or all of the apples.
   b. Take any and all of the apples.
   c. Take any if not all of the apples.
   d. Take any or perhaps all of the apples.
   e. *Take any but not all of the apples.
   f. Take any of the apples — but don’t take all of them.

(70) a. Take all or at least some of the apples/*take all or at least any.
   b. Take each and every one of the apples. (*every and each)
   c. *Take each if not all of the apples.
   d. *Take each or perhaps all of the apples.
   e. *Take each but not all of the apples.

(The order of quantifiers in (70) c.–e. doesn’t matter; any two universal quantifiers in similar sentences will be ill formed.)

The meanings of the ‘universal’ quantifiers are so close that one cannot be used to hedge ((70) c., d.), reinforce (except in the fixed expressions each and every, each and all) or cancel ((70) e.) the meaning of another universal quantifier. *Some* and *any* are similar though not identical in hedges, reinforcements and cancellations. *Some and all*, (68) b., is ill formed, though *any and all* is possible ((69) b.). The difference can be explained simply by assuming that *any* does not
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convey 'not all', while some does, and the implicature persists in combination with all. It is removed in cases where a hedge is added, as in some and possibly all, possibly all, at least some, etc. Cancellation is not possible for some people in the blunt and direct form in (69) e., but I find (69) f. perfectly well formed, where the cancellation is in a following clause.

Though the facts are not one hundred per cent regular, they are consistent with an analysis which makes any a reflex of the existential quantifier. They would be much harder to account for in the other analysis, both the uniform analysis of all occurrences of any as ∃, and the one which separates the existential and generic readings into separate lexical items. (68) – (70) are not logically inconsistent with the any as ∃ analysis, but to make such an analysis work in (69) and (70) would require ad hoc stipulations about the meaning of any, such that it would be a reflex of ∃ so altered as to be indistinguishable from ∃. The similarity of some and any, versus all, each and every which is illustrated in (68) – (70) would follow quite naturally, without extra stipulations, from an analysis of any as ∃ with no generalised conversational implicature ‘not all’ of the kind associated with some. The absence of such implicature leaves the reference indicated by any more or less open, subject to definition by other elements in the same clause as any. The generic reading would be calculated from the unrestricted meaning of any and the reference to individuals or states of affairs indicated by other parts of the sentence.

5 Constructions in Other Languages which Extend the Meaning of Some

If the lexical meaning of any is ∃, but subject to contextual influence so that the conveyed meaning is roughly equivalent to ‘all’, ‘lots’ or ‘whoever’, then similar extensions of meaning by conversational implicature ought to occur in other languages. It is particularly interesting to look at cases in languages which do not have a lexicalised distinction between indefinites inside and outside the scope of negation, corresponding to the some/any distinction. They may, however, distinguish between ‘some’-specific reference and ‘some’-non-specific reference, the latter often expressed by interrogative pronouns. The points I want to bring out here are:

(i) the meaning equivalent to ‘none, nobody’ etc. is expressed by a combination of negation and an indefinite, in that order except in
SOV languages (Davison, 1978), and not by a lexical expression composed of 'all' and negation;
(ii) where the indefinite must be to the left of the negative and thus outside its scope, the non-specific indefinite is reduplicated or emphasised, and acquires a 'generic' meaning. The conveyed meaning is equivalent to 'all' followed by negation. (Alternatively a biclausal paraphrase with a negative existential sentence is used, and an indefinite.)
(iii) indefinites may be used in positive sentences with a generic meaning, contrasting with lexical items meaning 'all'.

In Thai, the interrogative pronouns are used for non-referential indefinites, in yes/no questions for example:

(71) a. mii khraj ma maj? 'Did someone/anyone come?'
    exist who come Q (non-referential)

b. maj hen ban khon. 'I didn't see somebody'
    not see some class-human (referential)

The same interrogatives are used for negative indefinites, provided that the negative precedes the indefinite. Since the position of the negative is determined by the position of the verb, the subject would normally not be in the scope of negation.

(72) a. maj hen araj. 'I didn't see anything.'
    not see what

b. maj mii khraj suu araj. 'No one bought anything.'
    not exist who buy what

c. khraj khraj k55 maj ch55p 'No one likes it.'
    who who even not like

(73) a. khraj khraj k55 ch55p. 'Everyone likes it.'
    who who even like

An indefinite subject may be negated by placing a negative existential sentence with mii 'exist' to the left of, and commanding, the sentence with indefinites ((72) b.). Alternatively, the indefinite is reduplicated and combined with an emphatic particle, and precedes the negative, expressing something like 'All not... equivalent to 'not some'. The same combination is used in positive sentences.
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(74) a. khraj khraj kō chōp. ‘Everyone likes it.’
who who even like
b. araj araj kō dānā ‘Anything can do’
what what even can

But it may contrast with lexical ‘all’.

(75) a. thuuk khōn paj ‘Everybody went.’
all class. go
b. maj thuuk khōn paj ‘not everybody went’
not all class. go
b. khōn maj paj thuuk khōn (same)
class. not go all class.

Hausa'14 and other languages unrelated to Thai show similar uses of indefinites (examples from Kraft and Kraft, 1973):

(76) wā ya zō? ‘Who came?’
who came
(77) a. bái kāwo kō -mai ba ‘He didn’t bring anything.’
neg buy emph-what neg
b. bái ga kō -wa ba ‘He didn’t see anyone.’
neg see emph-who neg
(78) a. allō yā san kō -mai ‘God knows everything.’
God know emph-what
b. kō -wā ya tāfi ‘Everyone has gone.’
emph-who past go

In Hindi (and similar languages including many of the related Indo-Aryan languages of India) the indefinites are distinct from interrogatives, but they acquire a ‘generic’ reading if they are reduplicated:

(79) a. kabhī ‘some time’
b. kabhī kabhī ‘sometime or other, whenever, from time to time’
(80) a. kuch ‘something’
b. kuch kuch ‘whatever, something or other’

English any would not be unique as a case of an indefinite which conveys a generic meaning in certain contexts. The kinds of conveyed meanings which I have proposed, and the means of deriving them from
a core existential meaning, ought to be represented in many languages if my analysis is correct in that it makes use of conversational implicature. The examples in (74) – (80) above show that there are languages in which indefinites have exactly the same uses and properties as any in English, though the means by which they are conveyed (e.g. reduplication, emphatic particles etc.) are different from English. The facts above also support the contention that the precedence relations of negatives and quantifiers in surface structure are significant and determine the range of possible meanings a sentence can have,\(^\text{15}\) in spite of Joup’s claims (1975) about quantifier-quantifier relations.

6 Conclusion

It is hard to argue against the any as \(\forall\) analysis on the grounds that \(\forall\) incorrectly represents the meaning of sentences containing any, because of the rules of logical equivalence between formulas containing \(\exists\) in the scope of some operator, and \(\forall\) outside the scope of that operator.\(^\text{16}\) Those who are interested solely in the pairing of logical formulae with sentences of English will not be particularly impressed by the kinds of arguments I have offered in the preceding sections. The force of these arguments depends on how highly one values generalisations about natural languages which may transcend the borders of one language or class of linguistic facts, and to what extent a linguistic description should be ‘real’ in that it models the units and rules of combination which constitute a natural language. One would then be interested in generalisations about quantifiers/determiners as a class, the role of word order and variations on word order, as well as cases of non-literal understandings assigned to sentences, as a result of conversational implicature.

A description of any could take note of its special properties, such as non-negatability, lack of existential presupposition, and occurrence in a limited set of contexts, and make them the arbitrary properties of some special occurrence of \(\forall\). Or one could take these special properties as very important, though subtle, clues about the nature of any. What are inexplicable limitations on the occurrence of \(\forall\), the contexts of Class A and Class B, have here been turned into an explanation for what allows the meaning of \(\exists\) to be extended by conversational implicature into something which approximates but does not necessarily equal the meaning of a universal quantifier. Even if that is not the case, a closer examination of the contexts in which any occurs discloses an interesting fact with implications for the \(\exists\) analysis. Class A contexts
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(Negation, conditional clauses and yes/no questions) must command — and in the second two cases — contain the occurrence of *any*:

(81) a. If you see anyone on the beach, John is taking a walk.
     b. *If you see John on the beach, anyone is taking a walk.

(82) a. Did anyone come, John asked.
     b. *Did John come, anyone asked.

(83) a. I didn't know that anyone was here.
     b. *Anyone didn't know that I was here.

The occurrences of *any* in (81) — (83) a. are well formed, while similar structures which reverse the occurrence of some NP and *any* are ill formed because *any* is outside the clause containing *if*, outside the boundary of the yes/no question, and out of the scope of negation. Class B contexts, certain tenses, modals, imperatives and relative clauses, must occur within the same clause as *any*, and attached to *any* in the case of relative clauses.

(84) a. *John thinks that anybody left. (present tense)
     b. *Take the apples which anybody is picking. (imperative)
     c. *Anybody lived in the towns which I want to visit. (relative clause)
     etc.

The sentences of (84) are ill formed, although members of the Class B of contexts occur in them; they do not occur in the right relation to *any*. The ∃ analysis does not predict any restrictions like these on *any*, and it would mean that these restrictions cannot be directly represented in logical structure.

Given the ∃ analysis, it would be impossible to say, by looking at a representation of a sentence, whether the use of *any* would be well formed. The ∃ necessarily has widest scope, and thus occurs outside the scope of any operators or other constituents which determine the well-formedness of *any*. Congruence of *any* and Class A or B contexts would be determined after interpretation in which the ∃ equivalent was substituted.

Notes

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1. If (9) b. is taken as a rhetorical question, the 'negative expectation' which it conveys is sufficient context for existential any. Presumably the sincerity conditions on wh-questions allow one to draw the inference 'speaker does not know of a time when...', from which a further inference follows 'there is no time when...'.

2. This example was brought to my attention by Asa Kasher in discussion after the presentation of the paper.

3. It is not clear how questions like (4) are accounted for by this analysis, or how it is explained why they differ in the understanding of any found in requests etc.

4. McCawley (1978) notes one class of cases where the 'scope' analysis appears to assign the wrong reading to an any sentence: Take any (one) of the apples would be indistinguishable from an offer of all of the apples.

5. If the negation in the surface structure had only the predicate in its scope, the sentence would have the 'contrary' interpretation $\forall x$ (NEG (fx)). This corner of the square could itself be contained in a negative sentence with 'tilde' intonation, and its contradictory would be $\exists x$ (fx). This seems to be to fit the understanding of the natural language sentence.

6. Some people find this sentence possible if it is interpreted as containing just, along the lines of (29) a., b.

7. This is the position taken by Quine (1960) and LeGrand (1975), cited in McCawley (1977).

8. For this reason, any would be exempt from quantifier/negative crossing constraints, such as Lakoff's global rules (1970). Exemption would be a property of conversationally conveyed meanings in general, rather than of one lexical item, as proposed by LeGrand (1975), cited in McCawley (1977).

9. The use of the past tense conveys, among other things, that the state of affairs so described is no longer the case, and that the events were actual. The speaker is therefore referring to specific cases.

10. If tense, modals etc. are considered 'higher' predicates, then evidently surface word order is suggestive of some difference with if, question etc., not matched in logical structure (cf. Lakoff, 1977).

11. There is some ambiguity of the reference of it, but I am taking this sentence to mean "after a choice is made, the notion of "choice" associated with any loses its point".

12. I am using this as a condensed way of saying that speakers cannot convey by uttering sentences containing any that they are assuming the existence of a referent for any.


14. These sentences are taken from Kraft and Kraft, 1973.

15. Lakoff's global constraints say approximately the same thing, in that transformational rules may not alter the precedence relations of logical structure; thus surface structure and logical structures must match in this respect.

16. McCawley (1977) notes some cases such as

(i) Take any (one) of the apples. (= (6) d.)

where placing the $\forall$ outside the scope of a request performative represents the offer as a more generous offer than it is actually understood to be.
17. The logical formulas (i), (ii) with wide scope $\forall$ are equivalent to the formulas (iii) and (iv) with $\exists$ in the scope of negation and material implication.

(i) $\forall x \ (\text{NOT } Fx)$
(ii) $\forall x \ [F(x) \supset a]$
(iii) $\text{NOT } \exists x \ (Fx)$
(iv) $(\exists x) \ F(x) \supset a$ (cf. Reichenbach, 1947, p. 135)

Any must be related in a specific way to the contexts which make its use well formed, in particular by being contained or commanded by them (Class A). In (i) and (ii), negation and material implication (which we will take to be enough like if for the comparison to be valid) have in their scope the variable which is bound by the quantifier, but the quantifier itself – which presumably translates any – is outside. If $\forall$ is the correct representation, then (v) and (vi) ought to match (i) and (ii) and therefore be well formed.

(v) *Anybody thought they wouldn’t be caught.
(vi) *If you saw him/anyone on the beach, anyone was going for a walk.

(= ‘Whoever you saw on the beach was going for a walk.’)

But these sentences are obviously ill formed because negation in (v) does not command anyone and the if clause in (vi) does not contain or command anyone in the second clause. This could be directly ascertained by looking at the $\exists$ versions (iii) and (iv). I am assuming here that the main clause (a) in a conditional sentence may contain another instance of the variable in the antecedent. If this is not the case, then the equivalence of (ii) and (iv) holds for only a restricted class of sentences.

Alternatively, special syntactic rules could specify the command relations between any $\forall$ and its contexts of occurrence, rules which would be unnecessary for $\exists$.

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ON SURFACE DEFINITE ARTICLES IN ENGLISH

'Proving Underlying Indefiniteness and Explaining the Conversion to Definiteness'

John A. Hawkins

1 Introduction

In some recent publications I have suggested that the italicised definite noun phrases in (1) – (3) are transformationally complex:

(1) The aphasie resents the fact that everyone speaks a language.
(2) I dislike the name Algemon.
(3) I recalled the sweet little child that Harry used to be.

and derive from underlying structures corresponding to the surface (4) – (6) respectively:

(4) That everyone speaks a language is a fact (which the aphasie resents).
(5) Algemon is a name (which I dislike).
(6) I recalled that Harry used to be a sweet little child.

The surface definite head NPs of (1) – (3), the fact, the name and the sweet little child, originate in these proposed sources as indefinite NPs in predicate nominal position. An indefinite article in head NP position is on each occasion ungrammatical:

(7) *The aphasie resents a fact that everyone speaks a language.
(8) *I dislike a name Algemon.
(9) *I recalled a sweet little child that Harry used to be.

and hence the outputs of the transformations converting (4) – (6) into (1) – (3) introduce an article switch, from indefinite to definite.

The purpose of this chapter is to ask why these syntactically and semantically related sentences should exhibit different articles. In particular, what kind of proof can be given that the definite article in constructions such as these is a surface definite article only, derivable from an underlying indefinite? And why is the underlying indefinite then
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converted to a surface definite article?

I shall concentrate on just one of these structures, the 'predicational relative' structure of (3). I shall argue that underlying indefinite status can be proven using co-occurrence restrictions holding between articles and various noun-modifiers. The surface definite article of (3) will be shown to pattern like an indefinite article. It is ungrammatical with noun-modifiers with which the indefinite article is ungrammatical and with which the definite article is normally grammatical, and it is grammatical with noun-modifiers with which the indefinite article is grammatical, and the definite article normally ungrammatical. I shall then argue that the article switch is semantically motivated. The predicational relative surface structure is interpreted as a restrictive modifier on a head NP, and this restrictive interpretation, coupled with the semantics of the predication, produces a semantic incompatibility with an indefinite article, which necessitates the conversion to definite status. Such a semantic explanation generalises to explain the obligatory definite article in (1) and (2) as well.

The order of presentation is as follows. In section 2 I summarise the syntactic motivation for a transformational rule of 'Predicational Relative Formation' deriving sentences like (3) from (6). In section 3 I present the co-occurrence restrictions which argue for the underlying indefinite status of the surface definite head NP in the sweet little child that Harry used to be. In section 4 I present my semantic explanation for the ungrammaticality of *a sweet little child that Harry used to be, and for the obligatory conversion of a to the. And in section 5 I generalise this semantic explanation, and consider briefly how it might be integrated into a generative grammar.

2 The Syntactic Motivation for Predicational Relative Formation

Hawkins (1979) argues that the following structures, predicational relatives, are transformationally quite distinct from normal relative clauses derived by Relative Clause Formation:

\[(10)\] a. I remembered the sweet little child that Harry used to be.
b. I recalled the genius that Mary had once been.
c. Harry dreamed about the great champion that he was one day to be.
d. The fool that he was then became apparent to us all.
Hurford (1973, p. 282) proposes that such structures are relativisations on underlying predicate nominals, for example:

(10) a' 1 remembered _NP_(the sweet little child) _S_(COMP Harry used to be a sweet little child)

But relativisation on a predicate nominal is not normally possible, cf. (11) taken from Stockwell _et al._ (1973, p. 438):

(11) a. That man is a lawyer.
   b. *The lawyer that that man is always leaves work early.

And there are many syntactic differences between predicational relatives and normal relative clauses which Hurford’s account fails to capture adequately. For example, the relative marker in a predicational relative can only be _that_ or _Ø_, never _wh_:

(12) a. *I remembered the sweet little child who Harry used to be.
   b. *I recalled the genius who Mary had once been.
   c. *Harry dreamed about the great champion who he was one day to be.
   d. *The fool who he was then became apparent to us all.
(12) a'. 1 remembered the sweet little child that/Ø Harry used to be.
   etc.

A predicational relative, but not a relative clause structure, can stand as a complete sentence:

(13) a. The fool that he is!
   b. The misguided wretch that I was!
(14) a. *The fool who/that he knew.
   b. *The misguided wretch who/that I met.

The grammaticality of predicational relatives is dependent on the nature of the matrix verb, in particular on whether that verb can be shown to take a complement sentence (in underlying structures) in the NP position filled by the predicational relative. Compare the following pairs:

(15) a. I remembered the sweet little child that Harry used to be.
   b. I remembered that Harry used to be a sweet little child.
(16) a. The fool that he was then became apparent to us all.
    b. That he was a fool then became apparent to us all.

But where there is no corresponding complement, there is no predicational relative:

(17) a. *The lawyer that that man is always leaves work early.
    (= (11) b.)
    b. *That that man is a lawyer always leaves work early.

And whereas two normal relative clauses can conjoin under a common head NP:

(18) I remembered the sweet little child who/that we all loved and
    who/that came to the party.

a predicational relative cannot conjoin with a normal relative clause:

(19) a. *I remembered the sweet little child who/that we all loved
     and that Harry used to be.
     b. *I remembered the sweet little child that Harry used to be
     and who/that we all loved.

For these, and other, reasons I propose that predicational relatives derive from underlying sentence complement constructions. This complement source explains why that and $\varnothing$ are grammatical, and $wh$ ungrammatical, in (12): because that and $\varnothing$ are complementisers which can generally occur in the complements from which predicational relatives derive:

(20) a. I remembered that/$\varnothing$ Harry used to be a sweet little child.
     b. I remembered the sweet little child that/$\varnothing$ Harry used to be.
     (= 12a')

whereas $wh$ is not a complementiser (and occupies the surface complementiser position only as a result of movement):

(21) a. *I remembered who Harry used to be a sweet little child.
     b. *I remembered the sweet little child who Harry used to be.
     (= 12a)
A complement source also accounts for the grammaticality of (13), given Hurford's (1973), p. 204) proposal that 'many, and possibly all, English sentences' are in their deep structures complement subjects of a higher matrix be. It accounts automatically for the distributional differences between the grammatical (15)/(16), and the ungrammatical (17). And it permits an independently motivated explanation for the impossible conjunctions of (19), exploiting the fact that predicational relatives have a different transformational origin from normal relative clauses.

The rule of Predicational Relative Formation is a movement transformation which lifts the underlying predicate nominal out of the complement sentence and into an empty head NP position, as shown in (22):

\[
(22) \quad S \\
\quad \text{COMP} \\
\quad \text{NP} \quad \text{VP} \\
\quad \text{re-called} \\
\quad \Delta \quad \text{COMP} \\
\quad \text{that} \quad \text{NP} \quad \text{VP} \\
\quad \text{Harry} \quad \text{V} \quad \text{NP} \\
\quad \text{used to be} \\
\quad \text{a sweet little child}
\]

The formulation would be approximately:

\[
(23) \text{Predicational Relative Formation} \\
X - NP(NP(\Delta) - \exists(W - COMP - NP - Aux (Adv) be - NP - Y)) - Z
\]

\[
\begin{array}{cccccccc}
\text{S.D.} & 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\
\text{S.C.} & 1 & 7 & 3 & 4 & 5 & 6 & \emptyset & 8 & 9 \\
\end{array}
\]
where NP (Δ) is an empty NP node, the recipient of the moved predicate nominal. The variable Y subsumes mostly adverbial material, such as once upon a time, in his youth:

(24) I recalled the sweet little child that Harry used to be once upon a time/in his youth.

and W permits movement of the predicate nominal in an unbounded manner:

(25) a. I recalled the sweet little child that we all knew that Harry used to be.
    b. I recalled the sweet little child that I suspect we all knew that Harry used to be.
    c. I recalled the sweet little child that Mary was convinced that I suspected we all knew that Harry used to be.

This transformation is 'structure-preserving' in the sense of Emonds (1976) since NP(NP S) structures are independently generable in the base.

The underlying predicate nominal in our examples is extracted out of a tensed sentence and over a specified subject and would therefore appear to violate Chomsky's (1973) Tensed S and Specified Subject conditions. However, since Chomsky regards these as conditions on the functioning of transformations, rather than on their form, they do not in fact prohibit a transformation such as (23) in which extraction over a specified subject and out of a tensed S is required quite explicitly (assuming the PS-rule Aux → Tense (Modal)). There are, in any case, difficulties with Chomsky's conditions as they stand, cf. Bach and Horn, 1976.

3 Arguments for the Indefiniteness of the Underlying Predicate Nominal

I shall present five grammaticality arguments which show that the definite head NP of predicational relatives:

(26) a. I remembered the sweet little child that Harry used to be.
    b. The fool that he was then became apparent to us all.

derives from an underlying indefinite predicate nominal:
(27) a. I remembered that Harry used to be a sweet little child.
   b. That he was a fool then became apparent to us all.

rather than from an underlying definite predicate nominal:

(28) a. I remembered that Harry used to be the sweet little child.
   b. That he was the fool then became apparent to us all.

These arguments involve co-occurrence restrictions between articles and noun-modifiers, all of which are justified in detail in Hawkins (1976, and 1978, Ch. 5).

Notice that an indefinite origin is plausible on pragmatic grounds. The examples of (26) are typically first-mention definite descriptions. Thus, (26) a. does not necessarily refer back to any previously mentioned sweet little child, whereas the sweet little child in (28) a. is necessarily anaphoric. If no sweet little child has been previously mentioned, (28) a. will be inappropriate and will provoke a wh-question on the hearer’s part. (26) a. therefore patterns like (27) a. with a sweet little child in not presupposing prior reference to some sweet little child.

3.1 -est Superlatives

-est superlatives typically co-occur with the definite article, and are ungrammatical with the indefinite article:

(29) a. The brightest child was Harry.
   b. *A brightest child was Harry.

The same co-occurrence restriction holds within a predicate NP:

(30) a. I remembered that Harry used to be the brightest little child.
   b. *I remembered that Harry used to be a brightest little child.

Contrast (29) and (30) with the following predicational relatives:

(31) a. *I remembered the brightest little child that Harry used to be.
   b. *I remembered a brightest little child that Harry used to be.

A is, as usual, ungrammatical (and is in any case an impossible output of Predicational Relative Formation, which generates only definite head
NPs). But *the* is also ungrammatical in (31) a. This can be explained on
the assumption that Predicational Relative Formation converts an
underlying indefinite predicate nominal into the head NP of a surface
complex NP. The ungrammaticality of (31) a. would then follow auto-
matically from the ungrammaticality of the source (30) b.

Support for exploiting the parallelism between (30) b. and (31) a. in
this way comes from superlatives with *most*, which can co-occur with

(32) a. Harry is a most angelic little child.
    b. I remembered that Harry used to be a most angelic little
       child.

Corresponding to the grammatical (32) b. we now have a grammatical
(33), as predicted:

(33) I remembered the most angelic little child that Harry used
to be.

There is even a small set of -*est* superlatives that can co-occur with

(34) a. Deutsch für Dummköpfe is a *first* course in German.
    b. This washing machine is a *best* buy.

We predict that grammatical predicational relatives with definite head
NPs will be derivable from (35):

(35) a. I remembered that Deutsch für Dummköpfe used to be
    *an* admirable *first* (*shortest*) course in German.
    b. I remembered that my Bendix washing machine had been *a*
       fantastic *best* (*cheapest*) buy.

and this prediction is again correct:

(36) a. I remembered the admirable *first* (*shortest*) course in
    German that Deutsch für Dummköpfe used to be.
    b. I remembered the fantastic *best* (*cheapest*) buy that my
       Bendix washing machine had been.

Clearly, the co-occurrence restrictions involving superlatives within the
definite head NP of a predicational relative are exactly those which normally hold within indefinite NPs. And this correspondence is predicted by our indefinite predicate nominal origin. Only those underlying indefinites which are grammatical will be mapped into definite head NPs.

3.2 Only

Compare:

(37)  a. *The only man at the party was Fred.
      b. *An only man at the party was Fred.
and also:

(38)  a. I remembered that Superman used to be the only hero of my youth.
      b. *I remembered that Superman used to be an only hero of my youth.

Only thus requires a co-occurring definite article when functioning as a noun modifier. But again, predicational relatives corresponding to (38) are ungrammatical with both the definite and the indefinite article in the head NP:

(39)  a. *I remembered the only hero of my youth that Superman used to be.
      b. *I remembered an only hero of my youth that Superman used to be.

and this is predictable from the ungrammaticality of the source (38) b.

There is at least one productive exception to the *an only prohibition (cf. Hawkins, 1976, fn 4; 1978, p. 232):

(40)  Harry is an only child.

But notice the interesting grammaticality contrast between:

(41)  a. I remembered that Harry used to be a sweet little only child.
      b. *I remembered that Harry used to be an only sweet little child.
The indefinite article can co-occur with only, just in case only immediately precedes child. Compare now:

(42) a. I remembered the sweet little only child that Harry used to be.
    b.*I remembered the only sweet little child that Harry used to be.

The grammaticality difference between (42) a. and (42) b. mirrors exactly that between (41) a. and (41) b., as predicted by our hypothesis of an underlying indefinite predicate nominal.

3.3 Comparative Adjective + Noun + of the two

Compare:

(43) a. Fido is the smellier dog of the two.
    b.*Fido is a smellier dog of the two.

The sequence smellier dog of the two can only be preceded by the. On the basis of the ungrammaticality of (43) b. and (44) b.:

(44) a. I remembered that Fido used to be the smellier dog of the two.
    b.*I remembered that Fido used to be a smellier dog of the two.

we can predict the ungrammaticality of (45) in the usual way:

(45) *I remembered the (*a) smellier dog of the two that Fido used to be.

Contrast the perfect grammaticality of (46):

(46) I remembered the smelly dog that Fido used to be.

where an underlying a smelly dog is, of course, possible.

3.4 Same and Identical

There is an interesting contrast between same and identical with regard to their article co-occurrence restrictions:
(47)  a. Harry told me about an identical twin.
    b. Harry told me about the identical twin.
(48)  a.*Harry told me about a same twin.
    a. Harry told me about the same twin.

*Same must co-occur with the, whereas identical may occur grammatically with both a and the (cf. Hawkins, 1978, pp. 247-53). Consider now (49):

(49)  a. I remembered that Harry used to be a sweet little identical twin.
    b. I remembered that Harry used to be an identical sweet little twin (to our Charlie).

The indefinite article is grammatical in both, though the different orderings of identical are accompanied by a difference of interpretation. Grammatical predicational relatives can be formed from both:

(50)  a. I remembered the sweet little identical twin that Harry used to be.
    b. I remembered the identical sweet little twin that Harry used to be.

Substitution of same for identical in both positions of (49) produces ungrammaticalities:

(51)  a. *I remembered that Harry used to be a sweet little same twin.
    b. *I remembered that Harry used to be a same sweet little twin.

And predictably, predicational relatives formed from (51) are also ungrammatical, even though same is now within a definite NP:

(52)  a. *I remembered the sweet little same twin that Harry used to be.
    b. *I remembered the same sweet little twin that Harry used to be.

The grammaticality of both (49) and (50), and the ungrammaticality of both (51) and (52), are therefore correctly predicted by our theory.
3.5 Mere

Smith (1969, p. 249) observes that *mere* typically co-occurs with an indefinite and not with the definite article:

(53) a. I remembered that she used to be *a mere* housewife.
   b.*I remembered that she used to be *the mere* housewife.

But *mere* can occur with perfect grammaticality within the definite head NP of a predicational relative:

(54) I remembered *the mere* housewife that she used to be.

If *mere* is inserted into the indefinite predicate nominal prior to the application of Predicational Relative Formation, yielding (53) a., then the grammaticality of (54) is predicted. The underlying indefinite NP is simply converted to a definite NP in surface.

In this example, therefore, the surface definite article is grammatical with a noun-modifier with which the indefinite article is grammatical, and with which the definite article is normally ungrammatical. In sections 3.1 – 3.4 we have seen, conversely, that the surface definite article is ungrammatical with noun-modifiers with which the indefinite article is ungrammatical, and the definite article normally grammatical. These reverse polarities are predicted by an indefinite source for the definite head NP of a predicational relative.

Notice also the perfect grammaticality of:

(55) *The mere fact that he is alive today* does not guarantee that he will be alive tomorrow.

(56) The mere name Algernon will not improve our image.

The ultimate origin of these italicised NPs would be (cf. footnote 2) *that he is alive today is a mere fact* and *Algernon is a mere name* respectively, both with indefinite predicate NPs into which *mere* can be inserted grammatically. And compare finally:

(57) a. Next, your honour, we come to the most bizarre fact *that the accused left his trousers at the murder scene.*
   b.*Next, your honour, we come to the strangest fact *that the accused left his trousers at the murder scene.*

(58) *The aphasic resents the only fact *that everyone speaks a language.*
(in which the italicised modifiers are not separated from their head NPs by an intonation break – in which case they would be understood appositively rather than restrictively, cf. section 5). The grammaticality contrast between (57) a. and (57) b. is predicted by the grammaticality contrast between the respective sources: *that the accused left his trousers at the murder scene is a most bizarre fact/*a strangest fact. And the ungrammaticality of (58) is predicted by the equal ungrammaticality of *that everyone speaks a language is an only fact. The definite article in all these constructions is, therefore, a surface definite article, and it still displays in surface structure the co-occurrence restrictions of its indefinite source.

4 Explaining the Surface Definite Article

In section 2 I suggested that a complement origin would explain a number of grammatical properties of predicational relatives, and in section 3 I presented grammaticality arguments in favour of the indefiniteness of the predicate nominal within the underlying complement. I shall now attempt to explain why the output of Predicational Relative Formation should be definite rather than indefinite. The explanation to be proposed is semantic. A predicational relative is semantically a restrictive modifier on a head NP, despite the complement source in the syntactic derivation. But because of the predicational nature of the modifier, the interaction with a restrictive interpretation necessarily results in a definite head NP for reasons of semantic compatibility.

The grammaticality contrast between (59) a. and (59) b.:

(59) a. I remembered the sweet little child that Harry used to be.
    b.*I remembered a sweet little child that Harry used to be.

becomes all the more interesting when (59) b. is compared with the superficially very similar (60) which, surprisingly, is grammatical:

(60) I remembered a sweet little child that Harry used to be like.

Why should the addition of like make all the difference here?

In order to explain these article co-occurrence restrictions a brief résumé of my analysis of definiteness/indefiniteness and restrictiveness is required.
Hawkins (1976, 1978) argues that the use of the definite article by the speaker acts as an instruction to the hearer to 'locate' the referent of the definite NP within one of a number of sets of objects which are pragmatically defined on the basis of different types of shared speaker-hearer knowledge and the situation of utterance. The hearer locates the referent in the sense that he understands that the object referred to is a member of the appropriate, pragmatically identifiable set. The definite description refers 'inclusively' to the totality of the objects (or mass) satisfying the referring predicate within the relevant pragmatic set. This 'inclusiveness' generalisation covers plural and mass nouns as well as singular count nouns with the definite article. Thus, bring the wickets in after the game of cricket is normally understood as referring to all the wickets in question, move the sand from my gateway to all the sand in question. With the king of France is bald it just happens that the total number of kings of France, to which inclusive reference is made, is one only. And the oft-quoted uniqueness of definite descriptions is therefore just a single manifestation of a more general regularity: inclusiveness within pragmatically defined parameters.

By contrast, whereas definite descriptions refer inclusively to all (the relevant pragmatically delimited) objects, indefinite descriptions refer 'exclusively' to not-all, i.e. there are claimed to exist other objects which are excluded from the reference of an indefinite description. Compare, for example, Fred lost a leg in the war with ?Fred lost a nose in the war. In the former example, Fred originally had two legs and so it is possible to refer to one (the one he lost) while excluding the other from the reference. But Fred has only one nose. Hence, it is not possible to refer to Fred's nose and at the same time to exclude other noses from the reference within this pragmatic domain of interpretation (i.e. the parts of Fred's body). The only possible interpretation for ?Fred lost a nose in the war is the rather forced one in which Fred loses someone else's nose. Compare further: I didn't buy the house, because a window was broken/because some windows were broken/ (?) because a roof was leaking. Houses normally have several windows but only one roof. Both a window and some windows can refer to some only of the total number of windows in the house, while excluding others from the reference, but a roof would necessarily be referring to all the roofs of the house, i.e. one only. Since the exclusion of at least one object from the reference cannot be satisfied within this pragmatic domain of interpretation (the parts of the house in question), a roof cannot be
understood as referring to the roof of the previously mentioned house. Compare finally *Fred lost some teeth in the war* with ?*Fred lost some arms in the war*. The anomaly of the latter results from the fact that the plural indefinite, *some arms*, refers to at least two arms. But Fred has only two arms. Hence it is not possible for at least one arm to be excluded from the reference within the set of Fred’s body parts, and, as before, the only possible interpretation is one in which Fred loses somebody else’s arms.

Strong support for this analysis of definiteness and indefiniteness comes precisely from such ungrammaticalities as the (*an) only man at the party was Fred, the (*a) brightest child was Harry, Fido is the (*a) smellier dog of the two, etc., discussed in the last section. Underlying these ungrammaticalities is a semantic opposition between the inclusiveness or exclusiveness of the relevant article and the meaning of the modifier. For example, in *an only man at the party, only* claims that there were no other men at the party apart from Fred. But *an* claims that there were other men at the party, since the indefinite article requires that there exist other objects satisfying the description of the referring expression apart from those actually referred to. In *a brightest child* the superlative in -est claims that there were no other children with brightness to the extent of Harry, i.e. all other children did not have brightness to Harry’s extent, and so Harry was brighter than all of them. But the indefinite article would require, if grammatical, that there did exist other objects satisfying the description *brightest child*, in addition to Harry. Yet the only way in which there could be other children with this superlative property would be if Harry was not in fact uniquely brighter than all of them, and hence at least one child that he was claimed to be brighter than (by the superlative) would also have to be brighter than all others, including Harry! The semantics of *only* and of -est superlatives are therefore contradicted by the referential (‘exclusiveness’) meaning of the indefinite article, but not by the inclusiveness meaning of the definite article. Similarly, in a universe of discourse comprising just two dogs, there can be at most one that is more smelly, and one that is less smelly. *A smellier dog of the two* would require, if grammatical, that there existed other smellier dogs in this set of two apart from the one being referred to, which is impossible. Again, the meaning of the indefinite article and the modifier are incompatible with one another, and it is to this that their ungrammaticality can be attributed.
4.2 Restrictiveness in Relation to Indefiniteness

Notice now how the restrictiveness of a noun modifier is interpreted within an indefinite NP. Compare (61) a. with (61) b.:

(61) a. Fred lost a leg in the war.
   b. ?Fred lost a right leg in the war.

(61) b. requires the same forced interpretation as *Fred lost a nose in the war*, i.e. the right leg in question cannot be Fred’s. The reason must be that the set of Fred’s body parts contains just one right leg and just one nose. And although *a leg* in (61) a. can be understood as referring to one of Fred’s legs, while excluding the other from the reference, *a right leg* cannot be understood as excluding at least one such object within this pragmatic domain of interpretation. Now, the adjective *right* functions restrictively in (61) b., distinguishing one leg from another. The restrictiveness of a modifier within an indefinite NP must therefore mean that there are claimed to exist other, excluded, objects which satisfy both the noun and the modifier properties, i.e. other ‘right legs’. But Fred has only one such, and so *a right leg* cannot be interpreted as referring to the unique right leg on his body. Instead, the (definite) possessive determiner is required, *his right leg*. Not only does the object which Fred lost in (61) b. fall within the intersection of the set defined by the noun and the set defined by the restrictive modifier, therefore, but the excluded object(s) also fall within this intersection, and it is actually required that there exist at least one other such object within the relevant pragmatic domain of interpretation.

Similarly, compare (62) a. and (62) b.:

(62) a. The dog lost some paws.
   b. ?The dog lost some front paws.

Just as the exclusiveness condition cannot be satisfied with *a right leg*, so it cannot be satisfied either with *some front paws*. A dog has only two front paws, and so to refer to two rules out the possibility of there being others within this pragmatic domain of interpretation, which then prevents *some front paws* from being understood as belonging to the dog in question. As a result, the only interpretation that can be assigned to (62) b. is the rather less natural one in which the dog loses paws from some other animal, and in order to refer inclusively to all the relevant front paws, the (definite) possessive determiner is again required: *his/her/its front paws.*
Restrictive modifiers within indefinite NPs therefore join the head noun in defining both the object(s) actually referred to, and, crucially, the object(s) excluded, of which at least one is claimed to exist. By contrast, an appositive modifier does not require that there exist at least one other object satisfying the description of both noun and modifier. It merely predicates an additional claim of the object(s) referred to by the noun alone:

(63) Fred lost a leg in the war, which happened to be on his right side.

I would therefore argue that the restrictive/appositive distinction in indefinite NPs is reflected in whether the modifier does or does not join the head noun in requiring the existence of at least one excluded object within the relevant domain of interpretation. There is also an additional aspect to the semantic contrast between restrictiveness and appositiveness which indefinite NPs share with definite NPs and which holds for both non-generic and generic NPs. It is discussed in Hawkins (1978, pp. 282-9 and fn 14), but is not relevant in the present context.

4.3 Predicational Relatives as Restrictive Modifiers

We can now explain the impossibility of the indefinite article in (59) b. *I remembered a sweet little child that Harry used to be on the assumption that the predicational relative functions as a restrictive modifier. There is both semantic and syntactic justification for such an assumption. We can explain simultaneously the grammaticality of (60) I remembered a sweet little child that Harry used to be like, in which a normal relative clause, differing from (59) b. only in the addition of like, also restrictively modifies the head NP a sweet little child.

In the grammatical predicational relative (59) a. I remembered the sweet little child that Harry used to be there is identity of reference between the head NP, the sweet little child, and the underlying subject, Harry. Though the identity involves a disparity in time (present versus past) in this example, we have seen that this need not always be the case (cf. the idiot that Harry is/*an idiot that Harry is). Thus, Harry and the sweet little child are one and the same, unique, individual. The predicational relative that Harry used to be can be regarded as a restrictive modifier on semantic grounds, since it serves to distinguish one sweet little child, the one that Harry used to be, from others. And syntactically, grammatical criteria which occur uniquely in restrictive but not appositive relative clauses occur in predicational relatives, whereas
apppositive criteria do not occur in predicational relatives. But consider (59) b. with an indefinite head NP. We have seen that a restrictive modifier in an indefinite NP requires that there exist at least one other object satisfying the description of both noun and modifier within the relevant domain of interpretation. Adapting this requirement to (59) b., this sentence would have to mean that there existed at least one other object that was both a *sweet little child* and that satisfied the description of the predicational relative *that Harry used to be*. But although there is a potentially infinite number of sweet little children that Harry could have been *like* or similar to, as in (60), the number of sweet little children that Harry actually was cannot exceed one in number. First, because Harry, being a unique individual, does not exceed one in number, and though his body may change, his uniqueness as an individual cannot. Second, because even though there may be different manifestations of this unique individual throughout his life cycle (cf. *the sweet little child that Harry used to be, the handsome youth that Harry then was, the distinguished octogenarian that Harry was subsequently*, etc.) each such manifestation will necessarily be the unique one representing the unique individual Harry on each occasion. Thus, there can in principle be only one sweet little child, one handsome youth, and one distinguished octogenarian that Harry was, and it is impossible for there to exist other sweet little children etc. that he used to be. However, there may exist other sweet little children similar or even identical to him in type, i.e. *like* him, but not identical to him in reference or token. And hence (60) is grammatical, while (59) b. is ungrammatical.

Thus, since predicational relatives are understood restrictively, the exclusiveness of an indefinite NP would require that there existed other objects satisfying the description of both noun and predicational relative together. But this produces an incompatibility with the referential identity which exists between the referent of the head NP and the referent of the subject of the predicational relative. There cannot be other objects satisfying both head NP and predicational relative (i.e. other sweet little children of which *that Harry used to be* holds), on account of the uniqueness and co-referentiality of Harry and the sweet little child. There can be no more sweet little children than the number of individuals referred to by the underlying subject, in this case one only. The uniqueness of the whole referring expression in (59) a. therefore accounts for the obligatory occurrence of *the*, and for the usual incompatibility and ungrammaticality with *a*.

Consider also:
(64) a. I remembered the (*some) sweet little children that Harry and Bill used to be.
b. I remembered the (*some) sweet little children that Harry, Bill, Mary and Jane used to be.

The number of sweet little children referred to in these sentences is always the number referred to in the subject position of the predicational relative, exactly one in (59) a., exactly two in (64) a., and exactly four in (64) b. In each case an indefinite head NP is ruled out. (59) b. would have to mean that there existed other sweet little children that Harry was referentially identical to, apart from himself, (64) a. that there were other sweet little children that Harry and Bill were referentially identical to, apart from themselves, and similarly for (64) b. And in fact whatever the number of objects referred to by the subject NP of the predicational relative, an indefinite head NP would always carry the meaning that there existed additional objects satisfying the referring predicate(s) of the head NP that were identical to the referents of the subject NP, which is always an impossibility, even when the subject NP is not itself numerically specific:

(65) I remembered the (*some) sweet little children that these men used to be.

Only a definite head NP, whose inclusiveness meaning requires that there are no other objects satisfying both head NP and predicational relative, i.e. no other sweet little children coreferential with the underlying subject referents, avoids this contradiction.

5 Conclusions

In section 3 I justified the underlying indefiniteness of the head NP of a predicational relative, and in section 4 I offered a semantic explanation for the ungrammaticality which results from retaining indefinite status in the surface head NP.

Notice now that the input structure to Predicational Relative Formation (23), for which there is independent syntactic support (section 2), is a complement sentence with an empty head. Since there is no head in deep structure, it is impossible to assign any restrictive interpretation to the 'relative-to-be' at this level. Only in surface structure do we have a head NP + modifier construction to which restrictive status can be
assigned, and hence only at this level do we have a structure upon which semantic rules can operate to compute the semantic incompatibility of the erstwhile complement turned nominal modifier with an indefinite head. Predicational Relative Formation is, therefore, a meaning-changing transformation, and the article switch is a response precisely to the meaning difference between input and output structures. In the underlying complement both an indefinite and a definite predicate nominal are grammatical, though we offered numerous grammaticality arguments motivating the indefinite as a prerequisite for conversion into a predicational relative head NP. But the restrictive interpretation coupled with the predicational nature of the surface relative then creates a semantic incompatibility with an indefinite head, and a definite article must replace the underlying indefinite.

A similar semantic incompatibility explanation can be given for the (*a) name Algemon and the (*a) fact that everyone speaks a language, discussed in section 1. I would argue that Algemon is a restrictive (nominal) modifier on name, since it distinguishes this name from others. The sequence *a name Algemon would require that there existed other names of the form Algernon apart from Algemon itself, which is impossible, since Algemon as a name is unique. Predictably, I dislike a name like Algemon is perfectly grammatical, since there is a potentially infinite number of such names, but only one actual name Algemon. Similarly, that everyone speaks a language is a restrictive (sentential) modifier on fact, distinguishing this fact from others. But again, the fact that everyone speaks a language is a unique fact, distinct from all others, and the sequence *a fact that everyone speaks a language would introduce the contradiction that there could be other facts of which that everyone speaks a language holds. But although there may exist many facts like this one (cf. the grammatical in your discussion you should bring up a fact like the one that everyone speaks a language), this fact itself is unique.¹⁰

What unites all three structures the sweet little child that Harry used to be, the name Algemon, and the fact that everyone speaks a language is, therefore, that they are head NP + modifier structures to which a restrictive interpretation is assigned. And this restrictive interpretation, coupled with the internal semantics of the modifier, rules out in all three cases the possible existence of other objects satisfying both head noun and modifier. The resulting uniqueness (or more generally, inclusiveness) of the whole NP makes necessary a surface definite article, and produces an ungrammaticality with an indefinite article through semantic incompatibility in the form of a logical contradiction. This
explanation is further supported by the evidence of Hawkins (1978, Ch. 5) explaining many similar ungrammaticalities.

Further, according to the syntactic analysis proposed for the name Algernon and the fact that everyone speaks a language in footnote 2, the surface head NPs the name and the fact are not head NPs in deep structure, but are again indefinite predicate nominals. Only in surface structure is a head NP + modifier structure generated to which a restrictive interpretation can be assigned, as in the case of the predicational relatives. What characterises all these structures, therefore, is that the semantic conditions which give rise to a semantic incompatibility with an indefinite article are associated with surface structure only, and are not computable from deep structure.

Returning to Predicational Relative Formation, we now see that the formulation of this rule given in (23) is *ad hoc*. For it converts an underlying indefinite to a definite NP without giving any principled reason for doing so, thus making the implicit claim that the switch is unmotivated. Since a general explanation is available, this *ad hoc* formulation is missing the relevant generalisation. And since this generalisation is, furthermore, semantic, it is questionable whether it should be stated in the syntactic rule at all.

The actual formalisation of our grammaticality explanation within a generative grammar poses some interesting problems for the integration of syntax and semantics. If we accept that the cause of these article ungrammaticalities is semantic, then any interpretive semantic component would need to be structured along the lines of Jackendoff’s (1972) model, in which semantic rules both interpret and play a grammaticality-predicting role. For example, Jackendoff (1972, p. 112) proposes a consistency condition on well formed semantic representations, which filters strings like *The old man saw herself*. We might formulate, similarly, a semantic compatibility condition incorporating the semantic conditions on grammaticality discussed in Hawkins (1978, Chs. 5, 6) and filtering *a brightest child* etc. But contrary to Chomsky's (1975) recent proposal that all semantic interpretation be defined on surface structure, the rules of interpretation providing semantic representations to which the semantic compatibility condition would apply will need to operate both below and at the surface level. They must interpret syntactic strings below the surface in order to have the ungrammatical indefinite article sequences of section 3 filtered (*a brightest child* etc.) before they are converted into definite NPs, at which point the semantic compatibility condition would not be able to predict their ungrammaticality (since the + -est superlatives are normally grammatical). And
they would need to interpret surface structures so that the ungrammaticality of an indefinite head NP with a predicational relative can be computed.

There are, however, many problems for such an interpretive solution. Imagine that the input to the syntactic rule of Predicational Relative Formation is kept as in (23) (on the basis of the arguments of sections 2 and 3), and that the head NP of the output is kept as indefinite instead of being converted to definite. Rules of semantic interpretation applying to the relevant surface structures would then assign a semantic representation which would reveal a semantic incompatibility with the indefinite head, and these surface structures would be predicted to be ungrammatical by the semantic compatibility condition. But all that the interpretive semantic component could do at this point would be to filter the strings in question. It could not convert semantic incompatibility into compatibility by substituting a definite for the indefinite article, because such a semantic component, being interpretive, cannot generate new syntactic structures. It merely interprets and filters those strings whose ill-formedness is semantic in origin, and as a result grammatical predicational relatives with a definite head NP could not be generated.11

In order to avoid this problem it would be necessary to keep the formulation of Predicational Relative Formation as in (23), introducing the definite article syntactically. But this then loses a generalisation. For the cause of the indefinite to definite article switch in (23) involves exactly the same semantic incompatibility as underlies the ungrammatical indefinites of section 3. And hence whenever the semantic changes brought about by a transformation necessitate the conversion of an indefinite to a definite article, it would be impossible in Jackendoff's model both to explain the ungrammaticality of the indefinite head in a principled way (by invoking the semantic compatibility condition) and to generate the correct outputs with a definite article only.12

Instead, what appears to be needed is a generative rule capable of converting an indefinite into a definite article in response to precisely the semantic factors which explain the incompatibility of the indefinite. The Generative Semantics model, in which a semantic base underlies all generative syntactic rules, provides a framework within which such a rule could be formulated. The indefinite to definite article conversion would be obligatorily triggered by (globally stated) semantic conditions, following the operation of Predicational Relative Formation and other transformations as obligatory rules. These latter
would be triggered by the very semantic differences between input and output structures that would result from the application versus non-application of the corresponding optional rules in the Interpretive Semantics model.

The main concern of this paper, however, is not with such problems of formalisation, but with the nature of the explanation which any formalisation of the facts at hand must capture. I have offered a set of arguments suggesting that at least some definite articles in English are surface definite articles only, and exhibit many properties of indefinite NPs. And I have proposed a semantic explanation of some generality for this conversion of underlying indefinite into surface definite status. This explanation exploits the semantic properties of the output structures created by the relevant transformations. The indefinite article is semantically incompatible, the definite article semantically compatible, with the restrictive interpretation and internal semantics of the transformationally derived noun modifiers in question.

Notes

2. More precisely, the fact that S derives from a structure of the form:

   (i) \( \overline{S} (\text{COMP } S (\text{NP} \overline{S}(\text{that } S)) \text{ is a fact})) \)

   embedded under an NP, i.e.

   (ii) \( \text{NP} (\overline{S} (\text{COMP } S (\text{NP} \overline{S}(\text{that } S)) \text{ is a fact})) \)

   that \( S \) can be extraposed in (i) and (ii). These structures may also undergo predicate-inversion, producing for example (iii). Predicate-inversion simultaneously definitises \( S \).

   (iii) \( \text{NP} (\overline{S} (\text{COMP } S (\text{NP} \text{ (the fact) } S(\text{that } S)))) \)

   When COMP = \( \varnothing \), \( S \) can delete optionally in this NP-dominated structure, triggering pruning of the highest \( S \) and \( S \) under NP on account of the loss of sentencehood, to produce (iv):

   (iv) \( \text{NP} (\text{NP} \text{ (the fact) } S(\text{that } S)) \)

This derivation accounts for the grammaticality of both (v) and (vi):

(v) That everyone speaks a language is a fact.
   It is a fact that everyone speaks a language. (extraposition)
   The fact is that everyone speaks a language. (predicate-inversion)

(vi) (The aphasie resents (it)) that it is a fact that everyone speaks a language. (extraposition)
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(The aphasic resents (it)) that the fact is that everyone speaks a language. (predicate-inversion)
(The aphasic resents) the fact that everyone speaks a language. (is deletion)

And in particular it predicts the ungrammaticality of all of:

(vii) *A fact is that everyone speaks a language.
*(The aphasic resents (it)) that a fact is that everyone speaks a language.
*(The aphasic resents) a fact that everyone speaks a language.

The ungrammaticality of *a fact is that S is a consequence of the obligatory conversion of the indefinite predicate nominal into a definite subject by predicate-inversion: that is fact ⇒ the fact is that S. Given the rule of it deletion, the ungrammaticality of *a fact that S then follows from the equal ungrammaticality of *a fact is that S, as does the grammaticality of the fact that S from the grammaticality of the fact is that S.

For the name Algernon I propose as origin:

(viii) NP(S(COMP S (NP (Algernon) is a name)))

Predicate-inversion applies optionally to this structure also, creating:

(ix) NP(S(COMP S (NP (the name) is Algernon)))

is may delete optionally, as before, producing (x) after pruning:

(x) NP(NP (the name) Algernon)

This derivation predicts the grammaticality of (xi) and (xii):

(xi) Algernon is a name.

The name is Algernon.

(xii) (I dislike it) that Algernon is a name.

(I dislike it) that the name is Algernon.

(I dislike) the name Algernon.

and the ungrammaticality of all of (xiii), matching (vii):

(xiii) *A name is Algernon.

*(I dislike it) that a name is Algernon.

*(I dislike) a name Algernon.

See sections 3.5 and 5 of this paper, and also Hawkins, 1978, pp. 140–7, for further motivation for these origins. The derivation for I recalled the sweet little child that Harry used to be is discussed in detail in the main text.

3. There is also an important semantic property of predicational relatives which sets them off from normal relative clauses. The head NP of a predicational relative has an ‘affective’ interpretation, i.e. the referring predicate(s) within the head NP express a subjective viewpoint of the speaker or of some other party mentioned in the sentence. This viewpoint may be one of respect and admiration (the genius that Mary had once been), or of disrespect (the fool that . . . , the idiot that . . .), or it may involve other emotions such as pity, love, a feeling of pathos etc. (the sweet little child that Harry used
to be). Generally, either the noun or the adjective(s) within the head NP will have an inherently affective quality about them. But there are also examples in which the head NP derives its affective quality from context alone. Thus, *I recalled the housewife that Mary used to be* will generally be understood as either *I recalled the mere housewife that...* or *I recalled the fantastic housewife that...*, depending on the speaker's negative or positive attitude towards the role of a housewife.

4. The relative clause constructions in (14) can, of course, stand alone if the remainder of their containing sentence has been deleted under identity with a preceding sentence, and is therefore understood, for example in response to the question: *Who committed the crime? The fool who/that he knew (committed the crime).* But no such deletion need be assumed for (13), and as a result (13), but not (14), could be the first sentence in a discourse.

5. In our reanalysis of predicational relatives within Hurford's theory, (13) *the fool that he is* would derive from a complement subject of an underlying matrix:

   (i) $S^{\text{COMP}} S (\text{NP} (\text{NP} (\text{NP} \text{(that he is a fool)}) \text{is}))$

   i.e. *that he is a fool is* (the case). Predicational Relative Formation applies to this subject complement, whereupon the matrix is would delete by Hurford's independently motivated rule of be deletion. The grammaticality of *the fool that he is* functioning as a complete sentence constitutes strong support for Hurford's higher be analysis (but not for his analysis of predicational relatives as normal relative clauses). Given his input structure containing subject complements of a higher matrix be, and the independently motivated rules of Predicational Relative Formation and matrix be deletion, structures such as *the fool that he is* are precisely what the grammar will generate. Their complete sentenceness, despite the relative clause-like surface appearance, bears striking testimony to their origin.

6. Hawkins (1979) shows that two relative clauses, two predicational relatives and two *that* S complements with fact or rumour heads can conjoin under one and the same head NP. But the conjunction of a relative clause with a predicational relative (19), of a relative clause with a *fact/rumour that* S complement, and of a predicational relative with *fact/rumour that* S is not possible. It is proposed that complex NPs with unlike deep structures cannot conjoin.

7. Similarly, Ross's (1967) constraints and Chomsky's A over A condition are conditions on the functioning of transformations rather than on their form. Of the latter Chomsky (1973, p. 235) says: 'If it does not establish an absolute prohibition against transformations that extract a phrase of type A from a more inclusive phrase of type A. Rather, it states that if a transformational rule is non-specific with respect to the configuration defined, it will be interpreted in such a way as to satisfy the condition.'

8. For a full discussion of the exclusiveness of indefinite reference (and of some indefinite descriptions which do not refer exclusively) see Hawkins, 1978, Ch. 4. The inclusiveness of definite reference within pragmatic parameters is discussed in Hawkins, 1978, Ch. 3.

9. For example, both *that* and $\emptyset$ are the complementisers of predicational relatives, and they both (in their capacity as relative clause subordinators) generally force a restrictive interpretation (cf. Hawkins, 1978, pp. 282-9). But comma intonation, and the other appositive criteria of relative clauses (cf. Hawkins, 1978), do not occur in predicational relatives:

   (i) *I recalled the sweet little child, that Harry (of course) used to be (didn't he?).
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10. See, however, Hawkins, 1978, pp. 144–6, for discussion of a class of head nouns (the so-called 'rumour' nouns) which do permit an indefinite article. For some reason, which I still fail to understand fully, these rumour nouns provide evidence of a different transformational origin, and are not subject to the otherwise well motivated explanation for the ungrammaticality of *a fact that S.

11. Nor can this problem be avoided by modifying the input of Predicational Relative Formation so that it applies to underlying definite predicate nominals, on account of the arguments of section 3.


References

Hawkins, J.A. (1979), 'On Predicational Relatives: the Unique Constructions that they are' (unpublished)
1 Summary

Apart from coreference of NPs, where the referents are identical, a relation between NPs must be assumed where the referents are non-identical, but closely related. The relation between such NPs will be called 'interreference'.

This chapter addresses itself to the question of whether interreference is predictable in terms of grammatical semantics, as in the case of coreference. Although both phenomena appear to be very similar, the result is that the rule predicting interreference has to be formulated as a pragmatic rule. Therefore, we can only generalise about both rules on a pragmatic level, which entails that the grammatical theory must be a sub-theory of linguistic pragmatics.

2 Various Anaphoric Relations

Anaphoric relations can occur under various circumstances. There are anaphoric relations, for instance, which involve coreferential NPs, as in sentence (1) a. A sentence like (1) b., however, illustrates an anaphoric relationship between two non-coreferential NPs. The pronoun it can be regarded as a replacement for a noun phrase identical to the antecedent noun phrase. And in sentence (1) c., the pronoun one can be regarded as a replacement for a noun identical to the antecedent noun.

(1) a. coreferential NPs (coreference): The book is precious because it is well made.
b. 'codesignative' NPs (no coreference): The man who gave his paycheck to his wife was wiser than the man who gave it to his mistress.
c. 'codesignative' Ns (no coreference): I pushed the empty box and the full one fell over.
All these examples are well known (see, for example, Partee, 1970). Attention has been focused mainly on the kind of anaphora which involves coreferential NPs, as in (1) a. I will compare this type of anaphoric relationship to a type that has received relatively little attention. See, for example, sentence (2):

(2) NPs with closely related referents (interreference):

The book is precious because the binding is well made.

In the most plausible interpretation of sentence (2), the binding is a part of the book, although it is unlikely that the close relation between both entities has been explicitly introduced in the previous discourse. In cases like (2), the binding may be considered to be anaphorically related to the book, provided that the binding has not been mentioned in the previous context. Such anaphoric relationships have been investigated by, for example, Karttunen, 1968; Maratsos, 1971; Hawkins, 1978; and Winkelmann, 1978, pp. 111-18.

3 The Relationship between Coreference and Interreference

In describing the anaphoric relation between the book and the binding in (2), we cannot derive sentence (2) transformationally from a structure like (3):

(3) The book is precious because its binding is well made.

From a theoretical point of view, a transformational derivation of a sentence like (2) from a structure like (3) by deleting its is unjustified. Such deletion is excluded by the principle of recoverability (see Chomsky, 1965). And, although the binding of the book might indeed be considered for the underlying form — instead of its binding — the deletion of the preposition of would still be an obscure operation.

Another difficulty illustrating the untenability of the proposal to relate (2) and (3) transformationally is shown in (4), where the anaphoric relationship crosses a sentence boundary:

(4) The book is precious. The reason is that the binding is well made.

Sentence (4), so it can be assumed, has the same anaphoric relation
between *the book* and *the binding* as sentence (2). A transformational derivation of *the binding* from either *its binding* or *the binding of the book* is now obviously precluded because of the impossibility to delete material under identity with material that is not in the same sentence.

Nevertheless, I will try to link the description of interreference to the description of coreference, but without postulating an underlying structure as in (3). I assume that coreference and interreference are related phenomena. This relationship can be illustrated with some data.

Akmajian and Kitagawa (1976) mention that a Japanese relative clause can be bound to its head in two ways: either there is coreferentiality between the head of the relative clause and one of its NPs or there is interreferentiality. This is illustrated in (5):

(5) [sMusuko_j ga Zibun_(j) no secretary to kekkon sita]S

Tanaka_i wa ziboo ziki ni natta.

Tanaka_i, whose son_j married self's (i.e. his_(j)) secretary, was given to desperation.

Binding 1. on the basis of coreference of *Tanaka* and *zibun*;

2. on the basis of interreference of *Tanaka* and *musuko* (in this case *musuko* and *zibun* are coreferential).

Sentence (5) is ambiguous. In one interpretation, *Tanaka* and *zibun* are coreferential; in the other reading, *musuko* and *zibun* are coreferential. It is noteworthy that *musuko* contains no possessive marker which links it to the head of the relative clause.

The same ambiguity can be found in so-called thematic constructions.

(6) [Tanaka_i wa Musuko_j ga Zibun_(j) no secretary to kekkon sita]S

Speaking of *Tanaka*, his son_j married self's (i.e. his_(j)) secretary.

In English, too, we can find signals of the relationship between coreference and interreference. A case in point is a *have* construction as that of (7).

(7) [sCOMP [sCOMP NP_1 [vP [vhave] vNP_2 [ppPrep NP_3] pp] vP] s]s
In such constructions, NP₁ is necessarily either coreferential with NP₃ or interreferential with NP₂ or NP₃. Consider, for instance, sentences (8) – (9):

(8) The book has a spot on it.
(9) The book has a spot on the binding.

The only possible interpretation of (9) is the one in which the binding is interreferential with the book. The binding cannot designate anything else but the binding of the book designated by the subject NP. Sentence (8), however, is ambiguous. In one reading, the book and it are coreferential, but in the other, the book and it are interreferential. In the latter case, it refers to an entity mentioned in the previous discourse. But this previously mentioned entity must be closely related to the book. It can be its title page, for example, or its binding.

The similarity between coreference and interreference in have constructions can further be illustrated with sentences (10) – (11):

(10) Peter has a child with him.
(11) Peter has a child in Canada.

Sentence (10) can have the reading in which Peter and him are coreferential. The child mentioned need not be one of Peter’s children. In sentence (11), however, Peter and a child are necessarily interreferential. A child in (11) must be interpreted as Peter’s child or at least as one of Peter’s children.

4 The Description of Coreference

In the prevailing view on the description of coreference, three principles have been developed:

(12) a. All pronouns are base generated. (Dougherty, 1969)
    b. Only the impossibility of coreference is predictable in terms of grammatical semantics. (Reinhart, 1976, 1979; Lasnik, 1976)
    c. The actual assignment of coreference is a matter of pragmatics. (Lasnik, 1976, p. 2).

My central concern is the question of whether the second principle is
also valid in the case of interreference. And, if not, what other principle is valid, given the relationship between coreference and interreference. Reinhart (1976) has formulated a rule for coreference which is in conformity with (12) b.

(13) Two NPs in a non strict reflexive environment can be coreferential just in case if either is in the domain of the other, the one in the domain is a pronoun. (1976, p. 14)

Under the definition:

The domain of a node A consists of A together with all and only the nodes c-commanded by A. (Or: The domain of a node A is the subtree dominated by the first branching node which dominates A.) (1976, p. 33)

Reinhart calls the relation between A and the nodes in its domain a 'c-command relation', as defined by (14):

(14) Node A c(onsituent)-commands node B if neither A nor B dominates the other and the first branching node which dominates A dominates B.' (1976, p. 32)

Therefore, the domain of A can be defined as all and only the nodes c-commanded by A. The definitions of (13) and (14) can be illustrated with the help of (15):

(15) a.  
\[ X_1 \]
\[ X_2 \]
\[ \text{NP}_1 \]
\[ \text{NP}_2 \]
\[ Y \]

b. \[ [X_1 [X_2 \text{NP}_2 Y] X_2 \text{NP}_1 ] X_1 \ldots \]

The diagram of (15) a. and the labelled bracketing of (15) b. are equivalent. -- X is an arbitrary branching node.
-- NP_1 c-commands NP_2 -- in accordance with (14) -- because NP_1 and NP_2 do not dominate each other, while NP_1 is dominated by X_1, which is dominating NP_2.
Instead of saying that NP_1 c-commands NP_2, we can say that NP_1 has NP_2 in its domain.
-- Since NP_1 c-commands NP_2, they can be coreferential only if NP_2 is a pronoun -- in accordance with (13).
Let us assume that rule (13) is a good starting-point for a comparison of coreference and interreference.

5 The Description of Interreference

If we want to make Reinhart’s rule operational for interreference, we have to look for something that fits the role played by pronouns in the original rule. We can think of relational nouns here, i.e. kinship names, names of body parts and words like *structure*, *size*, *front*, and so on. Now, the question is whether the class of relational nouns is in fact a grammatical class.

Tentatively, the following might be considered as a criterion: a relational noun must be able to be the head of a possessive construction like *A’s B*, *B of A* (‘s) or possessive pronoun + *B*. But this criterion allows that every common noun could be a relational noun, even proper names and also a lot of pronouns. Consequently, the property of being relational can’t have any distinctive value. One could consider reversing the criterion from a sufficient condition to a necessary condition. The effect would be that nouns are relational only if they can be used in possessive constructions — apart from their use in anaphorical cases, of course. Unfortunately, this revised criterion also fails, as is apparent from sentences (16) — (18), which contain so-called relational nouns like *father*, *head* and *front*:

(16) Every man has a father.
(17) Every man has a head.
(18) Every house has a front.

Thus, there does not seem to be a grammatical class of relational nouns. I also conclude that it is impossible to formulate a rule for interreference that might be considered a pendant to Reinhart’s rule, for, as far as I can see, there is no equivalent of the pronoun in her rule. It is true that we can try to find out whether the class of relational nouns can be defined pragmatically. But, in doing so, we give up the claim that interreference can be described in terms of grammatical semantics alone.

As a pragmatic definition of the class of relational nouns, I propose (19):

(19) A noun *X* can be a relational noun with regard to a noun *Y* if in the relevant context of utterance the statement ‘This *Y* has an *X*’ is true.
Definition (19) is pragmatic, since the relevant context of utterance constitutes the cognitive area a speaker may be presupposing as actually given for his addressee. Therefore, the decision of whether the property of being relational with regard to another noun can be assigned or not depends on extra-linguistic conditions. But the decision itself is, so it seems to me, a matter of pragmatics.

Definition (19) is not exhaustive. There may be other relations than just the 'have' relation. Consider (20).

(20) a. The helicopter had disappeared from sight; still, the roaring could be heard.
    b. This helicopter has a roaring.
    c. This helicopter produces a roaring.

In the a. sentence the helicopter and the roaring can be considered interreferential. But the b. sentence does not represent the presupposed close relationship nearly as well as the c. sentence. It is not unlikely that there are other types of cognitive dependency relations (see also Hawkins, 1978, p. 125).

With the help of a definition as that of (19), we are now in a position to formulate a pendant to Reinhart's rule:

(21) Two NPs in a non strict reflexive environment can be interreferential just in case if either is in the domain of the other, the one in the domain has a noun as its head which is a relational noun with regard to the noun which is the head in the other NP.

Rule (21) can be illustrated with sentence (2), repeated as (22):

(22) a. The book is precious because the binding is well made.
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(23) a. the binding is so well made because the book is a present for their king.

   b. \([S\text{COMP} [S\text{COMP} [NP the binding]_{NP} [VP is so well made]_{VP} \text{because } [NP the book]_{NP} \text{is a present for their king}]_{PP} S]\]

In (23) too, *the binding* and *the book* are interreferential. But, as is apparent from the labelled bracketing of (23) b., the NP *the binding* now c-commands the NP *the book* and not the other way round, as in (22). However, we do not recognise (24) as a valid statement in our naive view of the world:

(24) ?This binding has a book.

Consequently, *book* cannot be a relational noun with regard to *binding*, as far as (19) is concerned, and the interreference of *the binding* and *the book* in (23) is wrongly predicted as impossible by rule (21).

It looks as if we are coming to a dead end. But there is a crucial difference between (22) and (23): it is only in sentence (22) that there is an anaphoric relationship between *the book* and *the binding*, although *the book* and *the binding* can be interpreted as interreferential in both sentences.

The absence of anaphoricity between *the binding* and *the book* is apparent from examples like (25) – (26):

(25) Its binding is so well made because the book is a present for their king.

(26) The binding is so well made because its book is a present for their king.

In my opinion, the *its* of (25) can only be interpreted as referring to an occurrence of the book in the previous context. What about (26)? Here, *its* is completely out of place, at least if *its* is to refer to the binding. The only thing it does, is to cause confusion. Therefore, (23) compels us to reconsider rule (21).

Because of the difference between (22) and (23), we have to modify rule (21) in such a way that predictions are made with regard to interreferential NPs just in case they are in an anaphoric relation with each other. The revised rule is (27):

(27) Two NPs in a non strict reflexive environment can be
anaphorically related as a pair of interreferential NPs just in case if either is in the domain of the other, the one in the domain has a noun as its head which is a relational noun with regard to the noun which is the head in the other NP.7

6 The Comparison of the Rules for Coreference and Interreference

The divergence between Reinhart's rule for coreference and the rule for interreference has increased considerably with the introduction of the anaphoric relatedness of NPs in (27). For it is Reinhart's opinion that her rule makes the terms 'antecedent' and 'anaphor' superfluous. According to Reinhart (1976, pp. 50-1):

the problem is not defining the required structural relations between antecedents and anaphors, but rather defining the structural conditions which affect the coreference options of any two NPs.

But I do not agree. First, it cannot be a coincidence that the c-commanded element must be a pronoun in order to make coreference possible, for a definite pronoun is pre-eminently an anaphoric element. And secondly, it is just on this point that her rule goes wrong. It mistakenly predicts that coreference between Nixon and the 37th president of the USA in sentence (28) is impossible:

(28) a. Nixon knows how tricky the 37th president of the USA has been.
   b. [S COMP [S COMP [NP Nixon] NP [VP knows how tricky [NP the 37th president of the USA] NP has been] VP] S] S

The labelled bracketing shows that the NP Nixon c-commands the NP the 37th president of the USA. Yet, the latter NP is not a pronoun, although both are coreferential. However – and that seems to me to be crucial – the NP the 37th president of the USA is not anaphorically related to the NP Nixon. Of course, the question is now how to exclude sentences like (29):

(29) Nixon knows how tricky Nixon has been.

But the oddity of (29) in the reading with coreference between both NPs does not necessarily imply that a rule of the level of grammatical
semantics is violated. In my opinion, a pragmatic rule is violated in this case, namely (30):

(30) In unmarked cases, if at all possible, anaphora is used.\(^8\)

Because the repetition of the NP \textit{Nixon} in (29) is not relevant, (29) can be considered an unmarked case, as opposed to (28), in which the NP \textit{the 37th president of the USA} can be very useful to express that only Nixon's machinations during his presidency are concerned.

Another case in which Reinhart's rule fails is illustrated in (31):

(31) a. The poacher saw the constable when he lit his cigarette.
   b. The poacher saw the constable when the poacher lit his cigarette.
   c. $\left[ S \quad \text{COMP} \quad [S \quad \text{COMP} \quad [\text{NP the poacher}] \quad \text{NP} \quad [\text{VP saw the constable}] \quad \text{VP} \quad [\text{PP when} \quad [\text{NP the poacher}] \quad \text{NP} \quad \text{lit his cigarette}] \quad \text{PP} \quad S \quad S $

To preclude a possible misunderstanding, the non-pronominal version of (31) b. is certainly acceptable. However, as the labelled bracketing shows, the NP \textit{the poacher} dominated by PP is c-commanded by the subject NP. Therefore, according to Reinhart, sentences like (31) b. are excluded. But this prediction is false. The last counterexample I will present against rule (13) is the following: \(^9\)

(32) a. Every bride hopes that she will have a happy marriage.
   b. Every bride\textsubscript{j} hopes that every bride\textsubscript{j} will have a happy marriage.
   c. $\left[ S \quad \text{COMP} \quad [S \quad \text{COMP} \quad [\text{NP every bride}] \quad \text{NP} \quad [\text{VP hopes that} \quad [\text{NP every bride}] \quad \text{NP} \quad \text{will have a happy marriage}] \quad \text{VP} \quad S \quad S $

In (32) b., \textit{every bride}\textsubscript{j} and \textit{every bride}\textsubscript{j} have to be interpreted as co-referential. But \textit{every bride}\textsubscript{j} is not a pronoun, although it is c-commanded by \textit{every bride}\textsubscript{j}. Consequently, unless these quantified expressions are not in the scope of her rule, (32) b. must be seen as a violation.

When the interpretation of \textit{she} in (32) a. is linked to the interpretation of \textit{every bride}, \textit{she} is anaphorically related to \textit{every bride}. In contrast, the interpretation of \textit{every bride}\textsubscript{j} in (32) b. is totally independent from the interpretation of \textit{every bride}\textsubscript{j}, as is apparent from (33):

(33) She hopes that every bride will have a happy marriage.
Notwithstanding the contextual difference, the interpretation of every bride in (33) and the interpretation of every bride in (32) b. can be the same, because the same set of brides can be referred to with both NPs.

The fact that every bride is rightly not pronominalised can be accounted for by considering (32) b. to be a marked case. For what is expressed with (32) b. cannot be expressed with (32) a.

In order to cope with these counterexamples, I propose to reformulate Reinhart’s rule as (34):

(34) Two NPs in a non strict reflexive environment can be anaphorically related as a pair of coreferential NPs just in case, if either is in the domain of the other, the one in the domain is a pronoun.

Both rule (28) and (34) ask for a precise characterisation of the notions anaphoric relation, coreference and interreference. These notions are clarified below:

(35) a. The anaphoric relation is:
     irreflexive, asymmetric, intransitive.
b. The relation of coreference is:
     reflexive, symmetric, transitive.
c. The relation of interreference is:
     irreflexive, symmetric, nontransitive.

Something close to the distinction between (35) a. and (35) b. has been proposed earlier by Hust and Brame (1976) in their criticism of Jackendoff’s Semantic interpretation in generative grammar.

In scheme (36) the various relations between anaphorically related coreferential and interreferential NPs are put together:

(36)

<table>
<thead>
<tr>
<th>NP₂ is anaphorically related to NP₁</th>
<th>NP₁ c-commands +</th>
<th>coreference</th>
<th>interreference</th>
</tr>
</thead>
<tbody>
<tr>
<td>NP₂ in a non strict refl.env.</td>
<td></td>
<td>i</td>
<td>iv</td>
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i. e.g. (1)a.
ii. The book is precious. The reason is that it is well made.
iii. e.g. (28)
iv. e.g. (2)/(22)
v. e.g. (4)
vi. e.g. (23)
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7 Conclusion

Given rule (27) for interreference and rule (34) for coreference, we may say that these rules are fundamentally related. The c-command relation plays a crucial role in both. Thus rule (27) provides a clear example of interaction between grammar and another linguistic system.

If we want to capture the relationship between the rules (27) and (34) in a general way, it can only be done on the level of pragmatics, because, as we have seen, rule (27) is not formulated in terms of grammatical semantics alone. If such a generalisation is right, it provides an argument for the paradigm in which linguistic pragmatics is considered to be a linguistic theory containing the grammatical theory as a sub-theory.

Notes

1. See also the chapters by Chris Lyons and Otto Winkelmann in this volume.
2. Actually, Akmajian and Kitagawa use the terms 'anaphoric connection' and 'intrinsic connection', whereas I speak of coreference and interreference, respectively.
3. Winkelmann (1978, pp. 111-18), though, gives a grammatical or, more specifically, a lexical account for the inadequacy of a text like (i), as distinct from the well-formedness of a text like (ii). Assume that the wheel or the wheels have not been mentioned in the previous discourse:

   (i) The policeman inspected the car of the gangsters.
   The wheel appeared to be deformed.

   (ii) The policeman inspected the car of the gangsters.
   The wheels appeared to be deformed.

He assumes that the lexicon contains such information as in (iii):

   (iii) A car normally has four wheels.

But a statement like (iii) neither characterises the word *car*, nor the word *wheel*, but only the classes of objects usually named with the word *car* and *wheel*.
4. In a similar way, Stenning (1978, pp. 167-8) accounts for the coreference of *the cat* and *the creature* in the following text:

   (i) Fred put the cat out. Freda fetched the creature in.

Here, the hyponym-hyperonym relation between *cat* and *creature* allows the co-referential interpretation of *the cat* and *the creature*. The hyponym-hyperonym relation may not be considered a relation of sense; Stenning rightly characterises it as a pragmatic relation.
5. The need for the restriction 'in a non strict reflexive environment' is not obvious. As for Dutch, the restriction seems to be needed, because the Dutch *hebben* ('have') constructions of (7) require a reflexive NP, in the case of co-
Coreference and Interreference

reference between NP\textsubscript{1} and NP\textsubscript{3}. We may therefore assume that it is no less relevant in the case of interreference. And indeed, NP\textsubscript{1} and NP\textsubscript{3} can be interreferential with a NP\textsubscript{3} that does not have a relational noun as its head. Consider:

(i) het boek heeft er een vlek op
the book has it a spot on
'the book has a spot on it'

With the pronoun \textit{er}, one cannot refer to the book, but only to an entity closely related to it.

6. In order to maintain the parallelism between Reinhart's rule and my proposal, I follow her sentence analyses.

7. This rule (and also Reinhart's rule) does not exclude that NP\textsubscript{1} and NP\textsubscript{3} can be related anaphorically as coreferential in case NP\textsubscript{1} dominates NP\textsubscript{3}, for NP\textsubscript{1} does not have NP\textsubscript{3} in its c-command domain. But this is precluded by the Disjunction Constraint on anaphors, as formulated by Zwarts (1976):

(i) \textit{Disjunction Constraint on Anaphors}
In the structure \ldots [\text{\textsubscript{Ni}X} [\text{\textsubscript{Ni}Y} [\text{\textsubscript{Ni}Z} \text{\textsubscript{Ni}]} \text{\textsubscript{Ni}]} \text{\textsubscript{Ni}]} \ldots
where i \geq 1, Y and XYZ cannot be anaphorically related.

The domain of this constraint can be extended to anaphora with interreference. Therefore, in, for example, \textit{the binding of the book}, an anaphoric relation between \textit{the binding of the book} and \textit{the book} is ruled out, at least in an analysis like the following:

(ii) [\text{\textsubscript{N3} the} [\text{\textsubscript{N1} \text{\textsubscript{N2} binding} \text{\textsubscript{N0}}} [\text{\textsubscript{P2} of} \text{\textsubscript{N2} the} \text{\textsubscript{N1} \text{\textsubscript{N0} book}} \text{\textsubscript{N0} \text{\textsubscript{N1} \text{\textsubscript{N2}}}} \text{\textsubscript{P2} \text{\textsubscript{N2}}}]

Furthermore, in this analysis, \textit{the binding} cannot be regarded as an N\textsubscript{3}. Therefore, an anaphoric relation between \textit{the binding} and \textit{the book} is also ruled out.

Yet if P\textsubscript{2} is not a complement of an N\textsubscript{0} but a peripheral element in an N\textsubscript{3}, there is a difference. Consider, for example, (iii) – (iv):

(iii) a. the book with a spot on it
b. [\text{\textsubscript{N3} \text{\textsubscript{N2} the} \text{\textsubscript{N1} \text{\textsubscript{N0} book}} \text{\textsubscript{N0} \text{\textsubscript{N1} \text{\textsubscript{N2}}}}} \text{\textsubscript{P2} with a spot on} \text{\textsubscript{N2} \text{\textsubscript{N1} \text{\textsubscript{N2}}} \text{\textsubscript{P2} \text{\textsubscript{N2}}}]

(iv) a. the book with a spot on the binding
b. [\text{\textsubscript{N3} \text{\textsubscript{N2} the} \text{\textsubscript{N1} \text{\textsubscript{N0} book}} \text{\textsubscript{N0} \text{\textsubscript{N1} \text{\textsubscript{N2}}}}} \text{\textsubscript{P2} with a spot on} \text{\textsubscript{N2} \text{\textsubscript{N1} \text{\textsubscript{N2}}} \text{\textsubscript{P2} \text{\textsubscript{N2}}}]

N\textsubscript{2} \textit{the book} and N\textsubscript{2} \textit{it} are in a disjunctive position, as well as N\textsubscript{3} \textit{the book} and N\textsubscript{2} \textit{the binding} (notice that the one c-commands the other in both cases). Given these analyses, the Disjunction Constraint rightly predicts that \textit{it} and \textit{the binding} can be anaphorically related to \textit{the book}.

8. Rule (30) suits Reinhart's remark that there is 'a general tendency to use a pronoun rather than a full NP, when the referent has already been mentioned in the discourse' (1976, p. 16).

9. Crit Cremers has drawn my attention to cases like (32).
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THE MEANING OF THE ENGLISH DEFINITE ARTICLE

Christopher G. Lyons

1 Background

Discussions of the meaning of the definite article have been of two general types, the logical and the functional (or pragmatic). Logical approaches have been principally concerned with specifying the truth conditions of definite descriptions, and the best known is that of Russell (1905), with modifications made by Strawson (1950). The pragmatic approaches include most traditional linguistic treatments, as well as more recent work in, or influenced by, the theory of speech acts; their concern is to specify the conditions under which a speaker can appropriately use a definite article, or to say in what way the definite article serves to be informative to the hearer.

Strawson analyses definite descriptions in terms of the two presuppositions of existence and uniqueness. Thus, a sentence such as (1) involves two presuppositions: first, that there is a regent of Spain, and second, that there is not more than one regent of Spain; and the assertion that this individual is blond.

(1) The regent of Spain is blond.

Most pragmatic accounts treat the definite article in terms of its role in reference. It is said to indicate that reference is being made to an object the identity of which is known to both speaker and hearer; this may be because the referent has been previously mentioned in the discourse, because its identity is made clear by the context of utterance, or because speaker and hearer have a certain shared knowledge which serves to make the reference unambiguous. Linguists have long recognised that the article is essentially a functional element, acting to link the sentence to the situation of communication. A purely logical analysis, taking no account of pragmatic considerations, is quickly revealed as inadequate when one examines sentences outside the narrow range considered by many logicians. For example, definite descriptions involving plural and mass nouns, and also a great many involving singular nouns, cannot be accounted for in terms of a presupposition of
uniqueness. This concept is easily modified to cope with such data, as will be seen below, but only if the pragmatic context is taken into consideration.

Among traditional linguistic studies of the meaning of the, the most thorough and interesting is that of Christophersen (1939). He offers a classification of usage types of the definite article, and attempts to establish the appropriateness conditions linking them. He proposes familiarity with the referent on the part of speaker and hearer as the condition for use of the definite article. On the basis of previously acquired knowledge, a definite description, when properly used, 'should call up in the hearer's mind the image of the exact individual that the speaker is thinking of'. Christophersen admits, however, that this condition of familiarity is not sufficiently general. The article may, for example, be used when referring to something which is not familiar, but which stands in 'an unambiguous relation' with some familiar object; when talking of a certain book, one can go on to say The author is unknown. He is clearly on the right lines, but does not give a satisfactory definition of the 'unambiguous relation' between a book and its author that would account for the many other cases where familiarity in his initial strict sense does not apply.

Searle (1969) treats definiteness in terms of its function in the speech act of reference. The essence of definite reference is stated in terms of the two axioms of existence and identification, as follows:

(a) Axiom of existence: there must exist one and only one object to which the speaker's utterance of the expression applies.

(b) Axiom of identification: the hearer must be given sufficient means to identify the object from the speaker's utterance of the expression.

It is interesting to note that Searle incorporates, in axiom (a), the logical presuppositions of existence and uniqueness, and restates them in pragmatic terms. Axiom (b) means that there should be no doubt or ambiguity about what is being talked about; questions such as who?, what?, which one? are answered. This requirement is met by the use of either a demonstrative presentation, or a description which is sufficient in the context to identify the intended object.

A major problem in evaluating Searle's account is that he gives very few examples of utterances meeting, or not meeting, his conditions. It is clear, however, that he does not attempt to explain what kind of description in what kind of context will satisfy the identification
requirement. This important question remains unanswered.

The most substantial recent study of definiteness is that of Hawkins (1978). His analysis integrates, in modified form, and builds on, much of the work of earlier writers, and must be taken as the basis for further discussion. Hawkins's account is a pragmatic one, and stated in speech act terms, but it draws on previous work of both the pragmatic and logical traditions, incorporating what he sees as the principal insights of each. (In fact the balance is more even than it is in Searle's account, which appears to owe much more to Russell and Strawson than to any traditional pragmatic work.) According to Hawkins, the use of the definite article involves the performance of three speech acts. The speaker

(a) introduces a referent to the hearer;
(b) instructs the hearer to locate the referent in some shared set of objects;
(c) refers to the totality of the objects or mass within this set which satisfy the referring expression.

I shall assume that act (a) is uncontroversial. Acts (b) and (c) I shall refer to henceforth as the acts of location and inclusiveness respectively (these terms being Hawkins's). The former of these is essentially a greatly refined version of Christophersen's concept of familiarity, but one adequate to cover those cases where the referent itself cannot be said to be familiar to the hearer. In a similar way, inclusiveness is a modified version of the presupposition of uniqueness. It is modified in two ways: first, it is reformulated so as to be applicable to plural and mass NPs, and second, it is expressed as a pragmatic rather than a logical concept. Both these modifications are necessary for 'uniqueness' to be of any value outside the limited range of singular NPs denoting objects unique in the world.

It will be observed from this survey that throughout the history of discussion of definiteness three concepts keep recurring, in varying forms and under different names, and sometimes in a logical, sometimes a pragmatic guise: existence, uniqueness/inclusiveness, and familiarity/location. Most accounts combine at least two of these. My purpose is to consider the relevance of the second and third (ignoring the first). I take familiarity/location, in the form it assumes in Hawkins's book, to be central to the meaning of the, though it must be further modified to iron out certain inconsistencies in its predictions. But I shall argue that uniqueness/inclusiveness is not part of the meaning of the definite article, even though many definite references must be interpreted as inclusive.
2 Location

Hawkins offers a classification of uses of the definite article based largely on Christophersen’s classification but with some additions. He gives eight usage types, some of which are illustrated by (2) – (12).

(2) Bill was working at a lathe . . . Suddenly the lathe stopped.
(3) Bill was working at a lathe . . . Suddenly the machine stopped.
(4) Fred travelled to Munich . . . The journey was long and tiring.
(5) Pass me the book.
(6) Beware of the dog.
(7) What’s wrong with Bill? — The woman he went out with last night was nasty to him.
(8) The man to go and see is my friend Bill Smith.
(9) Will you get me the box over there in the corner?
(10) The woman whom some sailor dated last night spread nasty rumours about Bill.
(11) My wife and I share the same secrets.
(12) The first person to sail to America was an Icelander.

Examples (2) – (4) illustrate the anaphoric use, in which the definite NP recalls some antecedent in the discourse; the antecedent is not necessarily lexically identical to the anaphoric NP (5), nor even is it necessarily another NP (4). In the visible situation use a definite NP is used to refer to something visible to both speaker and hearer, as in (5), uttered in a room where there is just one book; the description used must be applicable only to the referent. Sentence (6) as a sign on a gate would function as an immediate situation use; the referent is in the situation in which the act of reference occurs, but is not necessarily visible to both parties. The definite article informs the hearer of the existence of a dog and instructs him to use the situation to find it. The larger situation use is where a definite NP serves as a first-mention of some object in the village, country, etc. where the reference occurs. Members of a community share a body of knowledge of entities existing within the bounds of that community; this knowledge enables inhabitants of the same village to speak of the pub, the church, fellow Englishmen to speak of the queen, the prime minister, inhabitants of this earth to speak of the sun, without ambiguity. The general knowledge use is where a speaker lacks specific knowledge of, for example, the town he is in (because he is a visitor), yet can still refer successfully to the town clerk because he knows that all towns have, or towns tend
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to have, a town clerk. Associative anaphora is probably the most frequent use. Once reference has been made to a book (or the book), one can go on to speak of the author, the pages, the content; these are the associates of the original trigger — significant parts or attributes of the larger object or situation represented by the trigger. The associations must be known to both speaker and hearer. The unfamiliar uses with explanatory modifiers are those cases where a modifier identifies the situation or association set which makes the use of the possible. Hawkins distinguishes four subtypes. First, establishing relative clauses ((7) — (10)) relate the new definite referent either to some previously known object (Bill, represented by he, in (7)), or to the participants or objects in the speech situation (as in (8), where it must be either the speaker or hearer who needs to see somebody, and (9), where the referent is related deictically to the immediate situation); (10) fails as a first-mention definite because the woman is related in the modifier to an unknown object (some sailor). Second, associative clauses relate closely to associative anaphora, but the trigger is provided in a modifier rather than in the previous discourse: the author/pages/content of this book. Third, NP complements are expressions such as the fact that I am going to retire, the rumour that the prime minister is going to resign, where the complement clause permits the NP to function as a first-mention definite; they are similar to previous discourse anaphoric uses, except that the identifying information follows rather than precedes. Fourth, nominal modifiers are very similar to NP complements, but the modifier is not a clause: the colour red, the name Algernon, the number seven. Hawkins's eighth usage type is ‘unexplanatory’ modifiers ((11) — (12)); some modifiers, principally same and superlatives, require the. Hawkins considers these apart from other uses, in terms of his concept of inclusiveness.

These usage types (apart, perhaps, from the last) all point to the generalisation expressed in Hawkins's speech act (b), location. The referent of a definite NP must be part of the previous discourse, the immediate or larger situation, or an association set. These larger entities, which speaker and hearer have in common, are termed ‘shared sets’. When a definite NP is used, the hearer must infer which shared set is intended and locate the referent in it.

One important point has to be made regarding Hawkins's classification, and this will lead to a major modification in the hypothesis of location. He discusses introductory frames, like this is the... in the context of the visible situation use, clearly because such a frame would only be appropriate when the referent is visible in the situation; and he
observes that, in the visible situation use, it is only after such an introductory frame that the description used need not be known by the hearer to be applicable to the referent. But it is not the presence of the object in the situation that makes the use of the possible. The situation must be one in which the object belongs. Thus, *this is the steering-wheel* and *this is the pub* would be possible first-mentions in a car and in an English village, respectively, but *this is the dog* would not succeed as a first-mention in either situation. For this reason, *this is the steering-wheel* would be a general knowledge use — everyone expects a car to have a steering-wheel; and *this is the pub* would be either a larger situation or a general knowledge use. Other such cases could be anaphoric or associative anaphoric, for example *this is the author* — either the author previously mentioned or the author of the book previously mentioned. The point is that the syntactic frame does not determine the usage type, and the definite NPs in this frame, though necessarily referring to something visible, are not a peculiar and problematic subtype of the visible situation use (problematic because indefinites can also occur with the same frame — a point Hawkins fails to observe), but rather perfectly ordinary examples of other usage types. As I have said, Hawkins makes the point that these introductory frames permit a description which the hearer does not share knowledge of (provided the referent is in its normal context, as noted above), as in (13):

(13) This is the goosh-injecting tyroid

(uttered inside a space-rocket, of which the object referred to is an essential component). There is clearly no general knowledge on the hearer’s part involved here, and this suggests that in this and the other examples it is the visibility of the object rather than general knowledge etc. that makes the use of the definite article possible. But these introductory frames are not, as Hawkins implies, unique in allowing unknown descriptive predicates. First, situational and associative anaphoric uses occur in which the association is not known to the hearer. Consider the following examples:

(14) I’m coming to Copenhagen tomorrow; I suggest we meet at *the Little Mermaid* at six o’clock.

(15) Meet me at *the horse-trough* tonight.

Example (14) may be successful even though the hearer has never heard
of the Little Mermaid, provided he is prepared to assume that it is probably a well known landmark in Copenhagen. Similarly, although the hearer of (15) is unaware of the existence of a horse-trough in the town he happens to be in, and although horse-troughs are no longer a typical feature of towns, he is likely to accept the utterance, assuming that the town must have a horse-trough, to which anyone can doubtless direct him. These definite descriptions serve to inform the hearer of the existence of a referent in a situation or of an associative relationship. One might add, of course, the immediate situation use of example (6), which informs the hearer of the existence of a dog in the appropriate shared set (the immediate situation), rather than appealing to knowledge of this set membership. More important, however, are cases where the description is completely new to the hearer; these too are not restricted to occurring after introductory frames, as (16) – (17) show:

(16) When you arrive in Mexico City, make your way to the zócalo.

(17) Beware of the spotted bubal.

With (16), the hearer, a monoglot Englishman, may have no idea what a zócalo is, but if he is prepared to assume that it must be an important feature of Mexico City, or of Mexican cities, the definite description will be successful. Again with (17), few hearers, or readers, would know what a spotted bubal is, but most would guess that it is probably an animal, perhaps one capable of inflicting harm on humans, and that there is one in the vicinity; the utterance, or written notice, would thus be successful. I shall have more to say about these examples, but the immediate point is that the successful use of unknown descriptive predicates in definite NPs is not restricted to the visible situation use. In utterances beginning this is the... , it is the demonstrative in the introductory frame, rather than the definite article in the following NP, which requires that the referent be visible.

The important modification that this discussion leads to in the account of location concerns the data regarding what is or is not a successful use of a definite NP. In the case of my examples (14) – (17) above, judgements would probably vary considerably; the success of the definite reference in these examples depends on the hearer's willingness and ability to co-operate in the conversation by using his imagination or powers of reasoning in the ways I have indicated. The hearer could, however, fail to co-operate in this way, and reject the definite reference by means of a wh-question (such as the what? or what horse-trough?). This is true both of those cases where the description is
unknown, as in (16), and those where the association is unknown (that is, where there is no previously existing shared knowledge of the existence of the referent in the shared set, the definite NP serving to establish this knowledge), as in (15).

This observation does not, however, distinguish my examples from Hawkins's and thus invalidate the point I made above in relation to (14) – (17). For the same applies to some of his usage types, for example those with an establishing relative clause, where the relative is introducing new information rather than referring to knowledge already shared. Thus, in (7), if the hearer is not already aware that Bill went out with a woman last night, he may object I didn't know Bill was out with a woman last night; such a reply has exactly the same function as a wh-question in other cases — to tell the original speaker that his use of a definite NP was inappropriate. The same is true of the other three unfamiliar uses, where the modifier is establishing set membership which is not the subject of previously shared knowledge. (18) – (20), examples of associative clause, NP complement and nominal modifier respectively, can all evoke an I didn’t know. . . response if the hearer does not know that the Financial Times has a sports page, is not aware of the fact referred to in (19), and does not know that aubergine is a colour; again, the hearer could also choose to accept the definite references as establishing the required knowledge.

(18) I always read the sports page of the Financial Times from beginning to end.

(19) People are often surprised by the fact that Cromwell was half Eskimo on his mother's side.

(20) Fred's decided on the colour aubergine for his new garage.

Hawkins's eighth usage type also provides examples of the same phenomenon, when the relative accompanying a superlative introduces new information. Thus, in (21), if the hearer is unaware that the Irish Sea has ever been swum, he may reject the definite with an I didn’t know . . . reply.

(21) The first person to swim the Irish Sea was a Cossack.

This feature of the acceptability data does not only apply to NPs with explanatory modifiers. My own examples (14) – (17) are situational or general knowledge uses, and similarly, an immediate situation use such as (6) (Hawkins’s example), where the hearer does not know of
the dog referred to, can be rejected with a wh-question if the hearer chooses not to be co-operative (though wisdom would probably encourage co-operation in this case!), or if he is sceptical of the truth of the notice. Similar situational examples are not hard to find:

(22) The new maid is frightfully careless.
(23) I'll get the butler to show you out.

If the hearer, a visitor in his new neighbour's house, is not aware that his host, the speaker, has a maid and a butler, he has the choice of accepting the definites of (22) and (23), treating them as concealed informative speech acts, or rejecting them; the former would normally be expected by conversational convention. Examples of anaphoric and associative anaphoric uses occur in (24) -- (25) and (26) -- (27) respectively, where the same observation applies if the hearer is not already aware of the relationship between anaphoric NP and antecedent or associate and trigger.

(24) Fred was thinking about Daphne, when the old girl appeared beside him.
(25) Basil was fiddling with the controls of his brother's DC10, when the jet began to move.
(26) Florence is selling her house; she finds the cellar too cramped.
(27) Have you read Lloyd George's autobiography? The ghost writer did a lousy job.

Particularly interesting anaphoric cases are those involving 'affective' nouns, as in (28), where the hearer may not share the speaker's estimate of Bill, and can either protest or accept the definite description as an expression of the speaker's opinion.

(28) Bill was here last night, and the bastard wouldn't go until we threw him out.

Finally, Hawkins's unknown description after an introductory frame, as in (13), can also provoke the reply the what?

The general point here is that there is a certain 'fuzziness' in the acceptability data, in those cases where there is some element not already known to the hearer, that is, where the relevant shared set is not known to include the referent. In these cases, the definite reference is intended to establish the presence of the referent in a shared set, and
may be accepted by the hearer as so doing; but it may also be rejected as not strictly meeting the conditions for definite reference. Success depends on the hearer’s being prepared to co-operate, accepting a less strictly constrained use of the definite article, and he can validly claim (by means of a wh-question or an *I didn’t know...* response) that the use of *the* is inappropriate. This establishes two levels of acceptability, not distinguished by Hawkins (who seems to reject arbitrarily some, but not all, examples from the lower level). The primary level applies where the object referred to is known by the hearer to belong to a particular shared set; the definite article is being used in its ‘literal’ meaning, and will always be successful. The secondary level applies where the hearer does not have the appropriate knowledge in common with the speaker, but rather than unnecessarily announcing a communication breakdown, he accepts the utterance as establishing that knowledge (as indeed the speaker expects he will). The distinction is clearly important for a pragmatic theory, and has to do with communicative competence rather than reflecting the semantic complexity of the definite article. This discussion does not invalidate the general hypothesis of location, but a qualification must be added to it. The literal usage requires the referent of the definite NP to be known by both speaker and hearer to belong to a shared set. But there is a ‘looser’ usage, in which this shared knowledge does not previously exist, but is established by means of the definite reference which, understood literally, presupposes it.

3 Inclusiveness

Hawkins’s formulation of inclusiveness overcomes, in the obvious way, the problems posed for the condition of uniqueness by plural and mass NPs. Thus, while the NP *the queen of Hungary* can be used to refer to a single, unique object, it is clear that *the kings of Europe* and the *oil of Kuwait* cannot. But all these NPs can be used to refer to the totality of objects or mass to which the description applies. In the case of singular count nouns, totality and uniqueness amount to the same thing; the totality of queens of Hungary (at any one time) is not more than one. Secondly, since uniqueness in an absolute sense cannot account for the vast majority even of definite references involving singular count NPs (*the man, the blue shirt*, etc. — there is not just one of each of these in the world), the totality has to be within the pragmatically constrained set required by the speech act of location.

The great majority of successful definite references can be
characterised as inclusive, in this sense, but I wish to claim that the inclusiveness is a consequence of the meaning of the definite article rather than being part of the meaning. For Hawkins, the is equivalent to all the; he discusses examples such as (29):

(29) I met three students . . . The two students were drunk.

He contends that the definite description in (29) fails because it does not refer to all three students, and therefore does not meet the requirement of inclusiveness. But it could also be argued that the failure is due to there being more than one possible set of two students in the group of three; this would appear to be equally a violation of the inclusiveness requirement, but it could also be a violation of a requirement that the reference must be merely unambiguous.

There is, in fact, an important class of definite references which are not inclusive, but are successful none the less. Consider the following immediate situation examples:

(30) Close the door.

(31) Put out the light.

(30) could be used successfully in a room where there are three doors, only one of which is open, and (31) could occur in a room where there are several lights, but only one on. In both cases it is a matter of an immediate situation use; there is no previous discourse reference to the object or to a trigger. And clearly the referent is not unique in the immediate situation; the reference is not inclusive. But the speech act would be perfectly successful, because one can only close an open door, only put out a burning light. The verb in each case is not applicable to all the objects in the shared set which satisfy the referring expression; it therefore disambiguates the reference. One might try to argue that the shared set, for example in (30), is that subset of the immediate situation which consists of open doors, the verb close pragmatically reducing the set. Such an argument could probably be found to counter any objection to inclusiveness, adding each time to the list of usage types of the, but the result would be to seriously weaken the hypothesis of location in a shared set. It seems that if the reference is made unambiguous by some element in the sentence outside the NP, then inclusiveness need not apply.

Consider two somewhat different examples. I am watching Fred fix his car; he places a large nut in position, and says to me:
Fred knows as well as I that there are three spanners to choose from, but he deliberately uses a definite NP because it is clear that only one of the three is large enough to fit the nut. Again it must be an immediate situation use (if the idea of the shared set is to remain interesting), but since something in the situation (the size of the nut Fred is dealing with) makes the reference clear, the reference need not be inclusive. Returning to the room with three doors — all three are now closed; Gertrude stands dressed for a journey, a suitcase in each hand, and says:

\[(33)\text{ Open the door for me, please.}\]

It is fairly obvious that she wants the street door opened, not the bathroom door or the bedroom door. Because there is no ambiguity, the non-inclusive definite reference is perfectly permissible.

My conclusion from these uses is that inclusiveness is not part of the meaning of *the*. Rather, the definite article indicates that the reference is unambiguous for both speaker and hearer. This may be because there is some element in the utterance or in the situation which makes the reference clear (within the shared set), that is, the intended referent is made salient in the set;\(^9\) or it may be because the reference is to everything in the set satisfying the description.\(^10\)

Hawkins argues in favour of inclusiveness by showing that it accounts for a number of ungrammaticalities. Since it is essentially inclusiveness that distinguishes definiteness from indefiniteness, he is able to test his hypothesis syntactically by showing that certain ungrammaticalities involving definite and indefinite NPs are due to an incompatibility between the article and some other element in the sentence which has either inclusiveness or exclusiveness as part of its meaning. These ungrammaticalities are accounted for equally well, however, by my own hypothesis, in which non-ambiguity of reference replaces inclusiveness. Hawkins gives ten arguments; I shall take just one of them to demonstrate this point.

Superlatives can only occur in definite NPs:

\[(34)\text{ the tallest girl(s) at the party}\]
\[*(some)\text{ tallest girl(s) at the party}\]

This, says Hawkins, is because superlatives involve inclusiveness; there can be no other objects satisfying the description *tallest girl(s) at the party*.
party than the object(s) referred to. But for this very reason, the reference is also unambiguous within the shared set since : can be to no other girl(s) than the one(s) satisfying the description tallest.

On many, probably most, occasions, the definite article has to be interpreted as inclusive. Thus if I say after a class The students seemed to be asleep, one might reply No, not all of them; some were wide awake. My hearer has, quite correctly, interpreted my remark as applying to all the students. But this is because there is nothing in my remark to indicate that a specific subset of the students is intended. Inclusiveness is inferred on the basis of the non-ambiguity requirement plus the context and the pragmatics of the situation. There is nothing in the utterance or the situation to make any subset of the objects satisfying the description salient; and since the definite article compels the hearer to assume that it must be clear to him which of these objects are intended, he is forced to infer that all of them together constitute the referent.

One of the most principle advantages of this analysis is that it greatly simplifies and renders more satisfying the account of the relationship between the definite article and demonstratives. According to Hawkins, demonstratives are restricted to anaphoric and visible situation uses, and they do not refer inclusively; they are, in fact, neutral with respect to inclusiveness except when they are stressed, when they must be exclusive. Thus, for Hawkins, definites and demonstratives have little in common; the latter, in fact, have much more in common with indefinites, which refer exclusively. This seems strange when one considers the close syntactic relationship between demonstratives and the definite article; demonstratives have generally been analysed, in fact, partly in terms of a feature [+ definite] (see, for example, Stockwell, Schachter and Partee, 1973, p. 130, and Lyons, 1977). Hawkins recognises that both definites and demonstratives refer unambiguously, but this fact is not reflected in his analysis. It would be, of course, in mine. Demonstratives are distinguished in Hawkins's analysis by the matching constraint — the hearer is expected to match the referent with some identifiable object. This constraint replaces location and inclusiveness for demonstratives; in my analysis it, or something like it, would be merely added to the requirements of the, location and non-ambiguity. This is more in accord with traditional assumptions, and with the syntactic behaviour of these determiners. It also makes it easier to account for the numerous instances of languages acquiring a definite article in their historical evolution, making use of a demonstrative form for the purpose; the matching constraint is lost by some process of
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weakening, and what is left is a definite article.

4 Conclusion

To summarise the findings of this investigation, the definite article indicates two things. First, that the referent is part of a shared set, a pragmatically restricted set of entities constituted by the previous discourse, the situation, or an association set.\(^12\) Strictly, the speaker is appealing to the knowledge the hearer shares with him that the referent is part of such a set, but there is also a looser usage, in which the definite description actually informs the hearer that the referent is part of a particular shared set. Second, that the reference is unambiguous within the shared set. This is either because the referent is made salient in relation to other entities which also satisfy the description used, by some feature of the utterance or the situation, or because the reference is to everything in the set satisfying the description.

Notes

1. In Russell's account the two presuppositions are not distinguished in status from the overt assertion; the sentence is said to involve three propositions.

2. Note that the definite article has the function of indicating, not that the object referred to is unique, but that the speaker intends to refer uniquely, that he has a single object in mind.

3. Hawkins's choice of the term locate is unfortunate because of the ambiguity of this word between the senses of 'find' and 'place'. He seems to have the former sense in mind, but this is not entirely clear.

4. It will be observed that the modifier in this sub-type is in fact a phrase, not a clause.

5. 'Previous discourse' is used in a somewhat loose sense to include unfamiliar uses in which a modifier, which is of course subsequent information, functions in the same way as a previous discourse mention of the referent.

6. Hawkins's account presents two related inconsistencies between usage types, which he does not explain. In certain uses, such as the anaphoric and associative anaphoric, he claims that knowledge of the association or set membership on the part of the hearer is essential; but he allows immediate situation uses in which the referent is not known by the hearer to be in the shared set (as in (6)), and similarly, he allows establishing relatives to establish knowledge, not already shared, of the relevant set membership. As for completely unknown descriptions, he appears to allow them only in the visible situation after this is the ... I believe both these distinctions between uses to be mistaken.

7. The two types of reply are not, of course, exactly equivalent. A hearer makes an I didn't know... reply to indicate that he was not previously aware that the referent was part of the relevant shared set. A wh-question seems to indicate either that the hearer has failed to identify the appropriate shared set, because he
does not know the referent to be a member of the most obvious set (for example the town in (15)); or that he is unable to locate the referent in a set, because the description used of the referent is strange to him ((16) – (17)); the first type of failure would provoke a 'which-question' (which/what horse trough?), the second type a 'what-question' (the what?). It should be noted in addition that an I didn't know... reply can be simply an observation, not involving rejection of the definite reference; the intonation would be different in this case.

8. Hawkins collapses the visible and immediate situation uses, using the latter term for both.

9. The use of the term 'salience' here was suggested to me by Asa Kasher.

10. Hawkins poses the question why the refers inclusively, and answers that it is to ensure that the reference is unambiguous.

11. This is not quite correct in fact. The following example of a demonstrative with an establishing relative occurs in the body of this paper, and is, I believe, a correct use:

This is true...of those cases where the description is unknown...

12. A further type of shared set is discussed by Platteau in this volume; this involves sets of abstract representatives of species, within which the referents of singular definite generics are located.

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1 Introduction

Demonstratives are an intriguing and challenging topic for philosophers and linguists, and anyone who pretends to have a theory of meaning and empirical evidence to support it has to be able to reconstruct the meaning of demonstratives. The semantics of proper names is a well developed (I would even say an over-developed) area within the philosophy of language. The semantics of demonstratives, however, is still controversial and in many respects non-existent. My claim, however, is that an overall theory of meaning is relevant only if it can treat demonstratives in a valid and sensitive way. This was precisely Frege’s intuition when he reached the conclusion that his otherwise truly aesthetic theory of meaning, and in particular its sense-reference distinction, had to be amended radically because of the semantic peculiarities of demonstratives. (I will enlarge on Frege’s unhappiness later.)

This chapter will be about I, which is often considered the central ‘demonstrative’ in natural language. The theory of demonstratives can take many shapes, only one of which is seen as relevant to the theory of meaning: the one in which the whole domain of demonstratives is concentrated around I. I will call this type of theory the egocentric theory of demonstratives, as opposed to the ostensive theory of demonstratives.

Let me first clarify the terminology. First, the notion of demonstrative is traditionally used for the category of words the meaning of which has, as a prerequisite, an associated demonstration (including, in most cases, the accompanying pointing). The purest examples are this and that (demonstrative pronouns), although the adverb there is very close to this/that. Here, on the other hand, is already a problematic case: do I have to associate a demonstration (by pointing) to mean something with here, or do I simply have to be somewhere as an I to mean something with here? He, too, can be used as a demonstrative in the ostensive sense (He is a murderer). Remember, however, that this/that are not always used as demonstratives: this/that can also be anaphorical, referring to a syntagm in an earlier sequence of the discourse; and anaphora can never be demonstratives in the ostensive sense.
Secondly, this traditional view has been supplemented, and deictic categories are now included as a subgroup of demonstratives. *I, you, now* (and *here*, I think) are the purest examples. The referent of these expressions is dependent on the context of use, with the meaning of the expression providing a function or a means that determines the referent in terms of certain aspects of that context. The battle, certainly, will be waged on how this definition of *I, you, now and here* is to be made precise, but for the time being, I shall retain this rather vague approach to the meaning of deictic categories. There are derivatives of these categories (i.e. *me, my, your, at this moment, today*, etc.), as well as extensions (i.e. *we, yesterday, tomorrow*, etc.). All these deictic entities acquire their meaning because of their intrinsic relationship to the context of utterance.

Many terms have been used for this class of words: 'token-reflexives' (Reichenbach), 'egocentric particulars' (Russell), and 'indexicals'; but the choice of terms, evidently, is arbitrary. I will use the following terminology: 'demonstrative' as a generic term, 'pure indexical' and 'pure demonstrative' as two sub-classes, one of which necessitates an associated demonstration while the other does not.

```
DEMONSTRATIVE

pure indexical
[paradigm: I]
DEIXIS
pure demonstrative
[paradigm: this/that]
OSTENSION
```

The distinction 'pure indexical' versus 'pure demonstrative' is clear-cut in its abstraction, but I will argue that the distinction is nevertheless an abstraction, and not in fact an opposition but rather an axis with a continuum of intermediate positions. The starting-point remains that some demonstratives require an associated demonstration in order to determine their referents: these demonstratives are the pure demonstratives, and, in this case, the demonstrative expression refers to that which the demonstration demonstrates: that is, a linguistic rule assumes that such a demonstration accompanies the use of the pure demonstrative. It is possible that the demonstration does not have an object (in the case of hallucinations, for example); but demonstratives without demonstratum have to be clearly distinguished from demonstratives with no associated demonstration at all. On the other hand, no associated demonstration is required for pure indexicals; and any demonstration supplied in the case of pure indexicals is either irrelevant or for
stylistic and rhetorical emphasis. The speaker refers to himself when he uses \( I \), and no amount of pointing to someone else in his environment can reverse this reference.

At this stage I could conclude that the referent of a pure demonstrative depends on the associated demonstration, whereas the referent of a pure indexical depends on the context of its use. But this would conclude nothing more than the terminological issue. No substantial definition of the meaning of demonstratives would have been offered. Without going deeply into empirical linguistic matters, I will state my position by reduction and in four stages, concentrating on the meaning of \( I \), which will be seen as paradigmatic for the whole domain of demonstratives (and even more, for the meaning of natural language fragments as such). The four theses I defend are the following:

1. \( I \) is a referring expression, but not a proper name;
2. \( I \) is a demonstrative, but not a pure demonstrative;
3. \( I \) is a propositional function, but not a mode of identification; and
4. \( I \) is a designator but not a rigid designator.

2. \( I \) Qua Referring Expression is not a Proper Name (or, against a Non-existent but all too Possible Kripkean Theory of Demonstratives)

Let us start from the very beginning and analyse the first reduction quickly. It is commonly agreed that reference by language fragments is accomplished by at least the following three grammatical procedures: (1) by proper reference (this is the fixed reference by means of such proper names as Deng-Xiaoping and Pekin); (2) by descriptive reference: this is the case of definite and indefinite descriptions where lexemes are modified by the definite or the indefinite article (one should say that in these cases, the first function of the descriptive expression is always predicative, and the derived function referential, as in such definite descriptions as the Vice-Premier of China); and (3) by pronominal reference by means of demonstratives (grammatically, pronouns and pronominal adverbs). Linguists\(^1\) point out that the further combination of these three procedures is always possible: expressions such as Chaplin/with the black hat, Amsterdam/of the punk generation, any human/here and our lovely/Margareta contain combinations of proper, pronominal and descriptive elements. But this combination, even when it creates semantic redundancy, does not eliminate the specificity of the procedures themselves.
Precisely from the simple viewpoint of the economy of linguistic means, the existence of the three procedures enables us to construct an architecturally pleasing theory.

(1) Proper names refer to individuals in their unicity, but they do so without determination by the context: the act of uttering a proper name and the context of an utterance (speaker, time, space) does not influence the semantic content of a proper name. Surely, one can discuss—and this is the burning issue in the controversy about proper names—whether there is an aspect of their semantic content which is an intralinguistic means of referring (Frege, yes; Kripke, no); but it can be accepted that the semantic content is itself context-free. The Kripkean doctrine that proper names rigidly refer to their causal history (and, in fact, to the baptising of the individual by his proper name) is an argument exactly against the context-boundedness of the meaning of proper names.

(2) Demonstratives refer to individuals in their unicity, but they do so by determination from the context: there is no causal history of demonstratives; rather, there is a referential use of demonstratives, and this use is meaningful in context (and for pure demonstratives, by the associated demonstration).

(3) (In)definite descriptions function in many ways: they can function either as predicative expressions (non-referentially) or as referential expressions; and in the case of the latter, they can achieve reference either as a proper name or as a demonstrative achieves reference. Such versatility makes the status of (in)definite descriptions truly complex. But a theory of (in)definite descriptions will depend on an overall theory of reference and predication on the one hand, and on a theory of proper names and of demonstratives on the other. In this respect, a so-called theory of (in)definite descriptions will be a derived theory. This contains an important lesson: it does not follow from the fact that definite descriptions can function as proper names and as demonstratives that proper names and demonstratives are adequately characterised when they are said to be definite descriptions—we all know about Russell's difficulties when defining proper names as definite descriptions. A theory of the meaning of natural language fragments will never be based upon a theory of definite descriptions—as it was in Russell: the theory of meaning must be constructed on an orientation to the sub-theory of demonstratives; and this is so because of the
undisputed fact that natural language use is use of language in a demonstrative (and deictic) context.

Let me now enlarge on this apparently common-sensical statement. *I*, indeed, is a kind of referring expression; but it is misconstrued if regarded as a proper name. Linguists notice that *I* has the syntax of a proper name and that it is a substitution for personal proper names in subject position (provided appropriate adjustments are made to verb inflection). Nevertheless, this cannot logically mean the reduction of the meaning of demonstratives to the meaning of proper names. Anscombe, in her pioneering article, ‘The First Person’, correctly opposes such a reduction, although she does so by means of an argument that loses its force for anyone who has accepted Kripke's anti-Fregean semantics of proper names. Anscombe argues that if *I* is a proper name, its reference cannot be slight but must be associated with a criterion emphasising the re-identification of the individual for whom it stands; and of course the application of such a criterion seems not to be an essential part of the meaning intended by the use of *I*. This argument evidently loses all force once it is stated that proper names themselves refer slightly (or rigidly) and without an associated procedure for establishing identification (and you have to state this explicitly when you live in the Kripkean era).

The philosophical point I would like to make is that the meaning of a demonstrative — and paradigmatically of *I* — is not the meaning of a proper name, regardless of whether you have a Russellian conception of proper names (the meaning of the proper name is the meaning as a (set of) definite description(s)), or a Fregean one (the meaning of a proper name is the mode of identification of the individual), or a Kripkean one (the meaning of a proper name is its referent, namely the causal history of the named referent). In fact, all philosophical theories of meaning have taken the use of a proper name to be the prototypical use of language entities: this sweeping generalisation goes from Russell and Frege to Kripke, Donnellan and Putnam. The dream of a language with nothing but proper names is an old and bad dream with strong metaphysical roots — namely, the idea of a language comprised of the terms the meaning of which is exhausted by a one-to-one correspondence to particulars in reality. Russell — as in fact all logicians — stresses the representational function of language: that is, the fact that language represents objects, events and states of affairs, while referents are the conditions of value (truth value, of course) of linguistic fragments. Once demonstratives in language are taken seriously,
a highly specific alternative picture of language functioning is possible: deixis and ostension are never pure representations of the world; they permit interventions in the established structure of reality, they are praxes. Language acquires argumentative, transformational and interactional force, and as such acquires practical (and not only truth) value, once the deictic and ostensive workings in language use are realised. Reality and the intersubjective environment are both changed by these workings; and once the pure representational function of language has been transcended, it would be very inappropriate to regard logic — even when logic is extended to include so-called 'natural logic' — as responsible for the reconstruction of the practical and interactional value of language fragments. When I stated that *I* is a referring expression but is not a proper name, I meant precisely that *I* does not refer representationally, as proper names do. The context-sensitivity of demonstratives is not purely passive: to say *I*, *now* and *there* has practical value since such fragments are constitutive with respect to the interactional and intersubjective context. To consider language capable of performing this transformational role is to re-evaluate demonstration vis-à-vis representation, or demonstratives vis-à-vis proper names.

3 *I* Qua Demonstrative is Not a Pure Demonstrative (or, against the Existent but Impossible Russelian Theory of Demonstratives)

The second reduction I would like to discuss is the following: *I* is a demonstrative but not a pure demonstrative. This is not only a thesis about *I*, but also a way of hierarchising the domain of demonstratives. Indeed, the unification of the overall domain can be realised in two different ways: there is the 'ostensive' qualification of demonstratives (and Russell gave the most radical version of it), and there is the 'ego-centric' qualification of demonstratives in which the paradigm of demonstratives is *I* (of which Frege is a sophisticated spokesman). Saying that *I* is a demonstrative, but not a pure demonstrative, connotes as well that all demonstratives (even *this*/*that*) can be explained by their relation to *I* rather than to *this*/*that*.

Russell3 easily eliminated the problem of the heterogeneity of demonstrative expressions in language. According to him, all deictic and ostensive categories can be reduced to the base category *this*/*that*. The meaning of *this*/*that*, then, is (a) neither the meaning of a grammatical proper name (look at Russell's odd argument: proper names are
always applicable to various objects, and *this/that* is only applicable to one object in one specific spatio-temporal situation); (b) nor such a definite description as, for example, *the object which is now in the scope of my attention* (individuation of *this/that* would still require deictic and ostensive categories in the definite description, such as *now* and *my attention*); (c) nor such a general concept as, for example, *that which all objects called successively ‘this/that’ have in common* (because a general concept does not carry the meaning of the spatio-temporal uniqueness of *this/that*).

We may therefore summarise three aspects of Russell’s solution to the problem of the unification of demonstratives as follows:

1. The reduction of all so-called egocentric particles is made in one direction. The meaning of *here* is *the place of this*; of *now*, *the time of this*, and of *I*, *the biography to which this belongs*. *I am*, according to Russell, means *this is*; *I am warm* means *this is heat or heat is here*.

2. *This is x*, indeed, is equivalent to *property x is here (is present)*. Thus, the circumstances of the use of deictic and ostensive categories are the direct stimuli for the linguistic act of deixis and ostension. Russell clearly identifies physical (and physico-psychological) presence and linguistic *now*.

3. As a matter of fact, the meaning of *this/that* is reducible to the meaning of the names of what, in reality, is present for the speaker. This goes back to Russell’s ontology, logical atomism, and the dream of the logically perfect language. Egocentric particles are logical proper names or expressions in one-to-one correspondence with logical atoms.

Fortunately, the Fregean doctrine is more sophisticated; moreover, the unification of the overall domain of demonstratives goes in the other (and this time, correct) direction. To understand the motives of Frege’s theory of demonstratives, one could wisely review Peirce’s classification of signs according to the three well known classes of symbols, indices and icons. To recall the definitions: (1) **symbols** are linked by the interpreter to the object with the aid of a conventional rule of great generality: i.e. *red* is a symbol in the sentence *the table is red*; (2) **indices** are linked to the object by the interpreter, who postulates an existential relation by, for example, a gesture (the pointing), as in *this is a table*; and (c) **icons**, of less importance here, are signs in which the object is exemplified, as in the diagram of a machine.
Demonstratives are evidently indexical symbols: language entities with, on the one hand, a fixed conventional or symbolic meaning, and on the other hand, a changing indexical meaning corresponding to the particular circumstances of the utterance. The difficulty Peirce thematises with respect to demonstratives was, indeed, the fact that demonstratives always have the same symbolic meaning but with varying indexical meaning.

Frege's semantics, with its sense-reference distinction, is the best candidate for a coherent post-Peircean definition of the status of indexical symbols. A Fregean would argue that to understand the meaning of demonstratives, three types of knowledge — two necessary, one optional for the domain of pure indexicals — are to be presupposed in the speaking subject who is using and understanding demonstrative language: (1) knowledge of the spatio-temporal location of the utterance of the language fragment: to know the meaning of now, I have to know when the language fragment has been uttered; to know the meaning of here I have to know where the language fragment has been uttered; (2) knowledge of the rules of linguistic use (i.e. knowledge of the symbolic meaning of demonstratives): one has to know that I has the symbolic meaning of the person uttering the language fragment; and this in this city, the symbolic meaning of the city in which the utterance of the language fragment is realised. This second type of knowledge has to be considered the essential and necessary means for the realisation of the first type of knowledge — that is, the purpose of demonstrative language use. (3) As I said in my opening terminological remarks, the first and second types of knowledge will suffice for the production and understanding of deictic meaning; the third type of knowledge is optional for the understanding of pure indexicals but necessary for the understanding of pure demonstratives. Indeed, to understand ostensive meaning one must have knowledge of the direction of application, either by explicit ostension or by supplementary description. This, therefore, becomes a pure demonstrative in the expression this tree (in contradistinction to this city, where this seems to be the extension of an indexical). There is no spatio-temporal location possible without knowledge of the direction of application. This, at least, is the orthodox and easy solution when qualifying pure demonstratives.

These distinctions would be structurally and aesthetically perfect if there were not the fundamental difficulty of how to consider the first type of knowledge required to understand I. There is something more to the meaning of I than merely the person who is here and now, or
its spatio-temporal qualification. There is a supplementary difficulty with \( I \), and Frege’s displeasure with demonstratives originates in the intuition of this difficulty. Let us recall Frege’s treatment of this problem. Dr. Lauben saying ‘I have been wounded’ means by \( I \) an un­communicable self-presentation. I quote Frege:

Now everyone is presented to himself in a particular and primitive way, in which he is presented to no one else. Dr. Lauben thinks that he has been wounded, and so he will probably take as a basis this \textit{primitive way in which he is presented to himself}. And only Dr. Lauben himself can grasp thoughts determined in this way. But now he may want to communicate with others. He cannot communicate a thought which he alone can grasp. Therefore, if he now says ‘I have been wounded’, he must use the \( I \) in a sense which can be grasped by others, perhaps in the sense of \textit{he who is speaking to you in this moment}, by doing which he makes the associated condition of this utterance serve for the expression of this thought.\(^6\)

Frege’s problem is easy to understand. His theory of meaning is directed explicitly against the idea of private meanings. Within the framework of his realistic ontology uncommunicable meanings should be inadmissible. Meanings are public because of the fact that the objectivity of the world is public. If deictic entities, such as \( I \), had private meanings, there would be islands of subjectivistic darkness in the language: some primitive aspects of myself (and possibly of my ‘place in the world’) would be presentable (knowable) only to myself. This could be a serious crack in Frege’s theory of meaning, indeed, but the fact is that it should not be.

The question of what the speaker knows about himself when he says \( I \) is of no importance at all. Anscombe runs aground on the same irrelevant problem. She observes, correctly, that if we think of \( I \) as referential, we must take it that its reference is guaranteed and not simply in the sense that the user of \( I \) must exist (this is trivial because otherwise we would not use \( I \)), nor even in the sense of the guaranteed existence of the object meant by the user. But more: the guarantee is that what the user takes to be the reference of the term is indeed the reference of the term. So far, so good. Also good is the thesis stating that if we have such a guarantee, then the reference of the term \( I \) cannot be anything corporeal (if it were, somebody in a state of total sensory deprivation would lack this guarantee). The remaining part of the argument, however, gets out of control. She argues that if we choose to think of \( I \) as
referential, we must in any case account for the kind of thing for which it stands. And nothing less than a Cartesian Ego will serve. But that kind of Cartesian Ego is imponderable: no account can be given of what would guarantee continuity of reference through my successive uses of \( I \), or even guarantee that any single use does not refer in a multiple way. And Anscombe's (wrong) conclusion is that despite the analogies, \( I \) is not a referential expression.

The problem of the private of the meaning of \( I \) quickly disappears once one admits that the meaning of \( I \) is not an epistemic meaning, not a belief, and not a thought. I argue that no special form of knowledge/belief about an object is required or presupposed in order that a person may entertain a singular proposition involving \( I \). From this position it follows that the ignorance of the reference does not defeat the referential character of \( I \), and, hence, of demonstratives. This is aimed at refuting so-called 'Acquaintance Theories of Reference', according to which the speaker's knowledge of the referent, rather than the form of reference, determines whether an utterance expresses a singular proposition containing \( I \).

Let us assume that Frege's uneasiness with demonstratives, especially with \( I \), can be regarded as a local weakness, and that the architecture of his theory of meaning can in any case be saved. The substance of our second thesis — namely, the centrality among demonstratives of \( I \), and thus the hierarchy within the group of demonstratives itself, and the fact that \( I \) is not a pure demonstrative (i.e. cannot be explained by reduction to \( this/that \)) — are also admitted. Setting aside the local weakness, are we then able to revert to the scheme of the two (or three) types of knowledge for the production and understanding of demonstratives? This would mean, in the case of \( I \), that the speaker of the language should understand \( I \) as a propositional function (first type of knowledge) as well as a mode of identification (second type of knowledge).

4 \( I \) Qua Propositional Function is Not a Mode of Identification (or, against the Semi-Existent but Quite Unhappy Fregean Theory of Demonstratives)

This is precisely the point where philosophers of language become true anti-Fregeans. If \( I \) is a propositional function — and unlike Anscombe and other so-called Direct Acquaintance theorists, I think it is — then \( I \) cannot be a mode of identification as well. Or: the way to be a referring
expression (purpose) is not by being a mode of identification (means). If this is true for I, it will also be true for the whole scale of demonstratives (from the pure indexicals all across the axis to the pure demonstratives).

Kaplan\(^7\) cites such sentences as the following examples to illustrate the difficulty of the Fregean viewpoint:

\(I\) do not exist.
\(I\) wish \(I\) were not speaking now.
It will soon be the case that all that is \(now\) beautiful will be faded.
\(I\) was insulted \(yesterday\).
It is possible that in Belgium, in two years only those who are actually \(here\) \(now\) will be happy.

The thesis which holds \(I\) to be a propositional function (without being a mode of identification) does not mean that \(I\) and the other demonstratives have no fixed semantical rule of use which determines their referent in each context of use. There is a semantical rule which determines the referent in each context of use, but the rule does not generate the fragment from the circumstances of evaluation (the concrete utterance with its intrinsic meaning), but rather from the actual context of use. The rule just provides an object, a state of affairs, or an event, so the Kaplanian distinction between context of use and circumstances of evaluation is highly intelligent and adequate. Circumstances of evaluation are the ‘circumstances’ surrounding what is said on a given occasion of use. This is why the propositional value of an utterance (and \(I\) as a propositional function) has to be distinguished from the sentential value of an utterance: that is, propositions have a ‘context of use’, whereas sentences have ‘circumstances of evaluation’.

The appropriate semantic rule for \(I\) (with possible extensions) could be the following: in each possible context of use, \(I\) refers to the agent of the context. Nevertheless, this designation rule cannot be used to assign a relevant object to each circumstance of evaluation. Take, for example, \(I\) do not exist: under what circumstances would what I said be true? It would be true in circumstances in which I did not exist. Among such circumstances are those in which no speakers and no agents exist. Clearly, \(I\) does not refer to circumstances of evaluation, but to the agent of the context of use; and the circumstances of evaluation do not involve contexts of use and agents who do not exist. Similarly, in the example \(I\) wish \(I\) were not speaking now, the circumstances desired do not involve contexts of use and agents who are not
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speaking. The actual context of use serves to determine the relevant individual, me; and we then set up various circumstances of evaluation of that individual. Consider what is said in the sub-sentence, All that is now beautiful will be faded. I wish to evaluate the content of that remark at some future time; however, what is the relevant time associated with now? It is the time of the context of use, \( t_0 \). In the sentence, It is possible that in Belgium, in two years only those who are actually here now will be happy, here and now are the place and the time of the context of use \( (p_o, t_o) \) and not the set of circumstances of evaluation as they are determined by the modal, locational and temporal operators within whose scope the indexicals lie. Yesterday, in I was insulted yesterday, is yesterday for to, because it would be today if the time were the time of the circumstances of evaluation.

This leads to the formulation of the third thesis: the referent of indexicals, and especially of I, is determined with respect to the context of use. Irrelevant or inapplicable to it is the determination of the referent with respect to the circumstances of evaluation. A slightly different formulation is the following: when what is said in using an indexical, and especially I, is to be evaluated with respect to a circumstance, then the relevant object is the referent of the indexical, with respect to the context of use. To state the case in simpler terms: I is in each of its utterances referential; I refers to the person who utters it, but I may have a different content in each of its utterances according to sentential modes of identification. Heuristically (according to the viewpoint of someone who ‘discovers’ or ‘understands’ I as a referring expression), the order will be reversed: one understands first the relation of the indexical to the sentential circumstances of evaluation, and then its relation to the ontological context of use. David Kaplan, who worked out the distinction between context of use versus circumstances of evaluation,\(^8\) elaborates the following terminology:

<table>
<thead>
<tr>
<th>SENTENCE</th>
<th>Circumstances</th>
<th>Intensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROPOSITION</td>
<td>Context</td>
<td>Content (Meaning 1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Character (Meaning 2)</td>
</tr>
</tbody>
</table>

The Content of I is a sentential function from possible circumstances to intensions (in the classical Carnapian sense); the Character of I is a propositional function from possible contexts to contents. Demonstratives,
and in the first place *I*, have their Character as their meaning. In fact, it
turns out to be dangerous to use the term 'meaning' for the demonstra­
tives because the term is clearly ambiguous. It can be Meaning 1 or
the Content of the sentence, or Meaning 2 or the Character of the pro­
position. This terminology has created today's most appealing 'Logic
of Demonstratives' (Kaplan's), but I will not elaborate on it here for
the simple reason that we still have a step further to go. And this step
further should lead us beyond every possible 'logic of demonstratives'.
As a conclusion on this level, I reformulate the results of the analysis:
*I* is a referring expression (Thesis I), and a true indexical (not a pure
demonstrative; Thesis II), and a propositional function (Thesis III),
but *I* is a propositional function not by being a sentential mode of
identification but by being a propositional designator of the context
of use.

It would be nice if this were the end of the story, but it cannot be.
The end of the story would then tell us: *I* is a rigid designation rule,
and demonstratives are rigid designators. Unfortunately, they are not
— proper names are not demonstratives.

5 *I* Qua Designator is Not a Rigid Designator (or, against the Truly
Existent and Happy Kaplanian Theory of Demonstratives)

The heuristic order in which to understand demonstrative language
use, as previously stated, is the following: first one understands the
relation of the indexical to its sentential circumstances of evaluation,
and then its relation to the ontological context of use. To re-evaluate
heuristics is a side-effect of a more general option: to build up a theory
of meaning as a theory of understanding. All the theories of demon­
stratives I know about are in fact theories on the conditions of the pro­
duction of demonstrative meaning. To re-evaluate the heuristics is to re­
evaluate (as I urged in previous sections) the pragmatics of demon­
stratives. Pragmatics does not mean essentially the restoration of the
context as determining the meaning of the linguistic fragment: the con­
text of use has constantly been the determining factor of the meaning
of demonstratives on the level of all preceding steps of the argument.
But all this remains semantics (or, to mention a term which has been
used in connection with so-called Montague-pragmatics, 'indexical
semantics').

There is no pragmatics without considering contextuality to be inter­
actional. An interactional theory of demonstratives is not an epistemic
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theory – it does not take the thoughts and the beliefs of the speaker and interpreter into account as constituting the meaning of demonstratives (hence my opposition to the so-called Acquaintance Theories of Reference in connection to demonstratives). Pragmatics concerns the role of the I-sayer in an interactional situation and an intersubjective community. The I-sayer (and by extension: the 'you-sayer', the 'this/that-sayer', the 'we-sayer'), signifying I by his utterance, is guided by strategies making communication, interaction and intersubjectivity possible: thus, the I-sayer is 'constrained', but he has, at the same time, powerful rights. Let us look at the fundamental rights of the I-sayer.

Donald Davidson wrote recently9 on the special authority with which speakers attribute mental states and events to themselves. He finds an explanation for this authority in the nature of the interpretative act, for the argument is intended to show that interpretation (heuristics) depends on the interpreter's delegating this authority to the speaker. He calls this phenomenon the First Person Authority. This is precisely the way I would like to go by generalising this notion for all language fragments modified by I – and maybe, all language fragments are modified by a deep and hidden I.

Let me put it this way: the theory of meaning, oriented by its sub-theory of demonstratives, is in fact a theory of understanding (or interpretation). There is no understanding without delegating a special authority to the I-sayer. This special authority delegated by the community (the interpreters, and these are, in the end, all human beings on earth) to the I-sayer consists of the fact that the I-sayer is assumed to have the right of the designation of objects, events and states of affairs in the world, and foremost the object, event and state of affairs he means by saying I. He does not have to know more about himself than the role he plays in interaction and intersubjectivity: saying I (you, we, this/that), the I-sayer refers to his role in the interplay, and he intends to designate himself in this role, and he is assumed to intend so by the community. Therefore, I is a designation rule or a designator, but not a rigid designator.

Let me translate this broad option into technical apparatus and into falsifiable methodological devices. I would say, hinting at the correct orientation: the I of the I-sayer, indeed, is a propositional function – moreover, I is a condition and a principle. I is a condition on force and act types of discourse; and I is a principle of rational and co-operative language functioning. Four criteria of normativity for the use of demonstratives (and the paradigm I) have to be accepted: relevance, expressivity, contractuality and authenticity.10 Theses I, II and III never
transcended relevance and expressivity: relevance is a sentential property of I acquired by its relation to the circumstances of evaluation, and expressivity a propositional property of I acquired by its relation to the context of use (referential context, denotational context). Contractuality will be an actional property of I acquired by its relation to the specific force of speech act types, whereas authenticity is the 'psychological' property of I acquired by its relation to the broadest intersubjective context. Thus, I is a principle: intentions, assumptions, intersubjective interplay are part of the psychological context generating language fragments. The workings of the I on discourse as a whole go further than the grammatical categories of demonstratives. The whole structure of language is organised around the I-sayer and his referring to the role delegated by the community. This is no doubt the essence of the socio-pragmatic view on language, and it would be of great interest to see how this anthropologically oriented position on demonstratives, on demonstrative language use, on the I-sayer, would behave under testing conditions in empirical linguistics.

Notes

1. For example, Leys, 1979.
5. See Burks, 1949.
7. Kaplan (no date).
8. Kaplan (no date).
9. Davidson (no date).
10. I enlarge on these four criteria in Parret, 1979a, 1979b.

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1 Introduction

It is a well known fact that both the definite and indefinite articles can receive a diversity of interpretations and one of the hardest problems in the explanation of the basic principles of determination and quantification is to construct a theory that can account for the different functions of these articles. A number of these functions are illustrated by sentences (1) – (6):

(1) A fish likes water.
(2) A duck passes by, but Joyce does not try to catch it.
(3) The murderer of Jones is insane.
(4) The Strawberry Queen is elected at the beginning of every season.
(5) The pterodactyl became extinct millions of years ago.
(6) The koala does not like water.

In all these sentences the determiner of the NPs in subject position fulfills different roles, which are usually described by predicates such as ‘intensional’, ‘extensional’, ‘generic’, ‘categorial’, ‘specific’, ‘definite’, etc. Although it is possible to cover certain aspects of the meanings of the articles by means of these notions, they tend to stress the heterogeneity of the system underlying all these seemingly different functions, rather than to contribute to a theory that reflects the interrelation of the different meanings.

Such a theory should, for example, be able to give a coherent answer to the following questions or problems: attempts have been made to incorporate the different functions of natural language determination into ordinary predicate calculus, making use of existential and universal quantification and the iota-operator. But suppose that the basic meaning of the definite article is uniqueness, then how can we account for the meanings of sentences like (4) and (5)? We cannot say that there is one and only one entity which is pterodactyl and that this entity became extinct millions of years ago. Neither can we say that there is one and only one Strawberry Queen who is elected at the
beginning of every season. An intensional logic makes it possible to cover the meaning of sentence (4). The verb to elect is, in Montaguan terms, an object-intensional verb. The extension of the direct object is a function of pairs of worlds and times to individual entities. Assuming that when such an object-intensional verb is put in the passive, the subject of the passive sentence remains intensional, we can explain the fact that it is not the same individual that is picked out or elected every season.

Sentences (5) and (6) cannot be so easily translated into intensional logic, because one would have to assume some underlying universal quantifier to explain their meaning, and as is shown in Lyons (1977, pp. 193-7), this cannot be done. On the one hand, universal quantification is too strong, because the discovery of one individual who does not meet the conditions that are premised in the generic statement does not necessarily make this generic statement untrue.

(7) A cat has whiskers.

Sentence (7) is undoubtedly true, irrespective of the fact that someone might show up with a cat whose whiskers have been cut off. On the other hand, simple universal quantification is too weak. Using an example provided by Dahl (1973, p. 109): the fact that the names of all superpowers (provided that the term refers to the USA and the USSR) begin with the letter u does not make it a generic characteristic of any superpower. In other words, there seems to be some kind of distinction between accidental and non-accidental properties. Here the use of intensions cannot be of any help. Consider (8):

(8) The koala is a marsupial.

The intension of the term the koala is a function that picks out in every possible world and at every moment of time the one and only entity that is a koala, but this is not enough. What we need is the one and only representative of the species of koala bears.

Another problem that needs investigation is the fact that there are rather strange differences between definite and indefinite generics. John Lawler (1973, p. vi) gives the following examples:

(9) The madrigal is polyphonic.
(10) A madrigal is polyphonic.
These sentences are both all right. But now compare them with sentences (11) and (12):

(11) The madrigal is popular.
(12) *A madrigal is popular.

Rather unexpectedly, (12) is ungrammatical, and a good theory of determination should be able to account for this fact.

A last question I am going to ask is why categorial interpretation, as found in sentence (5), is only possible with the definite article. If we want to construct an overall theory of determination, these and similar facts will certainly have to be considered and incorporated.

2 Basic Determination

My starting hypothesis is the following. Looking for the basic meaning of determiners is equivalent to looking for their basic function. This means that I shall try to find out whether the articles have a certain function which they fulfil in every situation, in every context. I shall attempt to discover the basic role of the articles in the process of determination.

Determiners could be considered as functions that pick out a certain element or certain elements from a certain set. It is the basic meaning of the articles that provides information to the hearer about the exact type of determination he is dealing with. This set could be characterised as a set of entities over which the hearer intends to quantify. The motivation for the creation of such a set, of any set, is the fact that a number of entities share a property or a series of properties. But these properties can be of very different kinds. I would like to make a basic distinction between two fundamental categories: some sets of entities can be established without reference to any context or specific situation, purely on the basis of inherent, fundamental characteristics of their elements. These sets are basically semantic. Their origin lies in the semantic structure and in the categories of the language. Examples might be the set of red balls, or the set of unabridged dictionaries, etc. Other kinds of properties could be called context-sensitive. These are properties that make it possible to differentiate the elements within a certain universe of interpretation, within a certain situational context. An example of this second type would be the set of male persons that are in a certain room at a certain moment.
It is the purpose of determination to divide a set into two subsets, one containing the elements the speaker wishes to refer to, and another one containing the complement of the first subset. In order to achieve this goal we need a means to distinguish all the different elements. Thus one could enumerate a number of characteristics common to the elements of the subset one wishes to refer to, in contrast to the elements of the complement of the subset.

Now suppose that we have a determination set of the first kind. That means that a set that has been established free from any context. Take the set of red balls. We cannot select one specific element from this set, this superset, by mentioning a property that is common to all red balls, for example their roundness. In order to be able to select the appropriate ball we have to make use of more context-bound properties. We could, for example, say that it is the largest ball that can be found in this or that place, or that is owned by this or that person. Only this gives us a unique point of reference for selecting the particular ball we need.

With a reference superset of the second kind, the one that is defined pragmatically, the situation is exactly the other way around. Since the elements of such a superset are not necessarily of the same semantic type, it is often possible to pick out an element simply by naming one of its fundamental semantic characteristics.

This means that we have two extreme situations: one in which all the elements of the reference superset are of the same kind, and the right element is picked out by naming one of its non-fundamental characteristics, its pragmatic context-bound properties, and another one in which the elements are put together because of some pragmatic principle and the elements are referred to by giving a fundamental semantic property.

My point now is that there are essentially two kinds of determination, definite and indefinite, corresponding to the two kinds of superset. When we use an NP containing an indefinite article, we create a domain that is not necessarily bound to any very specific context and an element of this set is chosen at random. Consider sentence (13):

(13) Bring me a big red ball, will you?

The reference set we begin with is that set of objects which corresponds to the denotation of the common noun, that means the set of all balls. Adjectives are of the Montaguan syntactic type CN/CN, that is they are functions from sets to other sets, mostly subsets. By using
the adjective *red*, the set of balls is restricted to the set of red balls, and, in its turn, this set is confined to the set of big red balls. The task of the indefinite article is then to show that from this non-pragmatically defined set an element is chosen. On the pragmatic level of interpretation, however, this randomness is restricted. In principle we are dealing with the set of all big red balls, and there should be no restrictions as to where the hearer can find this ball. It may be Cameroun, Alaska or Hawaii. But the speaker expects the hearer to bring him the first object that satisfies the description.

The situation is reversed in the case of the definite article. The set that is quantified in, is, as a rule, defined pragmatically, contextually, and does not equal the denotation of the common noun. It is the property expressed by the common noun that distinguishes the entity from the rest of the reference superset. Consider sentence (14):

(14) One evening the man visited me.

We should not forget that this sentence has two different interpretations: it can be a sequel to either (15) or (16).

(15) I'm going to tell you the story of a married couple that lived next to us about three years ago.

(16) I'm going to tell you the story of a man who lived next to us about three years ago.

If we consider (15) as the sentence uttered before (14), then the pragmatic superset would be the set of individuals that the speaker has been talking about, i.e. the married couple. The act of reference is then one of pointing towards one specific member of this set, and since this one member and no other has the property of being male, the speaker can refer to him by means of the NP *the man*. In (16) the speaker has already picked out, by means of the indefinite article, a specific individual, constituting the universe of interpretation on his own.

It is clear that such a view has important consequences on the interpretation of what Donnellan called the 'referential' and 'attributive' meanings of definite descriptions. In the attributive reading of a sentence such as (3):

(3) The murderer of Jones is insane.

the reference superset would be rather large (and would contain, Jones
himself, for example) and the speaker would then pick out one individual, whose identity may not be known, but whom he can refer to easily, because there is only one individual that fits the description of being Jones's murderer. In the other case, the referential reading, the speaker has already limited the reference superset to one person: the one and only entity whom the speaker believes to have killed Jones. Whether the speaker knows the exact identity of the murderer, the exact denotation of the definite description, is basically irrelevant to the meaning of this definite description, in both its attributive and in its referential reading. Note that in some cases there need not be any obvious pragmatic superset at all. Consider (17):

(17) One evening the King of Sweden visited me.

In our actual world there is only one King of Sweden, and this uniqueness is a guarantee for the fact that in all contexts, this King is the same person, which has as a consequence that the context superset can be neglected.

3 Generic and Non-generic Reference

I shall now try to show that the basic principles of definite and indefinite reference are also applicable and extendable to generic NPs. We have the same two kinds of reference supersets; they are constructed in a similar way. Consider sentence (1):

(1) A fish likes water.

The reference superset again equals the denotation of the common noun fish. So it is the set of all fish. We can now interpret (1) as follows: pick out a random element from the set of fish, and you will see that it will like water. This is of course nearly equivalent to saying that all fish like water, and just for the time being we will accept this as the meaning of (1).

The difference between (1) and a sentence such as (18)

(18) pass me a sandwich.

is that the act of picking out the random sandwich is shifted towards the conceptual level. (18) has the pragmatic implication that it should
be a sandwich that is within the reach of the hearer's hand, and not one that should be imported from Botswana. With generic NPs, though, there is no such implication.

As has already been observed in Nunberg and Pan (1975), a generic definite NP can be understood in either of two ways, referentially or attributively. Take sentence (19):

(19) (teacher:) What do you know about the koala?

The context superset of (19) could be a set of animal species the pupil has to study. And in this case the koala means: not the antelope, not the panda bear, not the chinchilla, but the entity that could be called koala. A possible answer of the pupil could then be (20):

(20) (pupil:) The koala lives in Australia. It eats eucalyptus leaves.

Now the context superset has been restricted to one member: that entity the teacher called the koala. This is the referential reading.

In order to prove my point on the existence of a context superset, I would like to adduce the following evidence. Consider the following sentences, which are due to Lawler (1973, p. 112):

(9) The madrigal is polyphonic.
(10) A madrigal is polyphonic.
(11) The madrigal is popular.
(12) *A madrigal is popular.

According to Lawler, (12) is ungrammatical because popularity is a time-linked property that is not a necessary concomitant of the definition of madrigals, which is not an essential property of madrigals in general. This is disputed by Nunberg and Pan (1975). They provide the following counterexamples:

(21) A football hero is popular.
(22) A baby sitter gets $2 an hour.

Let us first tackle sentences (9) to (12). It is clear that there must be some difference between the adjectives popular and polyphonic which causes the anomaly of (12). The most obvious difference is that polyphonic is an extensional adjective, whereas popular is an intensional one. This means that we can assess the truth value of (11) or (12) only
if we incorporate contextual factors. Popularity is a relative concept; there is always a degree of measurement implied, and therefore some context superset. If we say that the madrigal is popular, then this means — or we mean — that the madrigal is more popular than other sorts of music, for example the opera or the suite. In the case of the definite generic article an appropriate context superset is available, and it is possible to compare the elements of this superset. In the case of the indefinite generic article, there is also a superset, but it is not a good one. We have seen that the context superset can be equated with the denotation of the common noun, in this particular example the set of madrigals. This implies that the comparison concerns ‘madrigalhood’. But this parameter makes it impossible to pick out any madrigal and to say that it is more popular than the other objects of the reference superset, because these are madrigals as well. It is nonsensical to say that any random madrigal is more popular than all other madrigals. What about the counterexamples that were given by Nunberg and Pan (1975), then? (22) can be explained rather easily. Getting $2 an hour is an extensional predicate, and since the reference superset in the case of indefinite generics is not context-bound, we can use both the extensional predicate and the indefinite generic in one and the same sentence. What about sentence (21)? Why is (12) ungrammatical and (21) fully acceptable? I think that the adjective popular in (21) has been extensionalised; it has received an absolute value. A football hero, any hero, is popular because popularity is a basic part of being heroic. There is no need for comparison: in all contexts, heroes are more popular than average human beings. Because of this semantic implication the popularity is no longer context-bound but is absolute.

Additional evidence for the existence of a context superset can be found in the following examples:

(23) A poem should be read in silence, not declaimed.
(24) The poem should be read in silence, not declaimed.
(25) A poem should be read in silence, not a play.
(26) The poem should be read in silence, not the play.

According to my intuition, (24) is less acceptable than (23), and (25) less acceptable than (26). The existence of two different supersets is responsible for this. In sentence (26) a comparison is being made between the poem as genre and the play, which is in conformity with the natural interpretation of the definite generic NP and the existence of a context superset such as the set of literary genres. In sentence (25) a
similar comparison is made, but here the comparison involves the set of all poems. In (25) it is presupposed that there is something that should be read in silence, and that the hearer has suggested that this might be a play. The natural way to compare two literary genres is to choose the set of literary genres as reference superset, and therefore to use the definite article. In sentences (23) and (24), it is exactly the other way around. What is related here is not the fact that something is or is not a poem, but rather whether, given any poem, it should be read in silence or declaimed. Therefore we can easily use the set of poems as reference set and so use the indefinite article rather than the definite one.

4 Generics and Universal Quantification

Up to now I have not said very much about the differences between generic and concrete reference. All I have shown is that the basic principles are identical. Lewis (1976) has made a suggestion that appears to be very useful when it comes down to interpreting generic reference. His suggestion is the following: every entity in the quantification set should be linked up with the set of its properties. Lewis calls this set the ‘character’ of the individual. So, the character of an entity called John is the set of all the properties of this John, the character of nobody is the set of all properties such that there is no person who has these properties, etc. There are characters that do not have a corresponding individual. These characters Lewis calls generic. For example, the set of all properties shared by all pigs is equal to the generic character of the universal pig, which is not an element of the universe of interpretation. The problem now is that the creation of such generic characters cannot explain everything. Perhaps the intersection of the characters of all pigs is empty, and if this is not the case, then there may be a number of properties that all pigs have in common, but that still are not felt as belonging to the generic character. Consider the following example:

(27) *An angel plays the harp.

Playing the harp is not seen as a basic characteristic of angels, although perhaps all angels do play this instrument in their spare time.

In order to solve this problem we are going to divide the character of an individual into two subsets. Let’s take the character of a pig. What is considered inherent to pigs, i.e. what distinguishes them from
Definite and Indefinite Generics

other beings and what normal, typical pigs have in common, is brought together in a subset, the generic subset of the character of any pig. So all animals that are pigs will have identical generic subsets. It is of course possible that a number of pigs do not have certain generic properties. Pigs may not have curly tails, because their tails have been cut off, or they may not grunt, because they have lost their voices. This will lead to a contradiction, for I have said that the generic properties subsets of all pigs are identical. So if it is a generic property of a pig to grunt, that property will be included in the generic subsets of all pigs, irrespective of the fact whether they are actually able to grunt. And since certain pigs cannot grunt at all, their non-generic subsets will contain this opposite property. In order to solve this paradox, I will use a concept that is borrowed from computer science, the notion default value (which is related to the philosophical idea of ceteris paribus). The instructions that are given to a computer often involve the specifications of certain parameters or of certain options that have to be taken. In many cases there is one option that has been preprogrammed as the basic option. It is the one that is chosen if the computer operator does not specify any parameters. This option is called the 'default value'. Something similar could be said of entities. For any entity a number of its properties have been predefined as the default value of that entity. These default properties are equal to the generic properties and are shared by all members of the same species. In other words, if it is not explicitly specified otherwise, every member of the species is supposed to possess this default property. This implies that default properties can be cancelled in the non-generic subsets of the characters, and that they should be seen as predispositional rather than concrete. In this way we can explain that it is not necessary for all members of the species to possess the generic property, and that we do not need universal or pseudo-universal quantification to explain genericness. It would not even be necessary to explicitly mention the default properties in the characters of all different pigs. It would be sufficient to state only one property, that of being a pig, and to create a special set, which is called pig and which contains all the default properties of any pig.

5 Final Interpretation

I think the overall picture is becoming clearer now. As we have seen, one uses the indefinite generic article in order to refer to a random
element of a certain species. How is this possible? Simply because the selected sample has the same default properties as all the other members of the species. Although the intercision of the non-default properties may be empty, they all have the generic subset in common. So, if we want to say something about these default properties, it does not matter which individuals we select from the reference superset, which is equal to the set of all members of the species. The interpretation of specific and non-specific indefinite quantification would go as follows; consider (28):

(28) John seeks a unicorn.

The non-specific reading of (28), the one that does not presuppose the existence of unicorns, would say that John seeks an individual entity such that the only condition is that it has the default properties of the species unicorn, and since any unicorn possesses these properties, any unicorn will satisfy him. The specific reading, where John has a certain unicorn in mind, would say that John seeks an individual entity which I know has the default properties of the species unicorn and a number of additional, not further specified, non-default properties.

How then can we interpret generics? The speaker does not point to any element of a certain species, but rather to one definite entity, the abstract representative of the species. But what is the denotation of this representative? Its set of properties is virtually identical with the set of default properties of any member of the species. If we speak of the generic pig, then we refer to that bundle of properties that normal pigs have in common. This is the set that is referred to in the generic subsets of all pigs, which, as we have seen, only contains the property of being a pig. Yet we cannot simply equate definite generic determination with referring to this set of default properties. Indeed, I have claimed that reference always means reference to an element in a certain superset, and in the case of definite reference this superset is a pragmatic one. So we have to find such a superset. This can easily be done. When I was discussing the examples concerning the madrigal, I showed that such a superset does indeed exist, but it is a rather peculiar one: its elements are sets of default properties, which means, names of species. Of course, the elements of the latter sets do not belong to the context superset in the same way as elements of a matchbox are no elements of the set of all boxes. Let’s take sentence (29):

(29) The pig grunts.
The context superset might be the set of all mammal species or all animal species. The elements of this superset are the sets of default properties of the respective species. Saying that *the pig grunts* is then equivalent to saying that the property of grunting is a default property of the species pig and therefore of most pigs, and of no other species.

The fact that we have transcended to a more abstract level, i.e. the default subsets have become elements in a new superset, makes it possible to approach these sets of generic properties from a new point of view. Since a set is a collection of objects that have certain things in common, we can reapply the mechanism of ascribing new default properties to the elements of this new superset. For example, if we take the set of mammal species as the context superset of (29), then every element of this set — the pig, the buffalo, the antelope etc. — receives a number of equal default properties, such as being a mammal, being viviparous and so on. But we can also ascribe non-default properties to each species name. See, for example, sentence (5), (10) or (30):

(30) The angel plays the harp.

All this makes it possible to explain the categorial use of the definite article and the fact that one can predicate non-essential properties to definite generic NPs. We can go on like this, by making the species mammal an element of the superset of vertebrates and again we can apply the whole procedure. The result is a way of representing knowledge that is not unsimilar to semantic networks.

References

Lawler, J. (1973), *Studies in English Generics*, University of Michigan Papers in Linguistics 1, Michigan
Nunberg, G. and Pan, C. (1975), 'Inferring Quantification in Generic Sentences', *CLS* 11, pp. 412-22
1 Introduction

The purpose of the chapter is to demonstrate, comparing the data of three languages with a different distribution of the available determiners, that different devices are used in various languages to express the same or similar degrees of determination and that a sound approach to the comprehension and description of the nature of the phenomenon of determination as well as of the devices expressing it should be based on a semantic theory which would incorporate semantic recursion. Semantic recursion is viewed as a set of operations triggered by certain semantically 'incomplete' constituents of the sentences and aiming at its complete comprehension.

The first part of the paper introduces, describes and analyses the trilingual material. The second part discusses various theoretical frameworks which have been applied to the phenomena in question. The third part puts forth an approach based on semantic recursion.

2 Material

The material of the chapter is limited to 15 basic types of article use in English and their counterparts in Hebrew and Russian. The basic taxonomy is based on Jespersen (1949, pp. 403-579), Smirnickij (1959, pp. 380-7), and other Jespersen-related contemporary traditional grammars of English. Many recent sources (for example Krámský, 1972) seem to be basically compatible with this taxonomy. For the purpose of succinctness, this chapter ignores a number of more marginal, though not necessarily less interesting, uses of the English articles, for example the generic use of the indefinite article.

The other two languages differ from English in as far as the availability of articles is concerned (see Table 7.1). However, it is assumed throughout the paper that, in accordance to the principle of effability, expressibility or universality (see Katz, 1972, pp. 18-19; cf., however, Bar-Hillel and Raskin, 1975), the same or very similar degrees of
Determination with and without Articles 125
determination are expressible in the other two languages. This assumption does not imply an ontological commitment to the above-mentioned principle, but rather a recognition of its convenience as an approximation of reality, at least for the purposes of this chapter. In fact, what is assumed is simply that all the English sentences are translatable into the other two languages. What is not assumed, of course, is that the translations will necessarily reflect the same contrasts and oppositions which can be observed in English. The other languages may be reasonably expected to have oppositions and contrasts of their own, not necessarily coinciding either with English or with each other.

Table 7.1: Availability of Articles in English, Hebrew and Russian

<table>
<thead>
<tr>
<th>Article</th>
<th>English</th>
<th>Hebrew</th>
<th>Russian</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definite</td>
<td>+ (the)</td>
<td>+ (ha)</td>
<td>−</td>
</tr>
<tr>
<td>Indefinite</td>
<td>+ (a(n))</td>
<td>−</td>
<td>−</td>
</tr>
<tr>
<td>Zeroa</td>
<td>−</td>
<td>−</td>
<td>−</td>
</tr>
</tbody>
</table>

Note: a. The last line of the table refers to the phonological and morphological entity rather than to any complicated semantic entity — see below. In other words, the minuses in that line mean simply that the nouns of all the three languages may occur without any phonologically or morphologically explicit article before them.

In Table 7.2 the 15 typical representatives of the basic types of article use in English are translated into Hebrew and Russian. The names of the types are considered to be self-explanatory, especially in conjunction with the examples in the English column, since whenever possible, the choice has been made in favour of the most ordinary, frequently used and syntactically minimal sentences. For further references on the types and for further examples one should be referred to any one of the cited sources, for example to Jespersen, 1949.

Type 1: while the Hebrew translation follows the form of the English sentence, the better way to translate it involves a compound noun phrase (smikhut) ben-adam for 'man' instead of the also acceptable adam. Technically, smikhut requires the use of an article before the second component, i.e. ben-haadam. However, in the contemporary Israeli Hebrew haben-adam is more usual along with numerous similar deviations from the rule. It is the Russian example, however, which presents the more interesting problems for the purposes of this paper. While the Russian sentence is an adequate translation of the English
<table>
<thead>
<tr>
<th>Type of Article</th>
<th>Type of Use</th>
<th>English</th>
<th>Hebrew</th>
<th>Russian</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explicitly given</td>
<td>1</td>
<td>The man I saw there was bald (D)³</td>
<td>Ha (ben-)adam she raiti sham, haya kereakh (D)</td>
<td>Čelovek, kotorogo jam tam videl, byl lys (#)</td>
</tr>
<tr>
<td>Implicitly given</td>
<td>2</td>
<td>He came up to the window (D)</td>
<td>Hu ba leyad hakhalon (D)</td>
<td>On podošel k oknu (#)</td>
</tr>
<tr>
<td>Universally given</td>
<td>3</td>
<td>He saw the sun clearly (D)</td>
<td>Hu raa et hashemesh tov (D)</td>
<td>On jasno videl solnce (#)</td>
</tr>
<tr>
<td>Typical</td>
<td>4</td>
<td>You acted the spy (D)</td>
<td>Hitnahagta kmo meragel (as + #)</td>
<td>Ty vel sebja, kak špion (as + #)</td>
</tr>
<tr>
<td>General</td>
<td>5</td>
<td>The lion is strong (D)</td>
<td>Arye – khaya khazaka (# + Comp)</td>
<td>Lev – silnoe životnoe (# + Comp.)</td>
</tr>
<tr>
<td>Distributive</td>
<td>6</td>
<td>I paid him ten pounds the ton (D)</td>
<td>Shilamti lo eser lirot letonna (per + #)</td>
<td>Ja zaplatil emu po desjat’ funtov za tonnu (per + #)</td>
</tr>
<tr>
<td>Indefinite</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Article</td>
<td>A member of a class</td>
<td>7</td>
<td>Raiti sham ben-adam (#)</td>
<td>Tam ja uvidel čeloveka (WO + #)</td>
</tr>
<tr>
<td>Typical</td>
<td>8</td>
<td>She has never been to a theatre (I)</td>
<td>Lo hayta beteatron (af paam) (Mod + #)</td>
<td>Ona (ni razu) ne byla v teatre (Mod + #)</td>
</tr>
<tr>
<td>Distributive</td>
<td>9</td>
<td>I paid him ten pounds a ton (I)</td>
<td>Shilamti lo eser lirot letonna (per + #)</td>
<td>Ja zaplatil emu po desjat’ funtov za tonnu (per + #)</td>
</tr>
<tr>
<td>Address</td>
<td>10</td>
<td>Professor, where are you? (#)</td>
<td>Professor, eyfo ata? (#)</td>
<td>Professor, gde vy? (#)</td>
</tr>
<tr>
<td>Proper name</td>
<td>11</td>
<td>David, can you hear me? (#)</td>
<td>David, ata shomea oti? (#)</td>
<td>David, ty menja slyšиш? (#)</td>
</tr>
<tr>
<td>God</td>
<td>12</td>
<td>God hears you (#)</td>
<td>Elohim shomea otkha (# + Comp)</td>
<td>Tog teba slyší? (#)</td>
</tr>
<tr>
<td>Kinship</td>
<td>13</td>
<td>Father was there (#)</td>
<td>Aba haya sham (# + Comp) Otec byl tam (#)</td>
<td></td>
</tr>
<tr>
<td>Meal</td>
<td>14</td>
<td>Dinner is served (#)</td>
<td>Arukhat haarev hugsha (# + Comp)</td>
<td>Obed podan (#)</td>
</tr>
<tr>
<td>Zero Article</td>
<td>15</td>
<td>He went to town yesterday (#)</td>
<td>Nasa haira etmol (# + Comp)</td>
<td>On uexal v gorod včera (#)</td>
</tr>
<tr>
<td>Singular (church,</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>town, etc.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: a. The abbreviations in the table stand for 'Definite' (D), 'Indefinite' (I), 'Zero' (#), 'Word Order' (WO), 'Modifier' (Mod), 'Complication' (Comp). A few cases of the latter phenomenon as well as some other less trivial aspects of translation are commented upon in the text.
sentence, this commonplace from anybody's translation experience, namely that the translation does not necessarily translate back into the original, is certainly, and quite revealingly, true here. (In fact, all the translations in Table 7.2 are, by necessity, such one-way translations. It is claimed throughout the table that the English sentences may be translated into the Hebrew and Russian sentences, as specified—moreover, a certain informal warranty as to the quality of the translations in terms of their frequency, ordinariness, acceptability, etc., is certainly given—but it is never claimed that the only possible way to translate the Hebrew or Russian sentences back into English is by using the sentences from the English column of Table 7.2). Thus, the Russian sentence can easily be used in a context (for example (1)i.) which will require the indefinite article in the backward translation (1)ii.

(1) i. Ja ni razu v žizni ne videl lysogo medvedja v tom lesu. Čelovek, kotorogo ja tam videl, byl lys.
   ii. I have not seen a bald bear in that forest in my life. A man I saw there was bald.

For Type 2 it is easier still to find a context in which the Russian sentence will be translated into (2) instead of the English sentence of Table 7.2:

(2) He came up to a window.

Type 3 may be characterised by the same property if a possible world is involved, for example a science fiction world with many suns.

Types 4-6 seem to be much more unsubstantivised (and even less referential) in Hebrew and Russian than in the original English sentences, which is emphasised by the occurrence of propositions in those two languages. In Type 5, both in Hebrew and in Russian, it is stylistically preferable to use their respective equivalents of animal in the translation. In Russian, the word-for-word translation (3)i. of the English sentence strongly implies definiteness in the sense of (3)iii. while the Hebrew word-for-word translation (3)ii. seems to share many of the restrictions on availability exhibited by the generic use of the indefinite article in English.

(3) i. Lev silen.
   ii. Arye khazak
   iii. The lion (I have in mind) is strong.
Type 7 exhibits a typical Russian translation of an English sentence with an indefinite subject. The so-called 'free' word order of Russian is made use of here, with the Russian subject going all the way to the end of the sentence, a standard position for the theme in the language (see also below). This use of the word order in Russian for the expression of definiteness/indefiniteness has often been commented upon and its universality exaggerated in the literature (see, for instance, Krámský, 1972, pp. 190–1). The fact is that the same Russian sentence can easily be a translation of the English sentence with the same subject made definite. Only the 'overdetermination' of the Russian sentence, i.e. the addition of a modifier as *kakoj-to* 'a certain', can render the subject of such a sentence clearly and irrevocably indefinite (4)i. and meaning (4)ii.

(4) i. Tam ja uvidel kakogo-to čeloveka.
    ii. I saw a man there.

Type 8 strongly suggests similar overdetermination, here of a negative character, both for Hebrew and Russian. Both of the modifiers *af paam* and *ni razu* mean ‘not once, not a single time’.

For Type 9 the Hebrew and Russian translations are identical to those of Type 6.

Type 10 admits the definite article in Hebrew but the use is optional, formal and infrequent.

In certain marginal cases Type 11 allows for the use of both the definite and indefinite articles in English ((5)i., (6)i.). Hebrew parallels the English structure for the definite article ((5)ii.), but in the other case, overdetermination occurs, with a determiner meaning 'a certain'. In Russian we always have overdetermination, the determiners meaning 'that' and 'a certain' respectively.

(5) i. The Mary I met there was blonde.
    ii. Hamiryam she hikarti sham ha'ita blondinit.
    iii. Ta Maša, s kotoroj ja tarn poznakomilsja, byla blondinka.
(6) i. I met a Mary there.
    ii. Hikarti sham *eizoshehi* miryam.
    iii. Tam ja poznakomilsja s nekoj Mašej.

Type 12 has a grammatical complication in Hebrew in that the noun is morphologically plural and syntactically singular.

Type 13 may use the definite article both in English and in Hebrew.
The form which is actually used in Hebrew can never take the article and it strongly implies the applicable possessive pronoun. Sometimes, the Russian sentence, on the other hand, may be translated into English with an indefinite article (compare Types 1-3).

Type 14, however, does not allow for the indefinite option in the Russian example. The Hebrew translation contains a smikhut which has to be 'articled' in the regular way, i.e. before the second component.

Type 15 has no indefinite option for the Russian example, either. In Hebrew, the definite article is lexically motivated in the sense that it is sometimes absent (7) and it is further complicated by the presence of the directional suffix -a:

(7)  i. Hu nosea merkaza.
    ii. He is driving to the centre.

3 Theoretical Framework

Various theoretical frameworks have been applied to the study of the article and it is not necessary to review them all here. The central question has always been, no matter whether the researchers are aware of it or not, which of the two alternatives is preferred, the application of some form of 'artificial' logic to language or the discovery of some form of 'natural logic', i.e. the logic exhibited by language per se. On the former alternative, the solution was sought, for instance, in terms of sets and elements. The use of the definite article was justified to denote any element of the set, in a way that is similar to that of a variable taking values in a certain domain. The definite article would donate a certain unique element, in a sense a one-element set, or in some cases, a whole class. Such a straightforward application of set theory or similar attempts would easily account for Types 1-3 and 6, less easily for Type 5 and not at all for the rest.

Bally's important notion of actualisation in the sense of individualisation would fail to account satisfactorily for Types 4-6, 8 and 9 (see Bally, 1950, pp. 77-83). Besides that, the notion is not formal (explicit) enough to be associated with any effective methodology of application.

The latter consideration holds, unfortunately, for the theme-rheme approach to the sentence, i.e. the so-called functional perspective (see Mathesius, 1947a, b; Lapteva, 1963). While there is a large amount of correlation between the use of the definite article and the theme on the one hand, and the use of the indefinite article and the rheme, or
the new information, on the other, no systematic framework for the approach has ever been formulated and the notions of theme and rheme (or topic and comment) remain too vague to be used for the explanation of any other phenomena in language.

Both actualisation and functional perspective are much closer to natural logic, i.e. to the system of regularities and rules displayed by language itself and not imposed on it by any existing logical system or method (on natural logic see Lakoff, 1972; McCawley, 1972; Apresjan, 1974).

Another approach which would fail with regard to the article is the marked-unmarked dichotomy, if applied literally. It is widely believed that the unmarked member of the opposition should not be expressed explicitly and should be associated with neutralised meanings. For the English material of Table 7.2, it is the zero article (Types 10-15) which is not explicitly represented. However, it is the distributive meaning (Types 6 and 9) which gets neutralised (also, perhaps, the generic meanings: Type 5 and the generic use of the indefinite article, which is not represented on the table). In the literature, it is the indefinite article which is often treated as the unmarked member of the opposition.

It will be attempted to demonstrate below that the correct distribution of markedness among the article uses as well as the natural-logic solution of the problem should be semantically based and associated with a specific kind of semantic theory.

### 4 Semantic Recursion

Semantic recursion is viewed as those operations which are necessary for the comprehension of the meaning of a sentence beyond the meaning of its constituents and the ways they are combined into the sentence. Operations of semantic recursion are triggered by various words indicating collectively (grammatically) or individually (lexically) that they themselves or some other elements of the sentence are semantically incomplete and that some additional information should be elicited from the linguistic or extra-linguistic context in order to comprehend the meaning of the sentence. The mechanisms and rules of semantic recursion and the character of the elicited information are determined by the nature of the triggers and the semantic structure of the sentence (see Raskin, 1968; 1971, Ch. 4; 1978).

Sentences may differ as to whether and how many operations of semantic recursion have to be performed for their comprehension.
Thus, any sentence with a personal or possessive pronoun routinely triggers off an operation of semantic recursion which will seek and calculate its antecedent. A small minority of sentences is semantic-recursion-free and some of these can be compared to Bar-Hillel’s non-indexical expressions (Bar-Hillel, 1954) or Quine’s eternal sentences (Quine, 1960; Raskin, 1979). Naturally, recursion-free sentences do not contain any semantic-recursion triggers. It is useful to consider various article uses in English and their renderings into the other two languages in terms of the necessity and/or complexity of operations of semantic recursion associated with these uses.

It is suggested here that the absence of any semantic recursion, i.e. the lack of necessity to perform any operation of semantic recursion, characterises the unmarked, non-expressed case of article use. It is obvious, for instance, that in all cases of individualisation, such as Types 1-3 and 10-15 of Table 7.2, some additional information should be elicited from the context by the hearer in order for him to be able to establish reliably which particular element of a certain class is meant by the speaker (cf. Jespersen, 1949). It is obvious, in other words, that these types are not unmarked.

What follows is a proposal of a semantic-recursion-oriented model of article determination. According to the proposal, it is the referential, transparent use of the indefinite article referring to a certain unspecified element of a class which constitutes the non-recursive, unmarked type of article use. All the other uses are represented as recursive and associated with two basic types of recursive semantic information, dereferentialisation and individualisation.

Under dereferentialisation, the basic notion of referentiality is given up and some additional information is necessary in order to substitute another notion for it. Five variants of non-referentiality are distinguished:

- the noun phrase does not refer to any element of a class in particular but rather to all of them one by one (‗random‘);
- the noun phrase does not refer to any element of a class in particular but rather to any one of them as long as it is one (‗enumerative‘);
- the noun phrase does not refer to any element of a class in particular but rather to a certain property or properties which every such element possesses (‗opaque‘);
- the noun phrase does not refer to any element of a class in particular but rather to all the properties associated with the class (‗qualitative‘).
Table 7.3: Basic Article Uses and Semantic Recursion

<table>
<thead>
<tr>
<th>Types of article use</th>
<th>Non-Recursive</th>
<th>Referential</th>
<th>Non-Referential</th>
<th>Individualised</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Types of semantic information</td>
<td>Linguistically</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Random</td>
<td>Enumerative</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>+</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td>+</td>
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<tr>
<td>3</td>
<td></td>
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<td>4</td>
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<td></td>
<td>+</td>
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<tr>
<td>5</td>
<td></td>
<td></td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>+ (T^a)</td>
<td></td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td>+</td>
<td></td>
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<tr>
<td>9</td>
<td></td>
<td></td>
<td>+</td>
<td></td>
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<tr>
<td>10</td>
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<td></td>
<td>+</td>
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<tr>
<td>11</td>
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<td>+</td>
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<td>12</td>
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<tr>
<td>13</td>
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<td></td>
<td>+</td>
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<td>14</td>
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<td>+</td>
<td></td>
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<tr>
<td>15</td>
<td></td>
<td></td>
<td>+</td>
<td></td>
</tr>
</tbody>
</table>

Note: a. 'T' and 'O' in parentheses in Type 7 stand for 'transparent' and 'opaque', respectively — see, for instance, Partee, 1973. They are listed under one type for the simple reason that traditional studies of the article have always ignored the distinction or rather, more precisely, the Hintikka, 1973, pp. 202-5
Under individualisation, the noun phrase can be individualised linguistically, i.e. on the basis of some other portions of the same text, or extralinguistically, i.e. on the basis of the general context or the situation of communication. In the case of extralinguistical individualisation, sometimes it is contingent upon certain transient conditions characterising a specific situation and in other cases, it holds universally, independently of any particular situation. Table 7.3 demonstrates the relation between the basic types of article use from Table 7.2 and the classification of recursive and non-recursive types of semantic information developed in this section.

It is obvious that the classification of Table 7.3 is applicable to all the three languages to the same extent and is generally language-independent. It can be applied to the investigation of the problem of determination no matter whether the language in question has any articles or not. Since every language can, on the assumption of effability, express any of the types of semantic information, the devices which are used to express them can be studied both individually, for a given language, and typologically, for a group of language. The classification itself, based on the language-independent phenomenon of semantic recursion, would claim the status of a substantive universal.

A complete description of the system of determination in a language would, of course, include a detailed description of the specific operations of semantic recursion associated with every type of semantic information from Table 7.3 and list the specific triggers of these operations. The latter and, in part, the former would be language-dependent.

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1 Introduction

It will be argued in this chapter that, contrary to Postal’s proposal in ‘On So-called Pronouns in English’, pronominals are not determiners. The points made in Delorme and Dougherty (1972) with reference to Postal’s proposal will be supplemented by further arguments which falsify Postal’s hypothesis. After this, Jackendoff’s treatise on $\bar{X}$ syntax will be dealt with. It will appear that Jackendoff tends to embrace whatever seems to support his theory, and tends to ignore or explain away what does not support his theory. Arguments will then be presented to falsify Jackendoff’s proposal that restrictive relative clauses do not modify NPs but Ns. Finally, stacked relatives will be discussed, and it will be proposed that Jackendoff’s version of $\bar{X}$ syntax makes it impossible for him to capture a remarkable $\bar{X}$ generalisation which concerns extraposition and raising, and which accounts naturally for the internal structure of NPs with stacked adjectives.

2 On Postal’s Analysis of Pronouns

In 1966, Paul Postal wrote ‘On So-called Pronouns in English’, in which he claimed that pronouns, or pronominals as I prefer to call them, are determiners in underlying structure.1 His PS rules place an N under the NP. Then, in his derivation of (1), the second N in the sentence is affected by pronominalisation, and the resulting abstract PRO under N transformationally receives a feature $+$ definite, after which the NP over the N sprouts a determiner which is a sister of the N that dominates PRO. This determiner is HE. After this, the determiner is incorporated in the N and the PRO is deleted.

(1) A boy said he left.

To defend his thesis, Postal points to ‘an otherwise unexplained gap
in the NP system with respect to the concurrence of third person pronouns, definite articles, and restrictive relative phrases', and illustrates this with the following examples.

(2) I met the one who Lucille divorced.
(3) I bred the small one.
(4) *I met the one.
(5) I met someone.
(6) I met him.
(7) *I met he one.
(8) Did you see us guys?
(9) You men who wish to escape.
(10) You men here.
(11) You great ones.
(12) The one who she married.
(13) *He who she married.
(14) The one which I ate.
(15) *It which I ate.

Postal suggests that, instead of (4), we find (6), which he derives from (7), in which he is looked upon as an article. He observes that, in the plural, non-third person elements like you and us can occur as surface elements with nouns and/or restrictive relative phrases as in (8) — (11). He also claims that, in the case of third-person elements, he one, she one, it one, they ones do not develop into he, she, it and they when there is a restrictive relative phrase, which he illustrates with (12) — (15). In (12) — (15), we find the one instead of he, and the one instead of it. Thus, when occurring with a restrictive relative phrase, he one becomes the one, and when occurring without a restrictive relative phrase he one becomes he or him in Postal's analysis. Postal takes it as a minor, more or less morphophonemic fact that we do not say things like *he boy, and *she girl who I like instead of the actual forms with the neutralised the.

In 1972, in an article entitled 'Appositive NP Constructions', Evelyn Delorme and Ray Dougherty provide a number of arguments to falsify Postal's theory. In their analysis, we in structures like we boys is not a determiner but a nominal, and boys is an apposition to we, which, as they point out, was also Jespersen's analysis.

I will now present further arguments which corroborate Delorme and Dougherty's analysis, and which show that Postal's claims will not stand. First, let us consider the following examples.
(16) The girl is ashamed of herself.
(17) The girls are ashamed of themselves.
(18) The boy is ashamed of himself.
(19) The boys are ashamed of themselves.
(20) John's daughter is ashamed of herself.
(21) Mary's son is ashamed of himself.

I assume that the head of an NP is the constituent on which the gender and number of the NP depends. In (16) – (21), the subject of the sentence is an NP which is a constituent of a determiner and a noun. In (16) – (19), the determiner is invariably *the*, but the nouns show variations of 
[-plural] / [+ plural], and [-male] / [+ male]. In (20), (21) the determiner is a specifying genitive, and the proper name in the determiner is [+ male], [-male], respectively, whereas the Ns in these subject NPs have the opposite specification. Now the forms of the finites and the reflexives in (16) – (21) show that the subject NPs of (16) – (21), which are all [+ human], are, respectively, [-male, -plural], [+ plural], [+ male, - plural], [+ plural], [-male, - plural], [+ male, - plural]. These features of the subject NPs are clearly determined by the identical features on the Ns which are dominated by these NPs, i.e. *girl, girls, boy, boys, daughter, son*, respectively. The conclusion seems justified that in (16) – (21) the N, and not the determiner, is the head of the constituent of determiner + N. Let us call the view that the N is the head of a determiner + N constituent the ‘N = head view’.

The ‘N = head view’ is based on overt clues. It may, of course, be argued that on a more abstract level of analysis the determiner is specified for number and gender, that the determiner constrains the number and gender of the N with which it links up, and is thus responsible for the gender and number specification of the NP, but that, for instance in the case of the definite article (as in (16) – (19)), the determiner is subsequently neutralised to *the*, which does not show any of these number or gender oppositions in its surface form. In such an analysis, the determiner could be looked upon as the head of the NP. Let us call this analysis the ‘determiner = head view’.

Since the ‘determiner = head view’ is not based on overt clues, it is a less plausible position to take up. Note also that it would be very difficult to maintain that specifying genitives, which are also determiners, on an abstract level of analysis show number and gender differences which are neutralised after they have constrained the number and gender of the N with which they link up. These are some reasons why I take the ‘N = head view’. At this point, it is perhaps not so important
where I stand vis-à-vis the choice between the ‘$N = \text{head}$ view’ and the ‘determiner = head view’. It is, however, of crucial importance to the argument of this article what Postal’s and Jackendoff’s views on the matter are. We shall see below that Jackendoff explicitly endorses the ‘$N = \text{head}$ view’. That Postal (1966) also endorsed this view is clear from the following statements:

However, article elements are introduced only as ‘segments’ in intermediary syntactic structures. In the deepest structures, they are, I shall suggest, not present segmentally but are represented as syntactic features of nouns... (p. 58).

The claim is, then, that, instead of nouns co-occurring with article morphemes in deep structures as in previous transformational and other treatments, superficial structure article differences are represented at the most abstract level by differences in features of nouns, features like definite, demonstrative, and, as we see subsequently, also those involving person and gender properties (p. 61).

A crucial assumption is then that there is a relatively late transformational rule in the grammar which adds certain terminal segments, the traditional articles... to NP which previously contained no such segmental elements. The phonological form of the particular article is determined by the features of the head noun steam... (p. 62, my italics).

Now let us consider examples (22), (23), which contain the NP you guys, which Postal, who endorses the ‘$N = \text{head}$ view’, analyses as a constituent of determiner + N.

(22) You guys should be ashamed of yourselves.
(23) *You guys should be ashamed of themselves.

If it is the head of the NP which determines the compatibility of the NP with a coreferential reflexive, the fact that the NP you guys is compatible with the reflexive yourselves, and not with themselves, shows unequivocally that, within the framework of Postal’s assumptions (i.e. the ‘$N = \text{head}$ view’), you, and not guys, is the head of the NP you guys in (22). This means that you is not a determiner, but a nominal, and that the nominal guys is an attributive post-modifier of the nominal you. In other words, since guys and you are coreferential, guys in (22) is an apposition to you.4

My second counterargument to Postal (1966) is this. Postal claims
that it, he, she, they are to be derived by deletion of one or ones from it one, he one, she one, they ones, unless there is a restrictive relative clause or phrase on the relevant NP. If there is such a clause or phrase, he claims that one or ones is not deleted, and that it, he, she, they preceding one are neutralised to the. This means that in Postal’s view there is a complementary distribution between he, she, it, they on the one hand, and the one or the ones on the other, depending on the presence or absence of a restrictive relative clause or phrase. That this is incorrect appears from the grammaticality of the structures in (24) – (30):

(24) He who laughs last laughs longest.
(25) He who steals once is forever a thief.
(26) . . . she of the noble nipple and massive thigh prepared me for the performance of my nightly duty. (V. Nabokov (1955), Lolita, Olympia Press, p. 78).
(27) I don’t want him there, I want the other bloke.
(28) She there, she is my sister.
(29) Do you recognise any of these men as your assailant?
   Yes, that’s the one.
(30) Nixon is the one.5

Admittedly, constructions of a third-person pronominal modified by a restrictive relative clause are rare and have a formal and somewhat archaic flavour. Further authentic examples of such constructions are, however, to be found in Scheurweghs (1966, p. 114). Note that he in (24), (25) has generic reference within the limitations imposed by the relative clause. He in these examples does not refer to a [+ male, – plural] person who has been previously identified by either the speaker or the addressee.6 Note, further, that he in (25) cannot be paraphrased by the one, since the use of the one suggests that the speaker and the addressee can find the referent of the one in a previously identified set, and this is not the case in (25). The use of she modified by a restrictive prepositional phrase in (26) is also rather formal, but the use of the restrictive modifier there on him and she in (27), (28) is normal colloquial English. Examples (29), (30) show that, contrary to Postal’s predictions, the one does occur without a restrictive relative clause or phrase.

The examples in (24) – (28) are not only counterexamples to Postal’s theory, but also to Jackendoff’s phrase structure rules for nominals. That is why I shall have occasion to refer to these examples again when I deal with Jackendoff’s treatise on X syntax.
A further counterargument to Postal (1966) is the following. If a pronominal and the phrase the one are transformationally related, as Postal maintains they are, their meaning should be, if not identical, at least compatible. This is not the case with (31) and (32), which Postal uses as examples.

(31) The one which I ate.
(32) *It which I ate.

In (31), the one can only refer to one of a class of countable items, whereas it in (32) can be used to refer to either a countable item (for example a cake), or to a substance which is not countable (for example to bread). If in (32) it stands for bread, (31) cannot possibly be the grammatical surface variant of (32).7

It may be objected at this point that it is futile to discuss (32), since (32) is ungrammatical anyway. However, an analysis of what in (33) as a morphic conflation of it which in (34) is conceivable, and has something to be said for it.8

(33) What I ate was bread = (34) It which I ate was bread = (35) It [I ate it] was bread.

The analysis in (33) – (35) invalidates the alleged counterexamples which Emonds (1970, p. 81) puts forward against Ross (1967), who says that an S exclusively dominated by an NP node cannot occur in sentence-interior position. The fact that so-called ‘headless’ relative clauses occur freely in sentence-interior position is accounted for if (35) is transformed into (34), which is surface-realised as (33). For in that case, these so-called ‘headless’ relative clauses are not headless at all. Also the observation in Emonds (1976, p. 136) that there are many contexts in which indirect questions are excluded while independent relative structures can freely occur there is fully consistent with this analysis.

So far, I have done two things:

(1) I have argued that Postal’s analysis of you guys as a determiner + N constituent is incompatible with the ‘N = head view’ which he explicitly endorses. This conclusion was based on examples (22), (23).
(2) I have shown in (24) – (28) that, contrary to Postal’s predictions, restrictive relative clauses and phrases can modify pronominals. These constructions may not be frequent, but they do occur, and if my
analysis of (33) is correct, this means that the independent relatives can be added to the number of constructions in which a restrictive relative clause modifies a pronominal.

3 A Critical Discussion of Some of Jackendoff's PS Rules

Now what is the relevance of the two points that I have made? The relevance of the first point is this. Ray Jackendoff (1977), in *A Study of Phrase Structure*, defends his theory (or, at least, part of his theory) by making the following statement about Postal's analysis of *you guys* and *we three guys*: 'Postal's analysis effectively discounts the theory that the pronoun is head in this construction and the other elements are appositives. . . Thus the pronoun is apparently in article position' (p. 106, my italics). Jackendoff then concludes the section in which he assigns to *we* and *you* a feature matrix that allows them to be placed in either noun positions or article positions, with the following statement: 'Finally, the use of *we* and *you* as articles has provided evidence for the feature system' (p. 106, my italics). In other words, Jackendoff bases this part of his theory on an uncritical acceptance of Postal (1966), and he ignores completely the refutation of Postal (1966) in Delorme and Dougherty (1972), and the counterproposal to Postal (1966) in Sommerstein (1972).

The second point that I have made, namely, that relative clauses can modify pronominals, is also relevant to Jackendoff (1977). Apart from Postal (1966), there has been a fair degree of unanimity among linguists that pronominals are NPs, which in *X* notation are N"s. Indeed, Jackendoff himself places pronominals consistently under N" nodes. Now my examples (24)–(28) are evidence that restrictive relative clauses and phrases can modify N"s, and this means that Jackendoff's base rules for the internal structure of NPs, which I provide in (36)–(38), are falsified. Not that the rule in (37) says that the embedded S (i.e. the restrictive relative clause) is a constituent of N", and a modifier of N'.

\[
\begin{align*}
(36) \text{N"} & \rightarrow \left( \begin{array}{c} \text{N"} \\ \text{Art"} \end{array} \right) - \text{N"} \\
(37) \text{N"} & \rightarrow (Q") - (A")^* - \text{N'} - (PP)^* - (S)^* \\
(38) \text{N'} & \rightarrow \text{N} - (\text{Prt}) - (\text{NP}) - (\text{PP}) - \left( \begin{array}{c} \text{PP} \\ \text{S} \end{array} \right)
\end{align*}
\]

(Jackendoff, p. 83)  
(Jackendoff, pp. 74, 141, 189)  
(Jackendoff, p. 69)
Jackendoff devotes a number of pages to a discussion of the choice between (39), which his phrase structure rules do not provide for, and (40), which is the analysis that he proposes. Jackendoff (1977, p. 170) states explicitly why he hopes that (40) will come out as the better analysis:

The popular Chomsky-adjoined theory [i.e. the analysis in (39)], advocated by Ross (1967), is appealing because of the simplicity of stating the antecedent of the relative pronoun: it is just the entire lower NP. However, (7.3) [i.e. the structure in (39)] is not a possible structure within the phrase structure rule schema of chapter 3, which requires every X_i to immediately dominate an X_{i-1}. If at all possible, we would like not to have to weaken the schema for the sake of relative clauses (my italics).

(39) (Jackendoff's (7.3))

Similarly, Jackendoff (1977, p. 197) states that his analysis, i.e. the analysis in (40), does not require 'a weakening of the fundamental base rule schema, like the Chomsky-adjoined theory [i.e. the analysis in (39)]. This last consideration is most important to the general goals of this study' (my italics).

It seems to me that, just as in his acceptance of Postal (1966), Jackendoff, while trying to find evidence to support his theory, overlooks evidence which falsifies it. For example, there are three prominent classes of single-word NPs, namely personal pronouns (he, she, etc.), indefinite pronouns (something, nobody, etc.) and proper names (John, Mary, etc.). Now Jackendoff does point out that (41), in which the antecedent of the restrictive relative clause is a proper name, is ungrammatical, but he does not inspect examples in which the antecedent is a different single-word NP. The fact that such examples are available is illustrated in (24), (25), (42), (43), and points to (39) as superior to (40), which means that Jackendoff's rules in (36) and (37) are falsified.
(41) *John that came to dinner sneezed.
(42) Something that I said must have amused her.
(43) Nobody that knew him grudged him his success.

Of course it should not go unnoticed that (41) is ungrammatical. It should be realised, however, that (41) is, in itself, not a counterexample to (39), but (24), (25), (42), (43) are counterexamples to (40).

Jackendoff's observations on the differences between restrictive relatives and non-restrictive relatives are interesting, but, in the last resort, they only indicate that restrictive relatives are, indeed, different from non-restrictive relatives. They do not point to (40) as the only conceivable analysis.

Now let us turn to the mechanism for relativisation which Jackendoff uses. He realises that if a relative pronoun is taken to replace a literal copy of its antecedent, this provides no problems for the analysis in (39), but it leads to infinite regress in the analysis in (40), since, in order to replace a constituent which includes both the and man, who would have to replace N''' in (40), which also includes who itself. This is why Jackendoff looks upon who as a form whose semantic structure, if it were composed of syntactically separable elements, would consist of a WH-element under an Article node and a sort of pronominal under the N'' which is the sister of this article. Jackendoff's views on a relative WH-element as dominated by a determiner node in underlying structure can be accepted without any problems. In fact, Lakoff (1968), as reprinted in McCawley (1976), already suggests such an analysis (p. 328). Jackendoff looks upon the WH- as a placeholder which triggers rules of semantic interpretation. To put it simply, the WH- dominated by Art marks its head as coreferential with the N which is the head of the antecedent and thus restricts the potential reference of the N which is the head of the antecedent. The WH-article is therefore neither definite nor indefinite, which makes feature changes on articles in cases of second mention in the relativised constituent unnecessary.

The diagrams in (44) and (45) are more detailed versions of (39) and (40), in which who has been syntactically analysed into an Art + N structure, the Art being the coreferentiality marker WH-, and the N carrying only those semantic features which are necessary for agreement with the head (i.e. man in (39), (40)), and with the verb of the relative clause (cf. Jackendoff, p. 174).
The question which now presents itself is whether this version of relativisation is compatible with examples like (24), (25), with a single pronominal as the antecedent $N'''$. I propose that it is, if we analyse pronominals as single-word lexicalisations of sub-trees of Det + N as, for example, in (46).
An important problem in constructing a grammar of English is, therefore, the following: Granting that in general the definite or indefinite character of an NP is indicated by its article, how is definite status to be assigned formally to NP based on the so-called pronouns? A possibility is to assume simply that the pronouns are a subclass of nouns which occur in deep structures only with the nondemonstrative definite article the.

Some advantages of the analysis in (46) are: (1) all deep NPs, in so far as they do not directly dominate an S, can be looked upon as constituents of a determiner and a noun; (2) this analysis accounts for the fact that pronominals are found in N''' slots, but not in N slots, as is illustrated by the grammaticality of he is ill and the ungrammaticality of the he is ill; (3) the paucity of semantic features in the N accounts for the width of the potential reference of the pronominal; (4) because the pronominal is a single-word lexicalisation of a constituent of determiner + noun, it cannot contain 'modifier-shifted' elements.

I will not deal with Jackendoff's remarks on the scope of quantifiers in restrictive and non-restrictive relative structures which he uses to argue his preference for (40) over (39). As long as (47) and (48) are not discussed within the framework of a very explicit and convincing theory of quantifiers, I am not convinced that (47) and (48) point to (40) as superior to (39).

(47) Any man who drives a Cadillac is insane. (Jackendoff, p. 175)

(48)*Any man, who drives a Cadillac, is insane. (Jackendoff, p. 175)
4 Stacked Adjectives and an Alternative to 'Modifier-Shift'

Jackendoff concludes his discussion of the choice between (39) and (40) with an argument relating to stacked restrictive relative structures. Whereas stacking is easily possible in the Chomsky-adjoined analysis in (39), Jackendoff's phrase structure rule illustrated in the intuitively unlikely structure in (49) does not allow stacking, but only recursion of sister $\overline{\text{S}}$s.

(49)

Jackendoff argues that placing strong stress on contrasting relatives and effacing stress on other relatives can produce stacked interpretations. But even if we grant that particular stress patterns can lead to stacked interpretations, this does not entail that no stacking is allowed in the syntactic organisation of (50).

(50) The men who hated lox who came to dinner.

(Jackendoff's 7.40 a)

I will conclude this chapter by showing that, rather than worrying about the recursion of $\overline{\text{N}}''$ in (39), Jackendoff should have embraced (39) as an analysis which strongly confirms the basic observation of $\overline{\text{X}}$ syntax, that there is a striking correspondence between the behaviour of $\overline{\text{S}}$s and NPs. To make my final point, two preliminary observations are necessary.

The first observation relates to the phenomenon that we call modifier shift. Jackendoff's base rule in (37), which generates unlikely structures of the type in (49), implies that there is no such thing as a modifier-shift phenomenon. His rule generates strings of non-coordinated adjectives, all of them dominated directly by $\overline{\text{N}}''$, directly before $\overline{\text{N}}'$ as in (49) and (51).
Now it is certainly true that not all premodifying adjectives can be derived from predicating adjectives by means of relative-clause reduction and modifier-shift. Think, for instance, of *parental*, or *polar*, or *tropical*. For a discussion of such words, I refer to Levi (1978). There are also words like *mere*, *very* and *utter*, which have no post-modifying or predicating correlates. Still, there are good reasons not to scrap the notion modifier shift too easily. In the large majority of cases, English shows a complementary distribution of adjectival pre-modifiers and adjectival post-modifiers, as illustrated in (52).

(52) a blue sky *a sky blue
an asleep child a child asleep

Also, English shows a very regular correspondence between nominal phrases of the two types in (53):

(53) a. a blue sky — a sky which is blue
b. a young person — a person who is young
c. a really highly extraordinary development — a development which is really highly extraordinary
d. a sometimes dangerously aggressive animal — an animal which is sometimes dangerously aggressive
e. a perhaps not very felicitous solution — a solution which is perhaps not very felicitous

A modifier-shift phenomenon would account for this regular correspondence. If there is no such thing as modifier-shift, we must look upon the complementary distribution in (52) and the regular correspondence between the two columns in (53) as coincidental, and separate rules must be devised for the generation of the complex internal structure.
of the pre-modifiers in (53) c., d., e. That such rules would turn out to be fairly involved is suggested by the fact that adjectival pre-modifiers may contain clause-modifiers like really, sometimes, perhaps and not, which indicates that adjectival pre-modifiers are derived from underlying clausal structures.

If we embrace the notion of modifier shift, we capture a generalisation concerning the correspondence illustrated in (53), and we are relieved of the burden of generating pre-modifying clausal structures which require a separate set of reduction transformations (separate, because relative-clause reduction would not apply, of course). It is worth noting that Jackendoff (1977, pp. 72, 73) evidently agrees that pre-modifying adjectives are somehow to be related to post-modifiers, which is why he calls adjectivals complements, and not specifiers: 'In N", the complements include PPs of time, place, accompaniment, and so forth, relative clauses, and (for semantic reasons, their prehead position notwithstanding) APs' (my italics).

The second preliminary observation for my final point is this. The reason why Jackendoff does not want N" to be recursive is presumably closely connected with the fact that in his analysis V" is not recursive either, and that X syntax is supposed to bring out the, indeed remarkable, correspondence between V''' structures and N''' structures. In (54), I supply Jackendoff's deep structure phrase marker for clause structures.

\[ (54) \]

\[
\begin{array}{c}
V'' \\
N'' \quad M'' \\
T \quad M' \\
have \quad being \\
V' \\
V''' \\
\end{array}
\]

Generative semanticists would look upon (54) not as a deep structure phrase marker, but as the wrong analysis of a derived structure which results from the cyclic application of extrapolation and subject raising to a string of underlying Ss. If he were to use the same labels as in (54), a generative semanticist would represent this derived structure as the one in (55), thus making V'' recursive.
So much for the preliminary remarks for my final point. Now let us consider the stacked analysis of the phrase *the beautiful large new frame* in terms of the observations that I have just made. The diagram in (56) represents the traditional stacked deep structure for such phrases, which Jackendoff rejects because the restrictive relative Ss are Chomsky-adjoined to the NPs which they modify (cf. Jackendoff, p.185).
The diagram in (57) represents the same structure, but now in terms of the approach to relativisation outlined above (cf. (44)). The WH-dominated by the determiner in the embedded Ss marks its head as coreferential with FRAME in NP₄.

(57) (cf. (44))

The choice between (56) and (57) does not affect the validity of the point which I am about to make, but I will use (57), if only because (57) is simpler, and more easily surveyable.

Relativisation will, in the course of the derivation, affect each of the stacked attributive Ss, and the NPs which dominate WH-determiners will be moved left into the relevant complementisers as indicated in (57). I assume that relative-clause reduction will reduce which is new to new, which is large to large, and which is beautiful to beautiful.

Before we trace the transformational derivation of the structure based on (57) step by step, let us remind ourselves that the basic observation of X syntax is the correspondence between NPs and Ss, which are cyclic nodes¹⁰ of similar internal structure, the determiner of the
NP corresponding to the subject of the S.\textsuperscript{11} It is characteristic of X syntax as presented in Jackendoff (1977), that all the correspondences expressed by X are correspondences in the base component. There is no \textit{a priori} reason why this should be so. If the basic assumption of X syntax (i.e. that an S is parallel to an NP, and that a subject is parallel to a determiner) is correct, it is conceivable that extraposition of an S, followed by subject raising, is paralleled by extraposition of an NP, followed by determiner raising. Now just as in a generative semantic analysis structures like (55) result from the cyclic application of extraposition of Ss and subsequent subject raising, I propose that nominal structures with stacked pre-modifying adjectives can be derived by the cyclic application of extraposition of NPs and subsequent determiner raising.

Now let us trace the transformational derivation of the structure based on (57). In the cycle on NP\textsuperscript{4} nothing happens. In the cycle on NP\textsuperscript{3}, the adjective \textit{new}, which after relativisation and relative-clause reduction is the only remaining element in the S dominated by NP\textsuperscript{3}, triggers extraposition of NP\textsuperscript{4}, and subsequent raising of the determiner of NP\textsuperscript{4}. This is illustrated in (58), (59). In the cycle on NP\textsuperscript{2}, the adjective \textit{large}, which after relativisation and relative-clause reduction is the only remaining element in the S dominated by NP\textsuperscript{2}, triggers extraposition of NP\textsuperscript{3}, and subsequent raising of the determiner of NP\textsuperscript{3}. After a similar cycle on NP\textsuperscript{1}, we arrive at (60).

(58)
Thus, the choice of (39) rather than (40) allows incorporation of a remarkable \( X \) generalisation in a generative semantic approach to English syntax, and puts no constraint on the recursion of determiner-less NPs (= \( N'' \)'s) dominating stacked adjectives inside NPs (= \( N''' \)'s) which dominate a raised determiner, just as there is no constraint on recursion of subject-less Ss (= \( V'' \)'s, i.e. stacked predicates; Cf. (55)) inside Ss (= \( V''' \)'s) which dominate a raised subject.\(^{12}\) The remarkable generalisation is that both NPs and Ss are subject to extraposition, and both determiners and subjects can be raised. This obviates the need for a separate modifier-shift transformation.
Notes

*I would like to express my thanks to Frits Beukema, Colin Ewen, Chris Lyons and Willy Van Langendonck for their comments on, and discussion of, the version of this chapter as it was presented at the Colloquium on Determiners at Antwerp.

1. I prefer the term pronominals, because these items can be used in the same slots as nominals and not in the same slots as nouns, unless these nouns happen to fill nominal slots.

2. For the delimitation and subclassification of the class of determiners on distributional grounds, see Rigter, 1978, pp. 125ff.

3. Alan Sommerstein (1972) takes the 'determiner = head view' and postulates that the definite article is a nominal in underlying structure and that the N is the predicate of a reduced relative clause which modifies the definite article. He bases his theory on the fact that the Ancient Greek article ho is historically derived from a pronominal, and that, in Greek, the expressions which can follow this article to constitute a noun phrase are just those which can occur as predicates in sentences of the type NP – Copula – Predicate. Sommerstein's proposal, though interesting, goes without any further defence. All he does in his article is argue that looking upon articles as pronouns works as well as, or even better than, looking upon pronouns as articles. All sorts of problems adhere to Sommerstein's analysis, however. Obviously, there are no such surface strings in English as *The is son, but let us consider the sentence The son is the culprit in the light of Sommerstein's proposal. He would have to derive this sentence from [[The [the is son]] is [the [the is culprit]]]. It would seem that the constraints on the insertion of the are fairly complicated. In the is son and the is culprit, the (or the underlying correlate of the) must be inserted in the underlying subject slots, but may not be generated in the position after the copula. Thus, the is not allowed after the first and the third is in our bracketed structure. Why, then, is it allowed after the second is? And what will the rules constraining the insertion of the alleged nominal the look like?

Chris Lyons (1977) — which reached me after completion of this chapter — proposes a refined and elaborated version of Postal's theory. The phrase 'when the NP contains no head noun in surface structure' in Lyons (1977, p. 19) suggests that Lyons takes the 'N = head view'. This means that my objections to Postal's analysis on the basis of (22), (23) also apply to Lyons's analysis. However, a comparison of my proposal in (46) with the following quotations from Lyons (1977, p. 12) shows that our views of the underlying structure of pronominals are not far apart:

I shall assume that pronouns derive from a string Art + N, N having no more features than those necessary to select the item one(s) from the lexicon and to ensure that the correct pronoun form will be selected (features such as those for gender and countability). . .

...all that is required is that N should have insufficient features to select more than the 'reduced' one(s). . .

The difference between our proposals is that I would have a single-word lexicalisation of the string Art + N (cf. (46)).

4. In Rigter (1978, p. 138) the term apposition is defined as follows: 'An apposition is an attributive post-modifying nominal which is coreferential with the nominal which it modifies.'

5. I owe this example to Sommerstein, 1972.

6. See the contribution to this volume by Elzbieta Tabakowska. It is usual for pronominals to be 'referential' (in Tabakowska's terminology) either for the
speaker, or for the addressee, or for both. In (24), (25) we find instances of descriptions which, in Tabakowska's terminology, are 'attributive' for both the speaker and the addressee, because neither can make definite reference and thus identify the referent of he. This usage of pronominals is rare, but, as Tabakowska states: 'It is the attributive (for the listener and/or speaker) use of descriptions, that systematically requires further specification, in the form of a compound expression, which frequently takes the shape of a surface restrictive relative'.

7. A similar observation is made in Sommerstein, 1972.
9. A proper name is used when the speaker expects that this name is enough for the addressee to identify the intended referent. This explains why that speaker will not put a restrictive modifier on that proper name. If the speaker expects that the addressee cannot isolate the intended referent without further information, there are three possibilities: (1) he does not use a proper name, (2) he converts the proper name into a count noun and then uses this count noun in a construction with restrictive modifiers, (3) if the proper name is a Christian name, he can add the surname, which then functions as a restrictive modifier. In earlier modern English, and in other languages, the use of restrictive modifiers on proper names is less constrained, as is shown by John of Gaunt, William of Orange, Jean qui rit, Jan van Piet van Maartje, which examples should again be considered in the light of the contribution to this volume by Elzbieta Tabakowska.

10. See Akmajian, 1975. Note, however, that, possibly, the following two examples could be adduced to argue that NPs whose determiner is filled by a specifying genitive are cyclic, whereas NPs whose determiner is filled by an article are not cyclic. (1) John told Bill Harry's story about himself. (2) John told Bill the story about himself. In the first sentence, himself would, I think, be interpreted as coreferential with Harry, but not with John or Bill, whereas in the second sentence himself would be interpreted as coreferential with either John or Bill. In the absence of a sound and explicit theory of reflexivisation, I would hesitate to base any conclusions on these examples, however.

11. Note that in Sommerstein's analysis the determiner is an NP, and the head noun is a predicate in underlying structure. However, also note that, apart from other differences between Ss and NPs, Ss have complementisers and NPs have not.

12. There is a further correspondence between Ss containing stacked predicates without a subject (as in (55)), and NPs containing stacked NPs without a determiner (as in (60)). This correspondence relates to the distribution of the conceptual content of a message over the initial (i.e. 'deep') syntactic structure which is used to encode this message. It should be observed that the stacked Ss inside NP in (57) are predications about the referent of the lowest NP (i.e. NP), and that the most subjective, or ego-centric, of these predications from the perspective of the speaker (i.e. the attribution of quality beautiful) is encoded in the highest of these stacked Ss, as a result of which it ends up as the first adjective in the linear string. For a detailed discussion of a similar phenomenon in stacked tense predicates, see Rigter, 1979.

References

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Pronominals, Relativisation and Modifier-shift


OPACITY AND TRANSPARENCY: A PRAGMATIC VIEW*

Sjef Schoorl

1 Introduction

When Quine (1960) first proposed his distinction between a ‘purely referential’ and a ‘not purely referential’ use of definite singular terms, he thought of it as restricted to the use of definite noun phrases in opaque positions. Donnellan (1966) then found it to be applicable to their use in transparent positions, after which Partee (1970) extended its application to indefinite noun phrases as well, both in opaque positions and in transparent ones.

In short: give a philosopher or a theoretical linguist an inch of ambiguity, and he will take an ell. And in this case, an ell really is a rather conservative estimate. For, if Quine, Donnellan and Partee are right, we may have to face the rather unfortunate consequence that a sentence containing \( n \) full noun phrases has, for that reason alone, at least \( 2^n \) different semantic interpretations. (And this is only the tip of an iceberg. As far as noun phrases are concerned, there is also a generic use to be reckoned with, and specific versus non-specific readings. Dik (1972) has produced evidence to support the suggestion that McCawley’s well known distinction between a ‘de dicto’ and a ‘de re’ interpretation of noun phrases should be applied to the interpretation of verbal predicates, too.)

In the eyes of the theoretical linguist, such an exponential growth of meanings is all in the game — the game, that is, of evaluating models of linguistic description through comparison with other models, rather than through comparison with the linguistic competence that is manifested in the actual use of language by speakers and their hearers. And as long as one’s favourite model of linguistic description can accommodate, or can be extended so as to accommodate, the ambiguity in question by providing one with a sufficiently large number of different tree-diagrams or underlying logical structures with which to represent the various readings, then that will be the end of the matter.

In the eyes of the pragmatist, however, the mere fact that a proposed distinction can be represented in a given model has no bearing on the issue of its relevance in an account of speaker-hearer interaction. (Until
late in the twenties of the present century, when Dutch had long since lost the distinction between datives and accusatives, pupils had to write either a ‘3’ or a ‘4’ over certain noun phrases in dictation, this being the only way for their teacher to find out whether his pupils had reckoned the noun phrase in question to be a dative or an accusative. Nevertheless, this way of representing the distinction did not save it from being a distinction without a difference outside dictation, and outside the classroom.) Knowledge as to how the linguist may manage to distinguish between attributive and referential uses of noun phrases in underlying representations does not really help one understand how a hearer may manage to capture what exactly the speaker tries to tell him with his surface sentences, when even an apparently straightforward sentence like A butcher in my home town gave his girlfriend a fur coat on her birthday must be assumed to have no less than 32 different types of readings.

Substitutivity of identity, the only criterion that has been offered by the proponents of the distinction at issue as a means to discriminate between attributive and referential uses, can be of no avail to the perplexed hearer. According to this criterion, a noun phrase will have been used referentially only if it can be replaced by another noun phrase denoting the same object without changing the truth value of the larger expression in which it occurs, but cannot be so replaced when used attributively. But a hearer cannot execute this crucial test on a given sentence until after he has understood it. For only then will he be able to decide whether or not another noun phrase does indeed denote the same object as the one which his speaker used, and only then will he be able to decide whether or not the truth value of the sentence is changed when one noun phrase replaces the other. (This is not to say, though, that the test is entirely inapplicable. Indeed, it can easily be executed by philosophers and linguists with respect to the sentences with which they illustrate their arguments, and by speakers with respect to the sentences with which they are about to address their hearers. But speakers, unlike their hearers, do not only have their sentences to go by in order to identify the propositions they attempt to convey with them, nor need they wait for their own noun phrases to have been uttered before they can identify the objects they want to speak about. And linguists or philosophers do not really tell their readers anything about anyone with their examples.)

Clearly, the assumption that noun phrases are systematically ambiguous between a referential and an attributive use is one that we should reject, if at all possible, when we take it to be the linguist's task
to try and clarify rather than to mystify the nature of a fluent speaker's mastery of his language which 'is manifested' (in the words of Katz and Postal, 1964) 'in the speaker's ability to communicate with other speakers of the language: to produce appropriate sentences that convey information, ask questions, give commands, etc., and to understand the sentences of other speakers' (p. 1; emphasis mine). And I believe we can reject it, although we may have to draw upon our competence as language users rather than on our competence as linguists or philosophers in order to see how we can.

2 On Referring

When a speaker wants to tell us something about Mr Carter, the American President, or wants to ask us something about him, he must try, somehow, to call up that Mr Carter before our minds. Now Mr Carter himself is not part of the contents of our brains. Indeed, all we have tucked away in one of its many corners, is knowledge, assumptions, hunches, emotions, suspicions, and what not, about Mr Carter and about his doings. What we have, that is, is some sort of mental dossier on Mr Carter, a dossier that is activated, and updated if necessary, when we listen to him on the radio, watch his appearance on TV, or read about him in the papers, and that may also get activated as a result of the activation of related dossiers: our 'White House' dossier, say, or our 'conspicuous teeth' dossier.

It is this mental dossier on Mr Carter, then, rather than the real Mr Carter himself, that we must be assumed to produce from the archives of our memories, as our share in the communicative interaction with a speaker, upon hearing him utter Mr Carter's name or upon hearing him produce an appropriate description of Mr Carter. For it is this mental dossier, or a particular chapter of it, that our speaker wants us to change or make more complete when he attempts to tell us something about Mr Carter, and it is this dossier that he wants us to consult when he asks us a question about him.

In accordance with this account of what must be assumed to happen when someone addresses us about Mr Carter, I will consider the referent of a linguistic expression to be, not the corresponding real-world object, but the hearer's private mental dossier on that object, and maintain that this dossier, rather than the expressions which might serve to activate it, is the sort of thing that directly 'denotes' or 'designates' the real-world object itself. (For a basically similar view on the nature of reference and referents, see Droste, 1978.)
Looking upon the referents of linguistic expressions as mental dossiers enables us to deal rather neatly with certain uses of noun phrases that have long puzzled philosophers and linguists.

One such usage is what we find illustrated in sentences like *Scott is the author of Waverley* or *Chomsky is the author of Syntactic Structures*. Now I surely do not need to tell you that Chomsky is the author of *Syntactic Structures*. For even if you were to have different dossiers on Chomsky and on the author of *Syntactic Structures*, no doubt part of the information listed in your dossier on Chomsky is that he wrote that book, and part of the information featuring in your dossier on the author of *Syntactic Structures* is that it is Chomsky who wrote it. But not all speakers of English know the ins and outs of the history of modern linguistics, and it is such people who don’t, or no longer do, that we may have occasion to inform or remind that Chomsky is the author of *Syntactic Structures* – telling them, in effect, to add the appropriate cross-references to the dossiers referred to, or even to turn their dossier on the author of *Syntactic Structures* into a chapter of their dossier on Chomsky. Likewise, you may be totally unaware that the buxom redhead you get your daily glimpse of on your early morning train is none other than the telephone operator with the sweet voice who always puts you through to the mayor’s office, and hence will be bound to keep two separate dossiers on them until the day you find out about the two of them being one.

A second type of usage that can be clarified when it is assumed that the referents of noun phrases are mental dossiers is the use that speakers make of such expressions in cases where a corresponding real-world object no longer exists, or turns out to have never existed at all. When your father has died, or when the house where you were born has been burnt down, there are no longer any real-world entities to correspond with your utterances of *my father* or *the house where I was born*, nor with your utterances of *your father* or *the house where you were born* when you are my hearer. And yet you and I can still use such expressions, and understand them. For although the corresponding real-world objects have ceased to exist, our mental dossiers on the house where you were born have survived the fire, and our mental dossiers on your father did not die with him. Or consider one of Donnellan’s cases, the case of John Smith having been found dead on the kitchen floor and the nature of his wounds excluding a natural death, accidental death and suicide. So it’s murder, we will conclude. Now having come to this conclusion, we will lay out a number of mental dossiers in which to store information, guesses and discoveries about the case – dossiers
that constitute, in effect, the referents of subsequent utterances of Smith's murderer, The blunt object that Smith was murdered with, The exact time at which Smith was murdered, and many others. To be sure, such dossiers will have to be closed or destroyed the moment we find out that Smith did, after all, die a perfectly natural death, and they will have to be revised rather thoroughly the moment we learn that it was O'Leary, not Smith, whose body was found on that kitchen floor. But that does not prevent them from being fully operative when we still believe that it was murder, or when our hearer still believes that it was murder and needs to be undeceived by being told, say, Smith's murderer does not exist: Smith died of a heart attack. (And if this were to be put down as a contradiction, or if The girl you spoke to last night was my nephew Hank on his way to a fancy-dress ball were, then so should My brother has died, the sort of thing that a speaker would have occasion to say when he believes his audience to be convinced that his brother is still alive.)

So much, then, for a somewhat impressionistic account of how a mentalistic view of reference might enable us to avoid some of the perplexities that result from too strong ontological commitments.

3 Indefinite Noun Phrases and Reference

When a speaker wishes to talk about a certain individual, or ask a question about that individual, part of the task facing him is to provide his hearer with the means to select the appropriate mental dossier. But then, there may be no such dossier. That is, the speaker may want to talk about an individual who, for all he knows, is completely unknown to the person he is about to address. (And when I say 'completely', I mean completely. Someone may know of the existence of a play called Pygmalion, but not know that it was written by George Bernard Shaw. He will know, however, that Pygmalion, being a play, must have been written by someone, and for this reason, his ignorance of the author of Pygmalion will not be as complete as his ignorance of the author of Harry’s radiator, say, or as our ignorance of the gostak of the pirots.)

Complete ignorance, on the part of your audience, regarding the individual you wish to talk about need not put you to silence. The thing to do, of course, is to use an indefinite noun phrase, thus signalling to your hearer, in effect, that a new dossier must be started and kept ready for further use.

Now since indefinite noun phrases are being used by a speaker who
must assume that his hearer knows absolutely nothing about the individual in question apart from what the speaker cares to tell him, that speaker would do well to seize the opportunity to introduce the unknown individual in terms of such information as will increase the chances that his communicative intentions will be realised in full. So when your guest from out of town has a bad pain in his stomach and you want to get him a doctor, then even though the doctor you have in mind is a very tall man with an impressively large red beard, you had better not ask your guest Shall I get you a tall man with a red beard? in order to ask him whether he needs a doctor. A speaker who is aware that Susan Smith is going to marry Ragnar Strømness from Oslo might find Susan is going to marry a Norwegian a very useful thing to say when he happens to know that Susan and Ragnar are going to live in Norway after the wedding and wants his audience to suspect as much, or when he wants to put his hearer in the mood for being told, in addition, that Susan met her prospective husband while she was staying in Stavanger last summer. By contrast, Susan is going to marry a Norwegian would be a rather inappropriate way of telling an audience about Susan and Ragnar getting married when to all intents and purposes Ragnar’s nationality is totally irrelevant with respect to the approaching marriage, both in the eyes of Susan and Ragnar and in the eyes of either the speaker or his audience. (And when the speaker merely wants to tell us that Susan is going to give up her single blessedness, he need not even introduce Ragnar at all: just Susan is going to marry will be fine for that purpose.) Likewise, if a Marxist friend of yours told you that Harry got fired, and if you want your colleague to believe what this friend told you, you had better not say to that colleague A Marxist told me that Harry got fired when you are aware that he would even deny that twice two equals four if a Marxist should say so. And if the neighbour who told you to stop smoking is himself an inveterate smoker, the chances that your audience will share your surprise at this piece of advice from your neighbour are greatly enhanced when you say An inveterate smoker told me to stop smoking; for although A neighbour of mine told me to stop smoking would have the same truth value in such a case, it surely would not have the same salience.

What I intend to bring home to you with these anecdotes is that speakers are not merely bent upon speaking the truth or on being sincere when they utter a sentence, nor on simply introducing (somehow, anyhow) certain objects for the rest of the sentence to say something about when they use an indefinite noun phrase. Speakers also try to
ease their listeners into understanding them, they seek to convince their hearers, to humour them, surprise or tease them, and try to do all this, and more, with as little effort as possible — on their own part as well as on the part of their hearers. A well chosen indefinite noun phrase, you will have gathered, enables a speaker to kill several of these birds with one stone, enabling him not merely to introduce a new referent into the discourse but also to provide his audience with such background information regarding that referent as will be required for a full realisation of his communicative intentions. And although substitution of one indefinite noun phrase by another describing the same entity might leave unaffected the truth value of the sentence as a whole, it may well affect the efficacy value of that sentence, its surprise value, its reliability value, or any of the other values an able-bodied speaker can and must reckon with in his attempt to get a particular message across to a given audience — whence substitution of one indefinite noun phrase by another can hardly be without its effects on the appropriateness of the sentence as a whole.

4 Definite Noun Phrases and Reference

Essentially the same considerations apply to the use of definite noun phrases (although, for reasons to be discussed in a moment, in his selection of a definite with the required salience the speaker often will not have as wide a choice as in the selection of an appropriate indefinite). For just as indefinites enable us to provide our hearers with relevant background knowledge when no such knowledge is available beforehand, so definites enable us to make our listeners activate relevant background information from their private mental dossiers when they already have that information stored in their memories but cannot be expected to activate it of their own accord — if only because people really know far too much for them to have every single bit of their knowledge always readily available. So when an American newscaster, who is aware that not all of his listeners will have it as part of their ready knowledge that Mr Jim Callaghan is the British Prime Minister, is reporting on certain activities that Mr Callaghan would have had no reason or occasion to engage upon if he had not been given that office, he would do well to announce The British Prime Minister will be visiting the White House next month, although, of course, he would not perpetrate a lie by saying Mr Callaghan will be visiting the White House next month.
In selecting an appropriate definite noun phrase to suit his purposes, the speaker can only choose from such knowledge as must be assumed to be already available to his hearer; for it is his task to try to make his hearer identify and retrieve a dossier which is already there (as a result of previous utterances, or as a consequence of experience), and the hearer cannot be expected to make the correct identification on the basis of information that is not contained in that dossier. For that reason, the speaker will be prevented from calling the attention of his hearer to bits of background knowledge that he himself believes to be most saliently involved in what he has to say about the object denoted whenever he is aware that these bits of knowledge are not part of what his hearer knows. If so, the next best thing for the speaker to do (apart from supplying his hearer with the missing information) is to avoid mentioning such background knowledge as is likely to mislead his hearer. So when I want to tell you that Mr Brown, the local police commissioner, is looking for Dr Arbuthnot, the chairman of the hospital board, and when I am aware that Mr Brown's efforts to find Dr Arbuthnot have nothing whatsoever to do with his police work nor with Dr Arbuthnot's activities as chairman of the hospital board (Mr Brown wants to see Dr Arbuthnot on matters concerning the local yacht club, of which Dr Arbuthnot is the founder and Mr Brown the treasurer, but you know nothing about that), I would be leading you up the wrong path if yet I were to tell you The commissioner is looking for the chairman of the hospital board. For by thus reminding you, in my statement about Mr Brown and Dr Arbuthnot, of certain offices that they hold, I would be turning your attention to chapters in your mental dossiers on them that should be ignored.

Also, when I am convinced that Jones, the man that murdered Smith, is insane, and for reasons having nothing whatsoever to do with the murder he committed (indeed, the only sane thing Jones ever did was to kill that horrible man), I had better not say to you Smith's murderer is insane. For to thus, literally in one breath, remind you that Jones murdered Smith and inform you that Jones is insane, is to invite you to infer a causal link between these two bits of information, and surely this is not the sort of invitation that I have a right to issue when I know such an inference to be totally unwarranted. (Similarly, a speaker would be inviting his audience to infer a causal link between the two events spoken of with John kicked the table and hurt his toe, and would mislead his audience with such an utterance if he knew full well that John kicked the table three weeks ago and hurt his toe only yesterday when he dropped a can of beans on it.)
I do not think that I could talk myself out of such deceitful ways of saying that Jones is insane with *Smith's murderer is insane* and of saying that Mr Brown is looking for Dr Arbuthnot with *The commissioner is looking for the chairman of the hospital board* by claiming that Messrs Quine and Donnellan allowed me to do so on the condition that I use the noun phrases in question in a 'purely referential' way, the type of use under which they might be replaced by certain other noun phrases without changing the truth value of what I intend to say. For not only might they be replaced by certain other expressions, they must be. And such substitutions as will be necessary in order to lead the hearer up the right path or to prevent him, at least, from turning his attention to knowledge irrelevant to the matter at hand, are substitutions that should be made by me, as the speaker, and before I open my mouth.

5 Conclusion

When Quine and others proposed their distinction between a referential use of referring expressions and an attributive use, they did so solely on the basis of their conviction that referentially used descriptions were, but attributively used descriptions were not, subject to the substitutivity of identity. The general idea underlying this conviction has been made explicit by Donnellan:

In the referential use the definite description is merely one tool for doing a certain job — calling attention to a person or thing — and in general any other device for doing the same job, another description or a name, would do as well. In the attributive use, the attribute of being the so-and-so is all important, while it is not in the referential use (1966, p. 102).

What I have tried to show, by contrast, is that in the actual use of language by speakers and hearers who know the ropes, a referentially used noun phrase is in fact a tool for doing several jobs at once — not merely for calling attention to a person or thing, but also for calling attention to the all important fact that being the so-and-so is a salient attribute of the person or thing thus called to mind. To replace one noun phrase by another is to replace a tool for doing one set of jobs by a tool for doing another set of jobs. And this, as we have seen, is bound to affect the appropriateness value of the larger expression in which they occur.
Referentially used noun phrases, we must conclude, are no more subject to the substitutivity of identity than attributively used noun phrases, whence what remains is a distinction without a difference — the sort of distinction that would have made William of Occam whet his razor had he known of it.

Note

*I am grateful to Dr S.O. Robson for correcting my English.

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LINGUISTIC CONSIDERATIONS ON REFERENCE

Pierre Swiggers

1 The General Framework

Within semiotics one distinguishes the canonically divided domains of 'syntax', 'semantics' and 'pragmatics'. The definition of these three domains or, better, levels is sufficiently known to every reader of Morris and it can be found in almost every textbook on philosophical linguistics or semiotics.¹

My concern now is mainly with the application of this tripartition to linguistics — in fact, to put things right with regard to history, the first two terms were borrowed from linguistics; Morris borrowed them from the stoic theory of language.² From a semiotic point of view, we can then distinguish, within linguistics, a syntactic level (including phonetics, phonology, morphology and syntax³), a semantic level and a pragmatic level (contextual and pragmatical linguistics).

These three levels are somehow autonomous (although there is, perhaps, too much lack of integration here) and even within them, there are autonomous research fields. Though it might seem rather easy to criticise this situation, I think that three very 'realistic' reasons anticipate all possible criticism:

(1) The division is in fact a 'division of labor' (Putnam, 1975, p. 227) which has proved fruitful for the separate development of the syntactic level (descriptive linguistics), the semantic level (lexicology, lexicography, traditional, structural or transformational and generative semantics) and the pragmatic level (for an overview of the field see Verschueren, 1978). This development would probably not have been possible without the strict delimitation and distribution of tasks.

(2) The three levels have a different 'epistemological structure'⁴ and different constraints on their domain of intended applications (for this term, see Sneed, 1971; Stegmüller, 1976). They can only be reconciled (or reduced) on a methodological or metatheoretical level, in that they must provide a systematic description of the phenomena they study.

(3) It is not evident that a future interaction of the three levels will yield significant results (within the field as a whole, or within the separate divisions).
My purpose is to offer a possible counterargument to this last, 'realistic', objection, which is (only?) valuable as an a priori argument, but which can, in my opinion, be falsified empirically. To illustrate this, I will try to link the syntactic level (in casu linguistic morphology and linguistic syntax) and the level of pragmatics (in casu the problem of reference). I will try to show how a categorisation in linguistic syntax has its bearings on linguistic pragmatics.

2 The 'Meaning/Reference' Dichotomy and the Place of Theories of Meaning and Theories of Reference

2.1 Meaning and Reference

Meaning (Sinn, signification, betekenis) and reference (Bedeutung, dénotation, verwijzing) seem to belong to two distinct fields: semantics is concerned with the meaning of words and expressions, whereas reference is concerned with the denotation of words, and mostly of sentences or statements (Strawson, 1971, pp. 17-24). Semantics is practised by lexicographers and semanticists, while reference is the business of philosophers of language, or logicians. (Incidentally, here a basic ambiguity must be clarified: 'semantics' in the Tarskian sense is not concerned with meaning but with reference.5)

I will not dwell upon the justification of this boundary. Let me just recall some basic facts which illustrate the weak position of semantics.

(1) As language is used in communication, it is hard to conceive how lexicographers can establish the meaning of words without taking into account the contexts in which the words are used.6 This is very clear in the case of extinct languages, where the lexicographer has to 'see' how a particular word is used. He must, however, bear in mind that the indeterminacy of translation is always hanging over him as the sword of Damocles. It seems to me that the optimistic belief in innate knowledge and semantic intuitions of native speakers is responsible for the neglect of the Wittgensteinian dictum. It would be worth while to devote a study to the context (mostly Platonic or celestial) presupposed by the examples cited in the works of semanticists (and semantically minded linguists).

(2) Semantics — especially if it is done in separation from syntax — is after all a subsidiary science: as speakers of a language Li, we only need a dictionary to look up the difficult words, which were unknown to us
and which we were unable to decompose in morphological units already known. It appears that most of the difficult and unknown words in our language L₁ are in fact loans. The dictionaries we use most are bi­lingual (or multilingual) dictionaries. So semantics only proves (very) useful on the interlinguistic level (the level where L₁, L₂ and, eventually, other languages are connected). Perhaps this is where the source for the pretensions of semantics (as a universal dictionary) has to be sought.

(3) Semantics mainly exists in the form of a ‘metalinguistic’ analysis (or translation). What I mean is that semantics is in fact a second dictionary of the vocabulary of a particular language (mostly with entries such as: \( N = (a) \mathcal{M}_1 \) containing \( \phi_1, \phi_2 \) etc.). The componential analysis is in the same position as Buridan’s ass. It faces two opposite constraints: (a) the componential analysis must be a complete and systematic account of the properties strictly belonging to N; (b) an atypical N (being a N) may not be excluded by the bundle of semantic features which characterise and define N (Putnam, 1975, pp. 140-4).

Semantics — especially the Katz-Fodor-Postal variety — does not merely suffer from this dilemma. It has been reduced to a constructional, but almost uninterpreted, system having no extensional isomorphy with its definiendum (the vocabulary of L). I don’t think that semantics, conceived as a mental encyclopaedia — even if this can be regarded as an undeniable progress — can be considered the last word on semantics: one needs real encyclopaedias, and, if possible, good encyclopaedias.

My proposal then, is to make the best of a very commonly accepted truth: language is used to speak about objects, to communicate feelings, beliefs, opinions and knowledge; briefly, we use language to be definite or to be ad hoc. In my opinion, this definiteness can hardly be rendered by a semantic theory.

To summarise this point, I would say that if meaning and reference are actually distinguished — another point would be that such a distinction should be made — it must be stressed that they have different epistemological correlates, both with respect to their acquisition (meaning is not necessarily acquired in a particular context — with analytical procedures; reference is necessarily grasped in a particular context) and with respect to their scientific formulation (respectively, in semantic theory and in the theory of reference).

2.2 Theory of Meaning/Theory of Reference

The term ‘theory of meaning’ is a very ambiguous expression, not so
much because it covers a great variety of methodologically opposed interpretations (Parkinson, 1968), but because the term 'meaning' is very deceptive. The 'meaning' at issue seems to stand for 'process of signifying' (Parret, 1978). A theory of meaning, then, is a theory which describes (or explains — I don't believe in the Chomskian distinction between description and explanation) the process of signifying (in a broad sense, including ostensive description and gesture-deixis) by which two interlocutors (or interactants) 'deal in' information concerning 'what there is' (Quine, 1964, pp. 1-19), within a linguistic and/or extralinguistic context (eventually including a metalinguistic context). As such the theory of meaning belongs to general semiotics, which is concerned with the trade in information between communicating people.

Theories of meaning now are mostly confined to linguistic information which is conveyed from one interlocutor to another within a linguistic and/or an extralinguistic context. This is by no means a regression and a concession to semantics. On the contrary, it seems that we can now define the scope of a theory of meaning as opposed to that of a semantic theory: theories of meaning are concerned with the process of signifying, whereas semantics is not concerned with the process of signifying. Semantics is concerned with the semic composition — or, to be complete, with the semic combination, selection, projection and transformation 'rules' — of words, expressions and sentences. Here I fully agree with Quine's very sharp distinction between semantics (for which he unfortunately uses the term 'theory of meaning') and the theory of reference which is based on the methodological apparatus used in both disciplines:

The main concepts in the theory of meaning, apart from meaning itself, are synonymy (or sameness of meaning), significance (or possession of meaning) and analyticity (or truth by virtue of meaning). Another is entailment, or analyticity of the conditional. The main concepts in the theory of reference are naming, truth, denotation (or truth-of) and extension. Another is the notion of values of variables (Quine, 1964, p. 130).

It becomes clear that 'theories of meaning' in their different versions (Truth-theory of meaning, Meaning-theory of meaning, Convention-theory of meaning; see Parret, 1978) belong to what Quine calls 'the theory of reference'. Perhaps it would be useful to distinguish a semantically based theory of reference (Frege and Dummett), a pragmatically
based theory of reference (Grice, Schiffer, 1972, Davidson II) and a propositional-truth based theory of reference (Davidson I, Tarski). In the following, I will avoid speaking of ‘theories of meaning’ and I will make an exclusive use of the expression ‘theories of reference’.

My own approach, to be developed in the following sections, will try to make a case for a syntactically based theory of reference (mostly in accordance with Quine’s ideas) focusing on the pragmatic context of the syntactic use of certain grammatical elements.

Finally, it must be stressed that my approach is not meant to be a theory of the basis of reference (Schiffer, 1978); my reflections remain entirely linguistic and no attempt is made to link them with a full-blooded ontology, be it materialistic or idealistic.

3 A Clarification within the Theory of Reference

The divergent forms of theories of reference can be methodologically related to a common underlying principle: the minimum distinction between reality, language and metalanguage. It has been formulated as follows:

First of all we take all objects which (from our standpoint) are not signs; then follows a class of signs which denote these objects. To this second class is added a third: it consists of signs which denote the signs of the object language; it is the metalanguage of the first language (Bocheński, 1968, p. 51).

The majority of the theories of reference are concerned with the link between level 1 and level 2 (the link between level 2 and level 3 is mostly considered to be a particular analogon of the link between level 1 and level 2). It is clear that this relation, most often rendered by terms as ‘signifying’, ‘denotation’, ‘designation’, ‘meaning’, etc., receives a different theoretical justification within each theory of reference.

The point which I want to develop, however, — and which can be supported by linguistic and epistemological arguments — concerns the existence of a level between the level of ‘reality’ and the level of ‘language’. This intermediate level will be called ‘the level of name-bearing’ and I would characterise it as a primarily institutional level which receives a factual status. So it can be labelled ‘level 1a’, to indicate its close relationship with the level of reality. Secondly, it must be stressed that it is a functional level, open for interpretation; i.e. it can be described as a function to be assigned to variables.
The level of name-bearing is referred to by the use of well defined morphological classes (belonging to level 2) occurring in a particular syntactic context. The classes I have in mind are those of pronouns and deictic elements as here, now (which are also pronouns in my opinion), proper names and interjections (or exclamatives). I will call these elements (which constitute a particular sub-class of level 2) the 'name-bearing referring elements'.

3.1 Division of the Name-Bearing Referring Elements

The three basic categories of name-bearing referring elements can be divided into two groups: the group of elements which are proportional with only a part of a sentence and the group of elements which are proportional with a whole sentence, within every context. My criterion is thus syntactic and can be visualised in the following table:

- for group I: $S = I_1 + ( + . . . etc.)$
- for group II: $S = II_1 + \phi$

or: $\frac{I_i}{S} = \frac{x}{x}$

$\frac{II_i}{S} = \frac{x}{x}$

The elements used for name-bearing reference can also be used on the level of naming (belonging to level 2), a level which is also an institutional level, but which cannot be described as a function to be assigned to variables. In this usage, they become what I would call 'referential elements'. Naming is the use of constants and variables (possibly quantified) in order to speak about 'what there is', whereas the name-bearing referring elements refer to what there is, or say what there is (see 3.2, 3.3 and 3.4).

3.2 Brief Discussion of the Name-Bearing Referring Elements

I have already said that there are three grammatical classes that are used in particular syntactic contexts as name-bearing referring elements. In this section it is my purpose to define these 'particular' syntactic contexts.

3.2.1 I will start with the group of exclamative words. These elements function as name-bearing referring elements when they are proportional with a whole sentence, within every context. It is the case of Stop/Halt! shouted (or mostly yelled) by a policeman who addresses (a) car-driver(s).
It is also the case of the expression *Ai* (more probably *Aaaii!* . . .) which I would utter if someone like the Russian weightlifter Alexeiev were to put his foot on mine. In such contexts, these elements (*Stop, Halt, Ai, Ouch, . . .*) are name-bearing referring elements. They are the name of the action (or event) the policeman expects from the driver(s), or the name of the (further unspecified) pain I suffer. They are the basic media of reference and the minimum 'semantic' content they have is considered to be sufficient for the utterer to say what there is (or what is to be done).

3.2.2 The next group of name-bearing referring elements is constituted by those elements which are not proportional with a whole sentence, in each context. Here I have distinguished between pronouns (including deictic elements as *here, now so = in this way*), on one side, and proper names on the other.

Pronouns (including deictic elements) are used as name-bearing referring elements when they are not preceded by an article, or when they are not used metalinguistically (as, for example, in: *'I' is a pronoun, 'Here' has four letters*). When these elements exhibit the above sketched syntactic behaviour (the absence of an article and the impossibility of adding *The word* before the element in question), they give minimal information about the speaker, the addressee, the place, the time and the object of talking. In fact, they refer to them as bearing a basic name (like *I, You, He, She, Here, Now, It, . . .*). Here I recall one of Quine's fundamental insights:

Whatever we say with the help of names can be said in a language which shuns names altogether. To be assumed as an entity is, purely and simply, to be reckoned as the value of a variable. In terms of the categories of traditional grammar, this amounts roughly to saying that to be is to be in the range of reference of a pronoun. Pronouns are the basic media of reference; nouns might better have been named propronomouns (Quine, 1964, p. 13).

I believe that the syntax of pronouns — a well defined domain — is the inevitable base for the study of more complex syntactic phenomena, involving lexical elements. Here again, I think we should make the best of the available syntactic material before throwing ourselves into the hothouse of semantics, where intuition and guessing seem to have eliminated the formally based arguments. I would like to refer at this point, to the 'anti-pronominalisation' trend (Bach, 1969; Keenan, 1972,
and, hesitantly, Chomsky, 1974) and especially to the pronominal approach of K. Van Den Eynde and C. Blanche-Benveniste, where the methodological priority of the pronominal level is claimed to account for the lexicalisation level. I am speaking for example is not a pronominalisation of Pierre Swiggers is speaking or The second speaker of this colloquium is speaking; on the contrary, the I in I am speaking is the basic medium of my reference.

Another argument for anti-pronominalisation is that Peter sees himself must not be derived from Peter sees Peter (we would have to make the extralinguistic remark that both occurrences of Peter refer to the same person). The pronominalisation theory can also lead to nonsensical views (the derivation of Each man pays a beer for himself from Each man pays a beer for each man, for example).

Let me repeat my view on pronouns and deictic elements. Used as name-bearing referring elements, they are the basic and minimal media of reference (in casu of name-bearing reference) and any lexicalisation is either a non-basic addition (and hence dismissible for level 1a) or an inadequate representation.

Finally, we come to proper names. The problem here is to define the 'particular' syntactic context. I would offer the following solution. Proper names are name-bearing referring elements only when they are used in a 'presentification' context, that is, a context in which a name-bearing is presented as a name-bearer (and not as a person/thing/entity etc.). For this typical phenomenon I use the neologisms 'presentify' and 'presentification'. I presentify a name-bearer when I say, for example, This is John Brown, introducing John Brown as a name-bearer to my interlocutor(s). We can thus characterise the pragmatic notion of 'presentification' in the following syntactic way: a name-bearing referring proper name is used in a presentification context when it is preceded by this is. . . Perhaps the syntactic criterion could be loosened by allowing syntactic contexts such as May I present you. . . (PN)?; Here we have. . . (PN), Today we have amidst uso. . . (PN); (PN) is here with us, etc.).

I would distinguish the mere (or rigidly identifying) presentification context, the incomplete presentification context, and the 'more-than-presentification context'.

The incomplete presentification context is different from the rigidly identifying presentification context, either because an indefinite article precedes the singular proper name or because a definite article precedes the proper name used in the plural. Examples:
This is a Smith.
This is a Kennedy.
These are the Kennedys.
Voici un Dupont.
Voici les Dupont.

The more-than-presentification context adds supplementary information about the person bearing the name. Syntactically, this boils down to the addition of an attributively used adjective to the proper name:

This is the famous John Brown.
This is the well known John Brown.
This is young Peter Smith.
Voici le jeune Demoulin.
Je vous présente le fameux Jean Lenoir.

The claim that proper names are used as name-bearing referring elements in a rigidly identifying presentification context, when they immediately follow the syntactic formula *This is*, admits of one exception. Certain geographical names\(^{16}\) are preceded by the definite article, whether the context is a rigidly identifying presentification context or not.

<table>
<thead>
<tr>
<th>English</th>
<th>French</th>
</tr>
</thead>
<tbody>
<tr>
<td>This is the Rhine.</td>
<td>*This is Rhine.</td>
</tr>
<tr>
<td>These are the Pyrenees.</td>
<td>*These are Pyrenees.</td>
</tr>
<tr>
<td>These are the Hebrides.</td>
<td>*These are Hebrides.</td>
</tr>
<tr>
<td>Voici le Mexique.</td>
<td>*Voici Mexique.</td>
</tr>
</tbody>
</table>

For river and mountain names the phenomenon is very general in English, French, Dutch and German, but it is rather irregular in the case of geographical names. It appears that the definite article only occurs with general geographical names (in Romance languages the definite article is much more common than in Germanic languages). These examples cannot be explained by the above presented theory. The only valid explanation seems to be an historical-linguistic one.

Concluding this section, we can say that the above-named classes (pronouns, proper names and exclamative words), when used in a particular syntactic context (which corresponds to a particular pragmatic context), are name-bearing referring elements whose function consists of saying what there is and of fixing the basic media of 'our reference'.
When these elements are used as name-bearing referring elements, they will be printed in bold type.

Examples:

This is John Brown.
I saw you there.\footnote{17}
Stop!

3.3 The Same Elements Used Referentially

As I said above, the same name-bearing referring elements can be used on the level of naming. They then lose their status of name-bearing referring elements and occur in different syntactic contexts. This is clear in the case of proper names (where the defined syntactic context for name-bearing reference was small). Consider the following examples:

Today I saw John Brown's children.
The President of America is that good old Jimmy Carter.

Exclamative words undergo a change of morphological category and lose their proportion with a whole sentence, as is shown by the following examples:

Un furieux stop nous a fait arrêter.
A intervalles réguliers le malade émettait des ai très émouvants.

Pronouns may even undergo a (morpho)phonological change, as in:

I am another me.\footnote{18}

Other examples are:

You are another you.
Son moi orgueilleux se révoltait à chaque instant.
It is not the same you I meet today.

I will call these uses 'referential' ones, where 'referential' means that one uses language to speak about what there is.

3.4 A Remark about Name-Giving

I would like to add a remark about name-giving, not only because of the importance of this notion in the causal theory of reference (Kripke,
1972), but also because of the peculiarity which characterises it.

In fact, name-giving elements seem to belong to the class of 'referential elements': they cannot be used as name-bearing referring elements since there is no name-bearer before the act of name-giving has taken place. However, syntactically, name-giving comes very close to name-bearing reference: we cannot insert an indefinite article or an attributive adjective before the name which is given. Compare the following examples:

I name you Charles Wilson.  * I name you a Charles Wilson.
Je te baptise Charles Fourier.  * Je te baptise un bon Charles Fourier.

Yet, name-giving expressions (which are always proper names19) do not have the form This is . . . In fact, name-giving expressions simply cannot have this form because they create the linguistic status of the proper name used in name-bearing referring statements.

Each name-giving is a non-repeatable creation of the basic condition of name-bearing reference by a proper name. Sentences as This is John Brown (a name-bearing referring expression) would not be possible, if there had not been an act of name-giving (I name you John Brown).20 Elements used in name-giving contexts will be marked with an index 'NG'.

I name you John BrownNG .

The following sentence contains name-bearing referring elements, name-giving elements as well as referential elements.

I will name you AbrahamNG and Abraham will be the father of many generations.

The referential elements are Abraham (in its second occurrence) and the father of many generations; Abraham (in its first occurrence) is a name-giving element; and I and you are name-bearing referring elements.

The example also shows that a name-giving element (a proper name) presupposes a second person pronoun you (which can also be used for things). Before Abraham receives his name AbrahamNG , he is already a you for the person who gives him his name. Here again, I rejoin Quine's thesis on pronouns as the basic media of reference.
4 The Epistemological Relevance of Level 1a

Introducing a new level in the theory of reference can only be progress if the introduction enables us to solve or to clarify certain problems. I will only try to prove the possibility of such a clarification. My basic concern will be with two major problems in the epistemological literature: quantification into opaque contexts and the Gettier paradox.

4.1

In ‘Quantifiers and propositional attitudes’ Quine has given a very systematic expose of the by now celebrated problem of ‘quantification into opaque contexts’. Quine’s thesis is that ‘belief contexts are referentially opaque; therefore it is prima facie meaningless to quantify into them’. He gives the following example. There is a certain man in a brown hat. Somebody else, called ‘Ralph’ in Quine’s example, has seen him under various questionable circumstances and Ralph suspects him to be a spy. There is also a grey-haired man, vaguely known to Ralph as ‘a pillar of the community’. Ralph is not aware of having seen him, except once, at the beach. Now, the man in a brown hat and the grey-haired man are one and the same, but Ralph doesn’t know this. Can we say of this man (Quine gives him the name ‘Bernard J. Orttcutt’) that Ralph believes him to be a spy?

Quine first eliminates the relational statements of belief (having the form ( ∃ x) (Ralph believes that x is a . . . ), since we must accept as true:

(1) Ralph believes that the man in the brown hat is a spy.
(2) Ralph does not believe that the man seen at the beach is a spy.

As Quine remarks, the that-clauses in (1) and (2) must be viewed as ‘sealing those clauses off’: believes that becomes ‘referentially opaque’. Within the notional statements of belief, we can then distinguish between two kinds of belief:

- a belief₁ which would not allow to say Ralph believes that Orttcutt is a spy and he does not believe that Orttcutt is a spy, but which allows to say (1) and (2);
- a belief₂ by which we would reject (2) and recover the relational statement ( ∃ x) (Ralph believes that x is a spy); this belief implies, as Quine adds, that Ralph believes₂ that the man at the beach is a spy even though he also believes₂ (and believes₁) that the man at the beach is not a spy.
Whereas belief ₁ separates the identity of the two 'appearances', belief ₂ retains the identity (= B.J. Ortcutt), as is shown by the acceptance of the relational statement (which is not accepted by belief ₁).

According to Quine, belief ₁ can be characterised as a relation between a believer and an intension (the that-clause). In

\[(3)\quad \text{Ralph believes that Ortcutt is a spy.}\]

we would then have a triadic relation between a believer, an object and an attribute. And in

\[(4)\quad \text{Ralph believes } z (z \text{ is a spy) of Ortcutt.}\]

we would have an irreducible triadic relation between Ralph, \(z (z \text{ is a spy})\) and Ortcutt. Although, according to belief ₁, we cannot accept the relational statement \((\exists x) (\text{Ralph believes that } x \text{ is a spy})\), we can allow, on the grounds of belief ₁, the quantified triadic notional construct:

\[(5)\quad (\exists x) (\text{Ralph believes } z (z \text{ is a spy) of } x).\]

(5) is not in contradiction with the relational statement, since belief ₁ says nothing about the identity of differently specified objects. Within the belief ₁ context, we can accept (1), (2) and (5).

With belief ₂ we wanted to recover the relational statement \((\exists x) (\text{Ralph believes that } x \text{ is a spy})\). It is here that Quine comes up with his theory of referential opacity. Suppose that Ralph sees a man in a brown hat at the beach. The man in question is B.J. Ortcutt, but Ralph fails to recognise him (he fails to identify him with the 'other' man in a brown hat and with the grey-haired man seen at the beach). Ralph suspects him to be a spy. So the term which names the intension spy is to be looked on as referentially opaque, since we would exclude \textit{Ralph believes that Ortcutt is a spy and he does not believe that Ortcutt is a spy}, but we would accept (4) — which remains true of Ortcutt under any designation — and we would allow (5), which here receives reference. So we have

\[(4)\quad \text{Ralph believes } z (z \text{ is a spy) of Ortcutt.}\]

But it is also true that

\[(6)\quad \text{Ralph believes that the man seen at the beach is not a spy.}\]
We can construct a triadic belief out of this:

(7) Ralph believes \( z \) \((z \text{ is not a spy})\) of the man seen at the beach.

The man at the beach (Ortcutt) does not receive reference in (6), but he does in (7). So (7) leads to (8).

(8) Ralph believes \( z \) \((z \text{ is not a spy})\) of Ortcutt.

Within belief\(_2\) we would then have to accept (4) and (8) as true, although they are 'near-contraries'. It seems, then, that quantification into belief\(_2\) contexts (which incorporate relational statements of belief) would force us to credit people with contradictory beliefs. Quine's conclusion is that it is better to accept the view that 'it is meaningless to quantify into opaque contexts'.

4.2

Before I propose a clarification (I refuse to say 'solution') of the problem raised by Quine, I would like to stress the general validity of Quine's theory for referential statements. There are two ways to prove the general validity of this theory:

(a) by reducing all referential statements to underlying beliefs (I would call this an 'intensional' reduction of the field of applications to a common underlying principle);

(b) by offering a cumulative proof of the applicability of this theory (extensional broadening of the theory).

The first point has been developed by, among others, Van der Auwera (1978). I believe (!) that the basic insight, namely a reduction of each referential statement to an underlying belief, is a valuable one, but I see two problems here:

(a) the thesis is too general: its empirical content is very weak and it is very difficult either to verify or to falsify it;

(b) it is not clear how the belief can be correlated with certain epistemic or linguistic correlates.

So, intratheoretically, the theory has almost no empirical content and secondly, it receives no extratheoretical support. The same holds for those theories which propose a reduction to desires, and it seems to me
that a reduction to a minimum knowledge (for example of linguistic rules and social behaviour) is the safest base here.

I will therefore try to give a cumulative proof of the applicability of the theory. I will limit myself to the assertative statements (which eventually suppose or presuppose a belief). This brings me to the 'Gettier-paradox'.

In his article 'Is justified true belief knowledge?' Gettier (1963) argues that assertative statements can be true, although their utterer — who believes they are true — has a knowledge which does not correspond to his statement. To adopt Kaplan's expression, I could also say that his knowledge is not that of the corresponding statement. Gettier gives the following example. Two men, say Smith and Jones, have applied for a certain job. Suppose Smith has strong evidence for the following conjunctive proposition:

(9) Jones is the man who will get the job and Jones has ten coins in his pocket.

Smith's evidence for (9) might be that the director told him that Jones would in the end be selected, and/or that his (= Smith's) exam was very bad, and, secondly, that he (= Smith) had given ten coins to Jones who had no money on him. Proposition (9) entails:

(10) The man who will get the job has ten coins in his pocket.

We can assume that (10) is believed to be true by Smith and that his assertative statement The man who will get the job has ten coins in his pocket seems to be supported by justified knowledge. But suppose that, after all, Smith will get the job (Jones having refused the job, or the director being an ironical man — and/or a logician) and that Smith himself has ten coins in his pocket. Proposition (10) is true, although (9), from which Smith inferred (10), is false. Thus (10) is true, and Smith believes that (10) is true and Smith is justified in believing that (10) is true. But it is equally clear that Smith does not know that (10) is true; for (10) is true in virtue of the number of coins in Smith's pocket. Smith does not know how many coins there are in Smith's pocket (in his pocket) — he only knows that he has given ten coins to Jones. Smith bases his belief in (10) on a count of the coins in Jones's pocket, whom he falsely believes to be the man who will get the job. However, objectively seen, the mere utterance of The man who will get the job has ten coins in his pocket is a true statement and, unless we
have the opportunity to 'introspect' Smith's knowledge (or Smith's brain), we would credit him with true knowledge.

4.3

I think that the two problems (referential opacity of belief statements and of assertative statements) can be clarified — I am avoiding the word 'solved' — by using the above-made distinction between referential talk and name-bearing reference. In Quine's problem, Ralph does not believe that the man named Ortcutt is a spy. We can put it this way. Ralph does not believe that Ortcutt is a spy (although he believes that the man in the brown hat and the man in a brown hat at the beach are spies and he does not believe that the grey-haired man at the beach is a spy). We can say neither (11) nor (12):

(11) Ralph believes that Ortcutt is a spy.
(12) Ralph does not believe that Ortcutt is a spy.

Now, since the word Ortcutt is not used in a presentification context here, we must reduce the Ortcutt in bold type to a pronoun you which Ralph uses as a basic medium of his reference. So we have no referential opacity for the following statement, uttered by Ralph: I do not believe that you, Ortcutt, are a spy. This can be represented as follows (within Quine's framework):

\[(3x) (\text{Ralph does not believe that } x \text{ is a spy})\]
\[\text{or } (3x, y) (y \text{ does not believe that } x \text{ is a spy})\]

And what about the Gettier-paradox? There is, of course, an ambiguity as to the false or true knowledge which the utterance The man who will get the job has ten coins in his pocket (pre-)supposes. But the ambiguity disappears on the level of name-bearing. Smith does not know that the named Smith will get the job and that the named Smith has ten coins in his pocket. What Smith truly knows is that the named Jones has ten coins in his pocket (You, Jones, you have ten coins in your pocket) and what Smith falsely knows is that Jones (You, Jones, ...) will get the job. (What Smith does not know is that Smith (I) has ten coins in his pocket and that Smith (I) will get the job.)

I have avoided the word 'solution' because my clarification only shows that (1) belief statements and assertative statements are referentially opaque (with regard to level 1); (2) belief and assertative statements are not referentially opaque with regard to level 1a. However,
belief and assertative statements must first be reduced to their implicatum: a (particular) presentification context (with reduction to a proper name in presentification contexts, or to a name-bearing referring pronoun or exclamation). Thus my clarification only holds for cases where such a reduction is possible and not for statements as:

(13) a. John believes that Cicero denounced Catilina.
    b. John believes that Tully denounced Catilina.

or

(14) a. John believes that Octavian was the adoptive father of Tiberius.
    b. John believes that Octavius was the adoptive father of Tiberius.
    c. John believes that Augustus was the adoptive father of Tiberius.

Following Putnam (1975, pp. 227-9), we could say that we can put Cicero, Tully, Catilina, Octavian, Augustus and Tiberius in bold type and that none of these expressions is referentially opaque, because historians authorise us to do so (and to believe so). Still, because of the (empirical) impossibility of a reduction to pronouns here, I take these statements as being referentially opaque.

One can, of course, argue that we do not really need this somehow sophisticated distinction between name-bearing reference and referential talk at all. I disagree. I have two reasons for thinking that the distinction is necessary.

(a) if we do not make the distinction, we are substituting objects for names. As I said above, my concern is with a linguistic theory of reference, not with a theory about the basis of reference. I think the substitution would necessarily lead to a confusion of both types of theory.

(b) if we do not make the distinction, we are getting back to the Russellian equation 'non-genuine proper names = shortened descriptions' (or in Searle's formulation: 'proper names = bundles of descriptions'). There are several reasons why I cannot accept this equation.

(1) The relation between proper names and the corresponding descriptions has to be accounted for. In my opinion this has never been done in Russell's (nor in Searle's) theory. It is only claimed that there
is something like an abbreviation relation, but no arguments are adduced to justify this claim. The problem, I think, is the following: how can elements with very different syntactic properties (proper names and descriptions) be thus related? Definite descriptions can correspond to at least two syntactic constructions, whereas proper names used as name-bearing referring elements correspond to one. The man living in Apartment 16, Kennedy Avenue nr. 5, London in the sentence He will kill the man living in Apartment 16, Kennedy Avenue nr. 5, London can correspond to He will kill him and to He will kill someone, whereas John Miller (who happens to be the man living there) can only be substituted for him when the proper name is used as a name-bearing referring element.\(^27\)

2. One can assign false or inadequate descriptions to proper names and still make true statements (the opposite holds as well).

3. Descriptions can be made of \textit{a priori} impossible things or \textit{entities} (for example a round square). For a proper name (as a referential element and as a name-bearing referring element) — without any reference to the description it would suppose, according to Russell and Searle — this issue does not arise.

4.4

The distinction between name-bearing referring elements and referential elements and the corresponding distinction between the level of name-bearing and the level of reality (about which the referential elements speak) is a way to recover Putnam's yes/no-principle.

In \textit{The Meaning of "Meaning"}, Putnam says:

Another problem is this: a \textit{set}, in the mathematical sense, is a yes/no object; any given object either definitely belongs to \(S\) or definitely does not belong to \(S\), if \(S\) is a set. But words in a natural language are not generally \textit{yes/no}: there are things of which the description 'tree' is clearly true and things of which the description 'tree' is clearly false, to be sure, but there are a host of borderline cases. Worse, the line between the clear cases and the borderline cases is itself fuzzy. Thus the idealization involved in the notion of \textit{extension} — the idealization involved in supposing that there is such a thing as the set of things of which the term 'tree' is true — is actually very severe (Putnam, 1975, p. 217).

Referential talk seems to be linked with a triadic decision model (yes/no/neutral): however, the \textit{diadic} decision model (yes/no) can be
maintained for the level of name-bearing. With the particular class of elements defined above and used in particular syntactic contexts we refer to the name-bearing level or we don’t; but that’s all: there is no room for intermediate possibilities.

5 Conclusion

Let me summarise my point of view. A linguistic theory of reference, which has to be integrated in a general semiotic theory, must make the best of syntactical criteria and must avoid ambiguous and non-verifiable /falsifiable ‘semantic talk’. There appears to be a systematic connection between the syntactic behaviour of certain grammatical elements and the epistemological position of certain statements ‘on what there is’. I have therefore distinguished the level of name-bearing, a level on which we can avoid the problem of referential opacity of belief statements and assertions about it. To conclude, I would like to make a link with a very important idea of P.F. Strawson: that of identifying reference.

The notion of identifying reference is to be understood in close relation to the notion of identifying knowledge. When people talk to each other they commonly and rightly assume a large community of identifying knowledge of particular items. Very often a speaker knows or assumes that a thing of which he has such knowledge is also a thing of which his audience has such knowledge. Knowing or assuming this, he may wish to state some particular fact regarding such a thing, for example, that it is thus-and-so; and he will then normally include in this utterance an expression which he regards as adequate, in the circumstances of the utterance, to indicate to the audience which thing it is, of all the things in the scope of the audience’s identifying knowledge, that he is declaring to be thus-and-so (Strawson, 1971, p. 78).

I would say that reference to the level of name-bearing is the prototype of identifying reference. In referring to the level of name-bearing we identify — but not by way of description — in a very definite and ad hoc way, the media of reference. It is also here that John Stuart Mill’s dictum — ‘proper names only denote’ — has lost nothing of its perennial value.
Notes

* This article is a modified version of a paper read at the Antwerp Colloquium (20 Feb. 1979). Some elements of the subsequent discussion have been integrated here. My sincere thanks go to F. Dekoning and B. Peeters for their excellent typing.


2. Pinborg (1975, pp. 77-103) is an excellent survey of the stoic theory of language (especially syntax and semantics).

3. Being a non-transformationalist, I use the structuralist terminology. 'Phonology' is used for the American term 'Phonemics'.

4. On the syntactic level, the emphasis is on formal construction and on rule formulation and rule ordering, whereas in semantics, definitional analysis is primary. Finally, pragmatics is concerned with the empirical analysis, justification and condition construction – within a social and cognitive framework – of semiotic-linguistic behaviour.

5. See Quine, 1964, p. 130. Bocheński (1965, p. 13) seems to overlook this point.


7. This is what Aristotle calls a 'glotta' (Poetics, XXI, 1457b; XXII, 1458a).

8. \(N\)' stands for the class of 'natural kind-names' (N) for which holds: \(N \in \mathcal{N}\) (for example, a lemon is a fruit). The problem is, of course, to find a uniform definition of such classes as \(N\), and to provide an empirically justified hierarchy within the superclass \(\mathcal{W}\) (= the class of words, to which every item in the dictionary of \(L\) belongs together with his \(L\)-regular phonological, morphophonological and morphological characteristics and/or combinations). On the 'metalinguistic analysis', see Lewis (1972).

9. I think semanticists should make the best of Goodman's notion a 'constructional, interpreted system', as advanced in (one of) the twentieth-century bible(s): The Structure of Appearance (Goodman, 1951).

10. See Eco, 1976, pp. 105-29, and Verkuyl, 1978. This intermediate level (the mental encyclopaedia being a compromise between referential knowledge – knowledge of the world and of possible worlds, whatever that may be – and semantics) can probably be dismissed.

11. One can distinguish between the strict truth theory-orientation of Davidson before 1973 (=Davidson I) and the enlarged version of his truth theory, involving the 'principle of charity'. See also Foster, 1976.

12. The level of name-bearing corresponds with name-bearing reference and not with name-giving (see section 3.4).

13. A semantic criterion which would rely on the distinction between entities/substances (signified by pronouns and proper names) and actions or emotions (signified by interjections or exclamations) must meet the following criticisms: (1) it rests on dubious metaphysical foundations; (2) as a semantic theory it would have to explain its use of 'realist(ic)' concepts. The question, then, is what is left of 'semantics' here. To speak in Quinean terms, it seems that we would be confronted with a reductio ad absurdum of semantics itself.

14. See for example Bach, 1969; Chomsky, 1974; Keenan, 1972; Van Den Eynde and Blanche-Blveniste, 1978 a,b.

15. PN stands for (a) Proper Name. With regard to this possible enlargement, I would like to add the following remarks:
(1) It must be possible to reduce these other presentification contexts to the basic presentification context: 'This is (PN).'

(2) It is not my intention to offer an overall theory of reference, or of name-bearing reference. I only want to make some relevant syntactic observations about a particular way of referring and to make a modest contribution to 'the theory of reference'. It therefore seemed preferable to investigate a small and familiar domain and to avoid the risk of getting lost in a gloomy desert.


17. It was argued in the discussion that the tense in saw is also a name-bearing referring element. This seems to be impossible: how can one presentify a verbal tense? We can only presentify the now-moment.

18. *Me* is a form of the English first person singular morphem, according to Nida's principle 3 (Nida, 1949, pp. 41-54).

19. In the sentence I name you Dog$_{NG}$ (when baptising a dog, a cat, or a child), Dog is a proper name (and not a common noun).

20. The name-giver and the name-receiver can be one and the same person (for example in I name myself PN$_{NG}$ and *this will be my name from now on*). The name-giving formula does not always have the form of the canonical baptising formula (with an official name-giver).

21. Without involving ourselves in 'Aristotelian essentialism', I will not discuss the interesting clarification (probably not a solution, see Quine, 1969) of David Kaplan (1969). His clarification remains problematic, in my opinion, (1) because of the Churchian additions to Frege's theory of reference (section IV); (2) because of the use of expressions such as 'necessarily denoted', 'standard name', 'vivid names' (section VIII and following); (3) because of the essentialist interpretation of the relation 'to be of' (section IX and also in section XI). However, sections IX–XI contain some of the most profound reflections on the theory of quantification into opaque contexts and on the theory of reference. I also agree with Kaplan on the importance of a picture-theory as the basis (or, better, as one of the bases) of the theory of reference. But I have already stressed the fact that this problem falls out of the scope of this chapter.

22. For the commodity of the argument, I suppose that Ralph knows that the grey-haired man is named Orcutt (i.e. that the grey-haired man has been 'presentified' to him as the name-bearer Orcutt). If this were not the case, the argument would still be valid. We would only have to go back immediately to the name-bearing referring pronouns.

23. Where Orcutt stands for B.J. Orcutt in the appearance of grey-haired man commonly known as a pillar of the community.

24. Where the x is a basic medium of y's reference.

25. The concept 'to know falsely' must be introduced, in my opinion, in order to solve the problem raised by Griffiths (1967, p. 5). Another example would be to say that in the Middle Ages people falsely knew that the earth was flat. In the Middle Ages, *The earth is flat* was a knowledge-proposition (uttered, for instance, in schools and universities by teachers and scholars), but the knowledge expressed by that sentence is false (from the modern point of view, which eventually could also turn out to be false).

26. In fact, Russell's genuine names correspond to what I have called 'name-bearing referring elements'.

27. See also, in a different context, Partee, 1972.
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11 EXISTENTIAL PRESUPPOSITIONS AND THE CHOICE OF HEAD NP DETERMINER IN ENGLISH RESTRICTIVE RELATIVE CLAUSES

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Motto: Long ago, Linneus described a common species of butterfly, adding the laconic note 'in pratis Westmaniae'. Time passes and in the laudable pursuit of accuracy, new investigators name the various southern and Alpine races of this common species, so that soon there is not a spot left in Europe where one finds the nominal race and not a local subspecies. Where is the type, the model, the original? Then, at last, a grave entomologist discusses in a detailed paper the whole complex of named races and accepts as the representative of the typical one the almost 200-year-old, faded Scandinavian specimen collected by Linneus, and this identification sets everything right (V. Nabokov, *The Eye*).

1 Introduction

Obvious interrelations between structure and use of definite and indefinite descriptions and the notion of existential presuppositions have been frequently discussed, by both philosophers and linguists. It has been generally assumed, in agreement with the theory of descriptions formulated by Russell (1919, Ch.XVI), that while definite descriptions presuppose the existence of an object or person to which reference is made, indefinite descriptions assert the existence of referents. In this connection, various solutions of the problem of presupposition failure were considered: for Russell, radical failure of the existence presupposition of identifying reference (i.e. a case in which the item referred to does not exist) results in a false statement; for Quine and Austin such a statement lacks logical value (i.e. what results is a 'truth-value-gap' in Quine's terminology) or 'is void for lack of reference' (Austin). (For discussion, see Strawson, 1975).

Russell's classification of instances of radical presuppositional failure as false statements was questioned as a result of what was considered the main shortcoming of his theory: for Russell linguistic expressions refer to things, while in normal conditions of verbal communication it is people who use the expressions in order to perform particular acts of
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referring. Consideration of this pragmatic aspect of language use resulted in a modification of the description theory, proposed by Donnellan (1975): the speaker's use of a description can be either attributive (when something is being stated about 'whatever or whoever is the so-and-so') or referential (when the aim of the speaker is to allow his audience to identify the person or object referred to in the utterance and to state something about the identified referent). This differentiation corresponds to Keenan's distinction between referentially transparent and opaque readings of utterances, as applied in linguistic semantics (for discussion, see, for example, Cole, 1975).

It seems, however, that the distinction between the referential and attributive uses of descriptions should be discussed in terms of a question crucial for our understanding of the intricate network of presuppositions which such expressions carry. This question is a pragmatic one: which discourse participant(s) is the usage referential or attributive for? The bearing of this pragmatic aspect upon the semantic analysis of certain types of descriptions is one of the moot points of the present discussion.

The discussion of existential presuppositions of descriptions has in general been restricted to definite descriptions; this limitation probably results from the assumption that indefinite descriptions do not involve presuppositions concerning the existence of referents. However, in his discussion of indefinite descriptions, Strawson (1967, pp. 409-10) states that not all utterances in which definite reference either cannot be made (because of the lack of 'previous mention' or inadequate knowledge on the part of the speaker and/or his audience) or is purposefully avoided by the speaker can be classified as particular existential statements. Thus he implicitly admits that at least some indefinite descriptions can carry presuppositions of existence.

In this chapter I intend to discuss the problem of existential presuppositions in relation to a specific group of descriptions: those constituted by restrictive relative clauses. It will be claimed that relating the notion of presupposition of existence to definite descriptions only does not reflect the whole intricacy and complexity involved in the use of relative constructions. Further, I hope to show that 'definiteness' and 'indefiniteness' are purely pragmatic notions: existential presuppositions ('inherent presuppositions' in Jackendoff, 1973, Ch. 6, passim) do not necessarily imply definiteness ('focal presuppositions' in Jackendoff, ibid.), while definiteness is not a necessary prerequisite for the presupposition of existence.

The interrelations between the choice of the determiner of the head
Existential Presuppositions

NP (i.e. the use of a definite or indefinite description) and the type of relative clause was systematically discussed by Smith (1969), who claims that determiners can be distinguished on the basis of their co-occurrence with relative clauses. However, her analysis fails, and her classification of determiners into three groups (Indefinite, Specified and Unique) collapses when the indefinite article, the definite article and proper names are shown to occur with both restrictive and non-restrictive relatives; possible occurrence of a restrictive relative construction proves to be an inadequate criterion for a classification of determiners.

In the course of the following discussion an even stronger argument against Smith’s taxonomy is put forward: it will be claimed that restrictive relative constructions employing a single type of determiner can still be pragmatically ambiguous due to presuppositional differences, and that it is existential presuppositions that are crucial for the understanding of the English system of determiners.

Although not exactly fitting the scope of Chomsky’s trace theory, the analysis will in general correspond to his notion of semantic interpretation, where certain rules of sentence grammar assign the scope of logical operators, antecedents of bound anaphors, etc., producing what he defines as a ‘logical form’. The proposed semantic representation of types of structures discussed will also incorporate relevant aspects of discourse and communicative context, reflecting the operation of ‘other cognitive structures, giving fuller representations of meaning’ (Chomsky, 1976, pp. 104-5).

As a first approximation at a formalisation of semantic representations of various types of relative constructions, the standard notation used in formal logic will be employed. I will use the symbolism of the first order predicate calculus, combined with elements of notation proposed by Russell and Reichenbach (1947, pp. 256 ff.) as the means of representing definite and indefinite descriptions.

2 Uniqueness of Reference and Identifiability

Beginning with a most obvious case, let us consider the following utterance:

(1) I lit the cigar that my colleagues Bill Lake and Mona Meyerling had given me when they had stopped by to visit a few days before (P. Roth, Letting Go, 1974, p. 288).

Let us assume that (1) was uttered in a situation in which both the
speaker and his audience witnessed the actual moment at which the cigar was offered to the speaker. Then the definite description constituted by the relative clause in (1) is used referentially for both parties that participate in the communication act of which the utterance constitutes a part: the function of (1) is to make it possible for the audience to identify the particular cigar that the speaker lit. Thus, in terms of delimitation feature analysis (cf. Bierwisch, 1975), the head NP in (1) is [+ Specifying] and [+ Definite] for both the speaker and his audience.

(1) Carries the following existential presuppositions:

(2) The set of cigars is non-empty.

In fact, it must include at least two members, since 'a restrictive relative clause presupposes the existence of entities of which the description given in the relative clause is not true' (Bach 1974, p. 272). Thus 'the cigar that my colleagues... had given me...' presupposes the existence of at least one other cigar that comes from another source. This presupposition, which Bach ascribes to all restrictive relatives, does not necessarily hold for restrictives with non-specifying head NPs, as will be shown later.

(3) The description fits one and only one cigar.

Assuming the correct use of the description, the actual existence of an entity that fulfils the uniqueness condition\(^1\) must also be presupposed. Thus:

(4) There exists one and only one cigar such that it fits the description.

However, the particular occasion on which (1) is uttered requires that its semantic interpretation should also include two further propositions, presupposed in the pragmatic sense:\(^2\)

(5) The speaker can identify the one and only cigar that fits the description.

(6) The audience can identify the one and only one cigar that fits the description.

If we now replace the propositions (2) – (6) with propositional
functions, using bound variables in place of singular terms, we obtain the following symbolism:

(2)' \( \exists \ x \ (x \in X) \), where:

\( X = \) a non-empty set of cigars

\( x = \) a cigar

(3)' \( (\alpha) f(x) \)

(4)' \( \exists ! x \ f(x) \), where

\( f(\cdot) = \) such that my colleagues . . . had given it to me . . .

(5)' \( h[S, (\alpha) f(x)] \equiv \exists ! x \ [f(x) \cdot h(S,x)] \), where \( h(S,\cdot) = \) such that the speaker \( S \) can identify it

(6)' \( i[L, (\alpha) f(x)] \equiv \exists ! x \ [f(x) \cdot i(L,x)] \), where \( i(L,\cdot) \) such that the audience (listener) \( L \) can identify it.

(1) asserts that

(7) I lit the one and only cigar such that my colleagues . . . had given it to me . . . ,

which can be formally represented as

(7)' \( g[I, (\alpha)f(x)] \equiv \exists ! x \ [f(x) \cdot g(I,x)] \), where \( g(I,\cdot) = \) such that I lit it.

The conflation of presuppositions with the assertion gives the following logical structure of (1):

(8) \( \exists ! x \ [(x \in X) \cdot f(x) \cdot (g(I,x) \cdot h(S,x) \cdot i(L,x))] \).

It will be seen that, in accordance with the standard test for presuppositions, (2) \( \rightarrow \) (6) hold for sentence negation\(^4\) of (1):

(9) It is not true that I lit the cigar that my colleagues Bill Lake and Mona Meyerling had given me when they had stopped by to visit a few days before,

the negated part being the assertion of (1):

(10) \( \sim \exists ! x \ [f(x) \cdot g(I,x)] \equiv \exists ! x \ [f(x) \cdot \sim g(I,x)] \),\(^5\)

to be read as
(11) There exists one and only one cigar such that my colleagues Bill Lake and Mona Meyerling had given it to me when they had stopped by to visit a few days before, and that I can identify it, and that I did not light it.

The pragmatic presupposition concerning the ability of the audience to identify the object referred to can result from the extralinguistic context in which the utterance is made, as was the case discussed above. However, the appropriate knowledge, assumed by the speaker, can be actually given to the audience in the preceding portions of the discourse, which accounts for the use of the definite article that is usually referred to by the linguistic term of 'prior mention'. A detailed discussion of varying sources of this kind of information is immaterial for the present argument.

The possibility of referential, or identifying, interpretation of a description does not have to be presupposed as the necessary prerequisite for its appropriateness in a discourse. To use (1) as an illustration once again, let us assume that it is uttered in a situation in which the audience has no information that would make it possible to actually identify the cigar in question. While the existential presuppositions listed under (2), (3) and (4) still hold, in the pragmatic sense (1) presupposes (5), but no longer (6). According to the distinction proposed by Donnellan, (1) is now a case of a description referential for the speaker but attributive for the listener. Thus the head NP in (1), although [+ Specifying] for both the speaker and the audience, is [+ Definite] for the former but [— Definite] for the latter.

The logical structure of (1) is now

(12) $\exists !x [(x \in X) \cdot f(x) \cdot g(I,x) \cdot h(S,x)]$

i.e. its semantic interpretation gives a meaning that is somewhat ‘poorer’ when compared with (3).

It is of course possible to imagine a situation which is the reverse of that discussed above. Let us consider a slightly modified version of (1):

(13) I would like to see the cigar that your colleagues Bill Lake and Mona Meyerling had given you when they stopped by to visit a few days before,

uttered in the situation in which the listener knows that one and only one cigar had been given to the speaker by his colleagues, but he cannot
identify it. Again, while (13) will still carry the existential presuppositions listed under (2), (3) and (4), in the pragmatic sense it presupposes (6), but no longer (5). The description, referential for the listener, is attributive for the speaker. Or, the head NP, although [+ Specifying] for both the speaker and the listener, is [+ Definite] for the latter but [− Definite] for the former.

Using the symbols introduced before, we can now represent the logical structure of (13) as

(14) $\exists !x \left[ (x \in X) \cdot f(x) \cdot g(I,x) \cdot i(L,x) \right]$.

Finally, a definite description in general, and a definite description in the form of a relative clause in particular, can be used attributively in situations in which definite reference is impossible for either the speaker or his audience. Cf. for example:

(15) He lit the cigar that his colleagues Bill Lake and Mona Meyering had given him when they had stopped by to visit a few days before,

uttered in a situation in which both the speaker and the listener are aware of the fact that two colleagues had visited $y$ and offered him one and only one cigar, but none of the two parties is able to identify the referent. It is my impression that relatives used in this function will pertain mainly to cases of events reported by the speaker, although Donnellan's classical example (slightly modified by Cole, 1975, p. 673) provides an exception to this rule:

(16) Smith's murderer (= the man who murdered Smith) is insane (Donnellan, 1975, p. 102),

uttered at the moment when the murderer is still unknown.

While utterances like (15) or (16) presuppose the existence of one and only one referent that fits the description constituted by the relative clause and assert something about this unique object, no pragmatic presuppositions are made concerning either the speaker's or the listener's ability to identify it. Thus, the logical structure of (15) is

(17) $\exists !x \left[ (x \in X) \cdot f(x) \cdot g(I,x) \right]$.

Consequently, one could claim that the head NP, although [+ Specifying]
is in fact [— Definite] for both participants in the discourse.

It might seem that such distinctions concerning pragmatic presuppositions are not significant for a discussion concerning the choice of determiners preceding head NPs in relative constructions: in all cases the speaker of English will use the definite article as the determiner. However, a comparison of cases like those presented above leads to some interesting observations.

First, all relatives with the-NPs presuppose the existence of a non-empty set of (at least two) entities that can potentially fit the description. Moreover, they logically presuppose the existence of one and only one referent that actually fits it, fulfilling the uniqueness condition. But logical presuppositions alone cannot adequately explain the pragmatic ambiguity of definite descriptions, which — depending on the actual situation in which they are used — can oscillate between the referential and the attributive use. Thus, the existence of the unique referent can be presupposed in the logical sense only, or also pragmatically, as the consequence of the speaker's and/or listener's ability to identify it. It is only in those cases in which a definite description is used referentially for both parties participating in the discourse that the can be considered a truly definite determiner, possessing the feature 'characteristically realised by the definite article in languages displaying articles [and indicating] that the set forming the reference instance is already given and uniquely identifiable by means of the respective predicative features' (Bierwisch, 1975, p. 417).

It is this pragmatic ambiguity of definite descriptions that accounts for the apparent lack of consistency in Jackendoff's analysis of inherent presuppositions induced by the definite article. Having claimed that 'definite noun phrases presuppose that they describe an entity uniquely identifiable within the bounds of the discourse' (Jackendoff, 1972, p. 277), he proceeds to state that 'in general, the definite article produces only a presupposition of uniqueness, but not a presupposition of identifiability' (Jackendoff, 1972, p. 287; emphasis mine).

The opposition between pragmatic definiteness and indefiniteness of the definite article has some significant consequences as far as the use of definite descriptions in English is concerned. It seems that the linguists' hesitance in accepting the hypothesis put forward by Russell and Quine (cf. Carnap, 1956, p. 74) that all definite descriptions are abbreviations of compound expressions (i.e. chiefly reduced or full relatives) results from the fact that definite descriptions whose referential use is pragmatically presupposed rarely require surface realisation of the presupposed constituents. Identifying reference for the
The difference between two possible semantic interpretations of the-NPs in relative constructions can be overtly manifested by replacing the with the unstressed demonstrative pronoun that, which can serve as the head NP determiner in the first but not in the second case. In spite of obvious dangers involved in associating overt markers present in utterances with their presuppositions, rather than restricting this notion to those aspects of meaning that do not receive direct expression, it is very tempting to link that, which in its function of determiner retains its demonstrative character, with the presupposition concerning the ability of identifying reference. Characteristically, the use of that is limited to those cases in which this ability is presupposed for both participants in the discourse. Consider, for example:

(18) We have decided to let you have that dog you wanted. (From Reader's Digest)

A caption of a cartoon, (18) makes one laugh only on the condition that it is given a particular interpretation: the father, who utters (18) on coming home with a huge fierce-looking boxer, presupposes that both he himself and his children, who look frightened and disappointed, can identify the one and only possible referent of the description 'such that you wanted it'. With what was an attributive description for the children, their father has made an incorrect reference — a case that could go by the name of pragmatic presupposition failure.

The same restriction concerning the use of a demonstrative pronoun in the function of head NP determiner in restrictive relatives holds also in Polish — a language which does not display a system of articles in the traditional sense. The unstressed demonstrative pronoun ten/ta/to (and the variants for oblique cases) can only occur with fully referential use of a definite description. Cf. for example:

(19) Podłoga na korytarzu lśniła tym szczególnym połyskiem, którym odznaczają się szpitale prowadzone przez zakonnice (M. Choromański, Memuary, 1976, p. 93). (The floor in the...
(19) is an appeal to the reader's experience, which enables him to make a correct reference—an artistic device used frequently in order to maintain the atmosphere of direct discourse between the author and the reader of a narrative: 'I know that particular shine, and of course so do you.' However interesting, a fuller discussion of such use of definite descriptions cannot be attempted at this juncture. As a further illustration of the point that has just been made, let us consider one more example: an announcement from a daily paper:

(20) Panienka w czarnym płaszczu, która podniosła bransoletkę, proszę o zwrot w kiosku Ruchu (Echo Krakowa, no. 247/78).
(The girl in a black coat who picked up the bracelet is kindly asked to leave it at the Ruch kiosk.)

Using a piece of information evidently supplied by a third party, the owner of the lost bracelet presupposes the existence of one and only one girl in a black coat who picked up the piece of jewellery. However, being unable to identify her, he can only use the description attributively. Hence, the head NP in (20) can only be preceded by the zero article.

3 Existence and Identifiability

It has been frequently noticed that certain restrictive relatives can occur with either definite or indefinite articles; some aspects of this mutual interchangeability are discussed in Jackendoff (1972, p. 277) and Maratsos (1976, pp. 137ff.). Although neither of these authors explicitly explains in what particular cases such an option arises, the examples which they quote, i.e.

(21) \{A\} man I met yesterday. . . (Jackendoff, 1972, p. 277)

(22) I just remembered what \{\text{the}\} man I talked to at Macy’s yesterday said (Maratsos, 1976, p. 137)
show that the alternative use of a definite or indefinite description is reserved for those cases in which the head NP is [+ Specifying] and [+ Definite] for the speaker without being as much as [+ Specifying] for the listener. Thus sentences like (21) and (22) in fact presuppose the existence of a referent, though without claiming that it should satisfy the uniqueness condition. The description, referential for the speaker, functions attributively as far as the listener is concerned—a use parallel to that exemplified by (12) above.

This pragmatic aspect of the meaning of the description is reflected in the optional use of such 'pragmatic' determiners as a certain or this. It agrees with Jackendoff's intuition that the use of a certain in in sentences like

(23) The reason I'm here is a certain tall, dark and handsome man whose visit to London I have already mentioned to you (from a private letter, written by an English girl)

will force the specific reading on an indefinite NP, since they imply that the NP can already be identified (Jackendoff, 1972, p. 287). Similarly, it is generally agreed that this, considered as 'a substandard dialect, or at least extremely colloquial . . . appears to be slightly more specific than a' (Stockwell et al., 1973, p. 157; cf. also Maratsos 1976, p. 133), in sentences like

(24) I don't know why, really, I bought this dress that makes me look ten years older (from a private letter, written by an English girl).

(24) carries the following existential presuppositions:

(25) The set of dresses is non-empty (the number of elements not being restricted in any way; cf. the discussion of (1)).

(26) The description fits some dress.

Its semantic interpretation also includes two propositions which are presupposed in the pragmatic sense:

(27) The speaker can identify a particular dress that fits the description.

(28) The listener cannot identify a particular dress that fits the description.
(25) – (28) can be symbolised in the following way:

(25)′ \( \exists x (x \in X) \), where
\[ X = \text{a non-empty set of dresses} \]
\[ x = \text{a dress} \]

(26)′ \( \eta x \ f(x) \), where
\[ f(.) = \text{such that it makes me look ten years older} \]

(27)′ \( h[S, (\eta x) f(x)] = \exists x [f(x) . h(S, x)] \), where \( h(S, .) = \text{such that the speaker S can identify it} \)

(28)′ \( \sim i \ [L, (\eta x) f(x)] = \exists x [f(x) . \sim i(L, x)] \), where \( i(L, .) = \text{such that the listener L can identify it} \)

Due to the existential implication of (27)′, the rule stating the scope of the \( \eta \)-operator as the narrowest scope possible\(^8\) does not hold, and the semantic ambiguity of the scope of negation in indefinite descriptions is in this case resolved in favour of (28)′. (24) asserts that

(29) I bought a dress such that it makes me look ten years older,

which can be formally represented as

(29)′ \( g[I, (\eta x) f(x)] = \exists x [f(x) . g(I, x)] \), where \( g(I, .) = \text{such that I bought it} \).

The conflation of presuppositions with the assertion gives the following logical structure of (24):

(30) \( \exists x [(x \in X) . f(x) . g(I, x) . h(S, x) . \sim i(L, x)] \)

(25) – (28) hold also for the negation of (24),

(31) It is not true that I bought \( \begin{cases} \text{this} \\ \text{a certain} \end{cases} \) dress that makes me look ten years older

the negation of the assertion of (24) being interpreted as

(32) \( \sim g [I, (\eta x) f(x)] = \exists x [f(x) . \sim g(I, x)] \), i.e.

(33) There is \( \begin{cases} \text{a certain} \\ \text{this} \end{cases} \) dress such that it makes me look ten years older, and that I can identify it, and that you cannot identify it, and that I did not buy it.
Like definite descriptions, indefinite descriptions can be used in the attributive sense for the speaker but the referential one for the listener. What is then presupposed is the listener's ability to identify the referent; consequently, the presupposition of existence must also be made. Cf. for example:

\[(34) \text{They tell me that you have written } \{\text{an}\} \text{article that deals with English determiners.}\]

Like (24), (34) presupposes the existence of a non-empty set of articles, one of which fits the description. Yet the pragmatic presuppositions are 'reversed' in comparison to those of (24): while the listener is presumed to be able to identify the referent, the speaker cannot do it. The logical structure of (34) would then be

\[(35) \exists x [(x \in X) \cdot f(x) \cdot g(you, x) \cdot h(S, x) \cdot i(L, x)],\]

where \(x = \text{an article, a member of a non-empty set of articles } X\)

\(f(.) = \text{such that it deals with English determiners}\)

\(g(.) = \text{such that you wrote it}\)

\(h(S, .) = \text{such that the speaker S can identify it}\)

\(i(L, .) = \text{such that the listener L can identify it}\)

It is worth noticing that it is just in sentences like (34) that the 'pragmatic' determiner *some* (i.e. 'the second *some*', or 'indefinite demonstrative' in Stockwell *et al.*, 1973, p. 132) can be used, cf.:

\[(36) \text{I hear that you have bought } \{a\} \text{dress that makes you look ten years older.}\]

It is then seen that the relatives in which the indefinite article *a* is used rather than a more transparent *certain* or *some* (cf. (34), (36)) are systematically ambiguous, in respect of the presence or absence of presuppositions concerning the existence of the referent of the description as a consequence of its presupposed identifiability on the part of the speaker or the listener. It might be interesting to observe that Polish employs a parallel system of determiners, which serve the purpose of resolving pragmatic ambiguities of the type discussed above. The zero article can be replaced with the indefinite pronoun *pewien* (certain) in the function of determiner in cases analogous to those in which *certain* can be used in English; cf.
(23)\textsuperscript{'} Powodem, dla którego tu jestem, jest pewien wysoki, śniady i przystojny mężczyzna, o którego wizytę w Londynie już ci wspominałem.

Similarly, the substandard use of this has its counterpart in the equally non-literary use of the cardinal numeral jeden (one) in the function of determiner. In colloquial Polish jeden usually collocates with the demonstrative pronoun taki (such), to give the complex form taki jeden, cf.

(24)\textsuperscript{'} A potem zupełnie nie wiem dlaczego, kupiłam taką jedną suknię, w której wyglądam o dziesięć lat starzej.

Pragmatic implication of the 'indefinite demonstrative' some, used like in (36), is carried by Polish indefinite pronoun jakis in the function of determiner, cf.:

(36)\textsuperscript{'} Słyszę, że kupiłaś jakąś suknię, w której wyglądasz o dziesięć lat starzej.

In sentences like (23)\textsuperscript{'}, (24)\textsuperscript{'} and (26)\textsuperscript{'} the 'pragmatic' determiners can be deleted, with the resulting semantic interpretation including no presuppositions concerning identifiability and, as its necessary prerequisite, the existence of referents.

It has long been claimed that the features [± Specifying] and [± Definite] are not negations of each other (cf. Bierwisch, 1975, p. 417), and that in fact there is no one-to-one relation between them (cf. Maratsos, 1976, passim). Jackendoff observes that indefinite NPs allow for three different interpretations; although he does not explicitly refer to pragmatic aspects of the meaning of token utterances, the distinction that he makes clearly corresponds to the cases in which the NP is [– Specifying] for the speaker, or for the listener, or finally for both participants in the discourse (cf. Jackendoff, 1972, p. 280). The first two possibilities were discussed above; the third is the subject of the analysis that follows.

Relatives with indefinite head NPs which are interpreted as non-specifying for both the speaker and the listener, i.e. indefinite descriptions used attributively, differ from the other two categories in respect of their presuppositions: the former assert the existence of referents, while the latter presuppose it. Cf. for example:
(37) Last month, the police arrested a 24-year-old clerk who had raped and robbed his female friend. (Newsweek)

While (37) presupposes that there exists a non-empty set of (24-year-old) clerks, there is no presupposition concerning identifiability, or even the existence of such a member of this set that fits the description. Thus (37) presupposes that

(38) The set of (24-year-old) clerks is non-empty (and in no way restricted as to the number of its members),

or, formally,

\[ \exists x \ (x \in X) \],

where

\[ X = \text{a non-empty set of (24-year-old) clerks} \]
\[ x = \text{a (24-year-old) clerk} \]

and asserts that

(39) There is a 24-year-old clerk such that the police arrested him and that he had raped and robbed his female friend

or, formally,

\[ \exists x \ [f(x) \cdot g(x)] \],

where

\[ f(.) = \text{such that he had raped and robbed his friend} \]
\[ g(.) = \text{such that the police arrested him} \]

Such an interpretation is confirmed by the sentence negation of (37), i.e.

(40) It is not true that last week the police arrested a 24-year-old clerk who had raped and robbed his female friend

which corresponds to the logical form

\[ \sim \exists x \ [f(x) \cdot g(x)] \],

which has the \( \eta \)-operator within the scope of negation. This is seen when we imagine a possible continuation of (37), for example:

(41) no young clerk could possibly have done such a thing
However, the reformulation of (40)' as

\[(42) \ \forall x \sim [f(x) \cdot g(x)] \equiv \forall x [\sim f(x) v g(x)]\]

shows that the existence of a clerk who had actually committed the crime does not have to be denied; in such a case this part of the assertion of (37) can be a presupposition in the subsequent discourse (cf. Bickerton 1975, p. 49):

\[(43) \ \text{but they hope that the evidence given by the victim will make it possible to find him pretty soon.}\]

It is interesting to notice that sentences like (37) allow for the use of the indefinite *some*; predictably, their Polish equivalents can employ the corresponding indefinite pronoun-determiner *jakis*, cf.:

\[(44) \ \text{Even the humble bicycle is an evil trick of some ancient designer who presumably thought it funny to see human beings wobbling round on two wheels (Hi).}\]

\[(44)' \ \text{Nawet skromny rower jest niecną sztuczką jakiegoś starożytnego wynalazcy, któremu zapewne wydawał się zabawny widok istot ludzkich poruszających się chwiejnie na dwóch kółkach.}\]

The entirely attributive use of indefinite descriptions, i.e. relatives whose head NP is [–Specifying] for both the speaker and the listener, is also exemplified by the classical instances of the so-called ‘want contexts’ (cf. Jackendoff, 1972, Ch. 7, passim), with the NP in non-subject position. While in attributive indefinite descriptions with verbs in the main clause not belonging to the ‘intentional group’ the existence of referents is either presupposed or asserted, the ‘want contexts’ do not justify any claims of existence, which might be implied by the use of the existential quantifier in their semantic interpretation. Consider the following example:

\[(45) \ \text{Actually, I need a dress that would make me look younger.}\]

(\text{from a private letter, written by an English girl})

While (45) still clearly presupposes the existence of a non-empty set of dresses, there is no presupposition – or assertion – made as to the existence of a particular member of this set, which would fit the
description. At most, the speaker assumes that it might exist.

Like in other cases of the attributive use of indefinite descriptions, *a* in sentences like (45) can alternate with *some*, and – predictably – with *jakis* in Polish.

The most adequate formalisation that I can offer at the present moment to show the semantic representation of (45) would be the tentative formula

\[(45)' \exists x \ [(x \in X) \land f(x)] \rightarrow \exists y \ [(y \in X) \land f(y) \land g(I,y)]\]

to be read as

(46) If there exists a member of the non-empty set of dresses such that it would make me look younger, then there exists a member of the same set such that it would make me look younger and that I need it.

The negation of the assertion of (45) would then be

\[(47) \sim \exists x \ [(x \in X) \land f(x) \land g(I,x)] \equiv \forall x \sim [(x \in X) \land f(x) \land g(I,x)]
\equiv \forall x \sim [(x \in X) \land f(x)] \rightarrow \sim g(I,x),\]

which actually agrees with the intuitive interpretation of sentence negation of (45):

(48) I do not need a dress that would make me look younger

or

(49) For every dress *x*, if *x* would make me look younger, then I do not need *x*.

This interpretation explains the possible use of *any* as the head NP
determiner, cf.:

(50) I do not need any dress that would make me look younger

as the regular ‘suppletive alternant’ of the [−Specifying] *some* and *a* in the ‘environment of NEG’ (Stockwell *et al.*, 1973, p. 134). Again, Polish equivalents of sentences like (50) would optionally employ the negative indefinite pronoun *zaden (no)* in the function of determiner:
(50)' Nie potrzebuje zadnej sukni, w której wyglądalabaym Mlodziej.

The analysis of (46) brings us close to the most obviously attributive use of relatives functioning as indefinite descriptions, i.e. the generics. Semantic interpretation of sentences like

(51) \( \{A\}_{\text{linguist who reads Chomsky knows his trace theory}} \)

could be expressed by means of the formula

(51)' \( \forall x [f(x) \rightarrow g(x)] \),

where \( X = \) a non-empty set of linguists
\( x = \) a linguist
\( f(.) = \) such that he reads Chomsky
\( g(.) = \) such that he knows Chomsky’s trace theory

As in the previous case, no presupposition or assertion is made as regards the existence of linguists who read Chomsky. Notice, however, that the negation of (51) results in

(52) \( \exists x [f(x) \sim g(x)] \),

a formula which implies the presupposed — or asserted — existence of NP referent(s). Indeed, its natural language counterpart

(53) It is not true that \( \{\text{every}\}_{\text{linguist who reads Chomsky knows his trace theory}} \) \( \{\text{each}\} \)

can be used appropriately if the speaker has some knowledge that justifies his denial of (51), i.e. if he actually knows that there exist some linguists who do read Chomsky and still do not know his trace theory.

The alternation between \( a \) and \( \text{any} \) in (51) and \( \text{every} \) and \( \text{each} \) in (53) proves that these two pairs of determiners share a number of properties — the point made in Stockwell et al. (1973, p. 134). Characteristically, an analogous opposition is observed in Polish, cf.:

(51)' \( \{0\}_{\text{którykolwiek językoznawca, który czyta Chomsky'-ego, zna jego teorię śladów}} \)
The above description of the interrelationship between the speaker's choice of head NP determiner and the existential presuppositions in restrictive relative clauses, however tentative, justifies the following preliminary conclusions.

It cannot be claimed that the choice of head NP determiner determines the subsequent use of a restrictive relative construction (as proposed in Smith, 1969); it is rather the pragmatic function of a restrictive relative in a discourse that determines the choice of head NP determiner. Smith's triple division of determiners into Indefinite, Specified and Unique does not reflect the complex structure of the whole system and blurs the pragmatically significant distinction between definiteness and specificity, which -- as has been shown above -- need not occur in a one-to-one relation. The opposition between \[\pm\ Specifying\] and \[\pm\ Definite\] involves particular pragmatic notions and relates, respectively, to presuppositions concerning the existence and the identifiability of NP referents. Moreover, the head NP of a particular description used within a particular bit of discourse can be ascribed different interpretations, which reflect, in terms of specificity and definiteness, the differing amount of knowledge on the part of the speaker and the listener that the former presupposes. In particular, the existence of a clear distinction between the attributive and the referential use of definite descriptions proves that the satisfaction of the uniqueness condition does not necessarily entail identifiability of the referent.

The choice of head NP determiner in a restrictive relative depends to a great extent upon the presuppositions carried by a given utterance; consequently, presuppositional analysis should constitute a legitimate element of the description of relative constructions. Moreover, presuppositions of existence and/or identifiability seem to be crucial for an understanding of the system of determiners -- not only for such languages as English, but also for seemingly 'articleless' languages like Polish. A systematic analysis of the relations between presuppositions and the choice of head NP determiner might perhaps result in some observations that would in turn contribute to our better understanding of language universals.
Table 11.1

<table>
<thead>
<tr>
<th>Presupposition of Existence</th>
<th>Pres. of Identifiability</th>
<th>Use of Description</th>
<th>Delimiting Features of Head NP</th>
<th>Choice of Head NP Determiner</th>
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<tbody>
<tr>
<td></td>
<td>S&lt;sup&gt;a&lt;/sup&gt;</td>
<td>L&lt;sup&gt;b&lt;/sup&gt;</td>
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<td>(1) Non-empty set of entities that can potentially fit the description</td>
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<td>(2) A unique referent actually fitting the description</td>
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Notes:
- a. S = speaker
- b. L = listener
- c. E = English
- d. P = Polish
- e. Ref = Referential use of description
- f. Att = Attributive use of description
- g. +/-Spec = +/-Specifying
- h. +/-Def = +/-Definite
Taking into account the tentative discussion presented above, two observations seem justified. First, although none of the classes of relatives defined in terms of their presuppositions is systematically represented by a single determiner in either English or Polish, some regularities are easily seen (the use of the unstressed demonstrative pronoun with fully referential definite descriptions, the use of indefinite determiners with indefinite descriptions [-Specifying] for the speaker — cf. Table 11.1). Secondly, whatever methodological dangers such a proposal might involve, it seems plausible to put forward the hypothesis that at least some presuppositional differences between (types of) utterances can be expressed by overt surface structure markers.

Notes

1. Similarly, the sentence quoted by Vendler (1975, p. 132) as (43), 'The bear I shot yesterday was huge' presupposes 'I shot one and only one bear yesterday,' and not, as he claims, 'I shot a bear yesterday.'

2. According to Karttunen's definition, as quoted in Shanon (1976, p. 247): 'To presuppose a sentence in the pragmatic sense is to take its truth for granted and to assume that the audience does the same.'

3. For the discussion of the use and symbolism of iota-operator, see Reichenbach, 1947, pp. 256 ff.

4. I consider 'negation' of complex statements like (1) to be the result of preceding the whole statement with the functor 'it is not true that' — in agreement with the principle accepted in logical sentence calculus.

5. For the definition, see Reichenbach, 1947, p. 262.

6. Its stressed counterpart, used for contrast, would obviously involve a different semantic interpretation of the resulting surface structure. According to Stockwell et al., such cases might follow certain rules of stress for 'repeated and non-repeated material, extended to apply optionally on first occurrence to represent non-linguistic preceding context' (Stockwell et al., 1973, p. 158). Any detailed discussion of such rules extends the scope of this paper.

7. For the discussion of the use and symbolism of eta-operator, see Reichenbach, 1947, pp. 264 ff.


References

The Semantics of Determiners

Grossman, R.E., San, L.J. and Vance, T.J. (eds.) (1975), Papers from the Eleventh Regional Meeting of CLS, CLS, Chicago
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1 Introduction

It is noteworthy that the idea of semantically based grammar is particularly alive in the research on determination and quantification, not only in classical generative semantics, but also in more recent literature (Hawkins, 1978; Hogg, 1977; Van Langendonck, 1976). To put it into Hawkins’s words: ‘the full contents of semantic representation are going to be needed in syntax’ (p.282). This hypothesis will be confirmed in the present chapter, dealing with indefiniteness and some of its subcategories. On semantic, psycholinguistic and syntactic grounds, semantic representations (SRs) will be set up for the categories in question. Moreover, this will lead to positing a hierarchy of semantic complexity.*

To achieve these goals, however, it will be necessary to distinguish between ‘logical form’ and ‘semantic form’, as is done by Seuren (1975, pp. 273 ff.).

First, it appears that an adequate semantics of natural language has to be presuppositional in nature, i.e. we have to take into account the presuppositions in context, immediate and larger situation. But since logic is independent of presuppositions, we have to resort to a kind of semantic form, though this semantic form can of course be translated into logical form when necessary.

Second, in order to establish a hierarchy of complexity, it will be imperative to take full account of presuppositions, and therefore only semantic form is suited for that purpose.

Third, it will turn out that syntactic form does not correlate with logical form, but with semantic form. Hence, we will in this paper merely use semantic form (or semantic representation, SR).

2 The Semantics of Definiteness and Indefiniteness

It is commonly assumed that indefiniteness can be rendered by the existential quantifier. The function of this quantifier in semantic form is not to quantify over objects, but merely to introduce them into the
universe of discourse, the speech situation, or, as it is called by Seuren (1975), the domain of interpretation. Now, in the case of definiteness, this introduction has already taken place, either in the preceding linguistic context, or in the situation, or in the larger context of our image of the world. Thus one speaks of a semantic (and/or pragmatic) presupposition of existence in the domain of interpretation, shared by speaker and hearer. Following Hawkins (1977; 1978) it seems better to drop the Russelian concept of uniqueness, mainly because, strictly speaking, there is no uniqueness in plural definite NPs. To replace uniqueness Hawkins introduces the concept of inclusiveness, which in the end seems no more efficient (see Van Langendonck, 1979).

In any case, the presupposition of existence will do to define definiteness. Since definites do not introduce referents into the speech situation, precisely because they have already been introduced, the existential operator should not show up in the semantic form of definiteness (though it will occur in logical form, as this does not take presuppositions into account). We can say with Seuren (1975, p. 266) that the variable in question is bound in the domain of interpretation, in the preceding context, or in cognition. The representation of definiteness by a free variable finds independent support in the link that certain linguists have laid between the definite article and the third person pronoun (see Sommerstein, 1972).

For the definition of indefiniteness as such, two elements are of interest. First, of course, the introduction of the referents; second, the notion of partitioning, corresponding to Hawkins's (1978) notion of 'exclusiveness'. This amounts to the following: by introducing one or more objects into the domain of interpretation, the speaker at once indicates that other objects of the same kind are excluded from the reference, or in Hawkins's (1978, p. 199) words: indefinite reference implies that 'there must definitely exist, in the minds of the speaker and hearer at least, other referents which are not being referred to, i.e. which are not being included in the reference'.

Furthermore, we should distinguish between cases where the exclusion or partition is asserted (or possibly denied) and cases where the partition is presupposed. This difference will turn out to have consequences for the SR and even the syntactic form of indefinites.

2.1 Five Cases of Indefinite Reference

Keeping all this in mind, I will try to distinguish at least five cases of indefinite reference: three with asserted partition and two with presupposed partition.
2.1.1 Indefinites with Asserted Partition (AP)

2.1.1. Partitive AP indefinites. Although Hawkins does not deal with partitive constructions, they seem to constitute the clearest instance of exclusiveness, or as I prefer to call it: partitioning. In particular, partitive constructions with the semantic structure \([\text{indef NP} + \text{OF} + \text{def NP}]\) or \(\exists x^1 (x^1 \in x^2)\) are at issue here, exemplified in:

(1) I saw ten boys coming in; one of the boys (or: one boy) was very tall.

In (1) there is talk of a set of ten boys; in the second part of (1) this group of individuals is presupposed in the domain of interpretation; hence the definite NP the boys in the partitive pattern one of the boys. The prefixing of the indefinite element one (of), however, implies that a part of the set, viz. one member, is introduced anew for a new predication; but this entails automatically that the other part (viz. nine members) is excluded from this new predication. The information focus clearly lies on the indefinite element; hence it is comprehensible that the definite element can be left out, when the context is explicit enough, as in (1). The partitive construction will then be rendered by the simple indefinite NP one boy. The indefinite element of the partitive pattern in (1) thus illustrates the double aspect of indefinite reference: the introduction of referents and, simultaneously, the exclusion of the other referents of the larger set. The definite part shows that, for definiteness, the only thing relevant is that there is a set known in advance to both speaker and hearer; the notion of exclusiveness is irrelevant here.

2.1.1.2 Ordinary AP indefinites. The essential difference between partitive and ordinary indefinite reference seems to be the fact that for the latter there is no mention in the preceding context of a concrete group of individuals known to speaker and hearer, as, for example, the (ten) boys in (1). Consider the following sentences:

(2) a. Yesterday, John saw an elephant.
   b. Tomorrow, he is going to catch fish.
   c. There is a wasp in your glass.
   d. Peter is a hair-splitter.

The italicized NPs in (2) constitute the commonest cases of indefinite reference. The important question arises whether here, too, referents are excluded and if so, which ones. According to Hawkins (1978, p. 198) in these cases an infinite set of potential referents is excluded. It
seems to me that this notion of an abstract set makes more sense if we connect it with the concept of *kind* or *species*. This concept is traditionally defined as a set determined by a predicate. It then appears that the notion of exclusiveness or partitioning pertains to the exclusion of the other members of the species. In other words, a part of the species is introduced, whereas the remainder of this abstract set is excluded from the reference. Which referents are concerned is not always clear or even important; this is strikingly illustrated in (2)b., where an action in the future is concerned. Only in (2)a., c. is identification possible, though not that relevant from a communicative point of view. In (2)d. the indefinite NP *a hair-splitter* does not even have a referent; it is merely asserted that Peter belongs to the species of hair-splitters.

For AP indefinite NPs as in (2)a., b., c. we can now set up a semantic structure parallel to that for partitive constructions as in (1):

\[(2)\ e. \ [\text{indef} \ NP (=\text{exemplar}) + \text{OF} + \text{def} \ NP (=\text{species})] \]
\[= [\exists x (x \in X)], \text{where } x = \text{exemplar}; X = \text{species}.\]

This analysis of AP indefinites corresponds essentially to the logical form posited by Carlson (1977, p. 451) for non-generic NPs:

\[(2)\ f. \text{Dogs are running.} \]
\[= \exists x [R (x,d) \& \text{run'} (x)] \]
\[= \text{There is at least one } x \text{ such that } x \text{ is the Realisation of the species 'dog', and } x \text{ is running.}\]

I should immediately point to an important difference with my analysis: Carlson analyses not only indefinite NPs, as in (2)f., in terms of exemplar and species, but also all other non-generic NPs. In view of the above, it will be clear that, in semantic form at least, the exemplar-species representation does not apply to definites, since there is no question here of exclusion of other referents of the kind. It is even irrelevant whether the referent of a definite belongs to a kind or not. This is salient in the case of proper names and pronouns, which are definite NPs without a predicate and therefore without an explicit indication of the species. On the other hand, we should note that among indefinites no genuine predicateless NPs are to be found: they all refer to a species. This applies even to the pronouns *somebody* and *something*. The former denotes persons, the latter things.

We can now state the difference between partitive and ordinary indefinites in a more precise manner. In partitives, the definite element
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denotes a set of concrete entities, whereas in ordinary indefinites the
definite element denotes the species, i.e. an abstract individual. This
implies that here the existence of the species is presupposed in the do­
main of interpretation.

As to non-referential predicate nominals as in (2)d., we have yet to
specify that the existential operator is missing in their SRs, since there
is no mention of exemplars, but solely of the species. Thus, sentence
(2)d. could be represented in semantic form as:

(2) g. [Peter∈X], where X = the species ‘hair-splitters’.

2.1.1.3 Selective indefinites. There is a subclass of AP indefinites
labelled [+selective] by Grannis (1973) and ‘specific attributive’ by
Ioup (1977), in any case a marked counterpart of ordinary indefinites.
In the selective interpretation one has in mind one or more exemplars
of a specified subspecies, not of the species as such. A few examples
will clarify this:

(3) a. The casting director is looking for a handsome blond. She
found him in North Dakota.

Apart from an ordinary specific reading, the NP a handsome blond in
(3)a. also displays a selective reading; Ioup’s paraphrase of (3)a. in this
interpretation is: ‘There is a handsome blond, so me ideal type, that the
casting director is looking for.’ Another example is:

(3) b. She is going to marry a man, but not any man!

I agree that it is, in general, not easy to get a selective reading, but this
is always the case with marked, and hence infrequent, structures. They
always need more conditions for their application, among others a
suitable context and/or situation. In (3), for example, we had to con­
struct a discourse to get the proper interpretation. On the other hand,
Dutch possesses a peculiar construction with a plural noun and a
singular article, for example:

(3) c. Dat zijn me toch een kinderen!
(These are some children! i.e. children of a certain kind.)

This expressive NP een kinderen in (3)c. is a direct syntactic reflex of
the semantic form of selective indefinites. Indeed, its semantic form
differs from that of ordinary indefinites in that its species-constituent is not a definite, but an indefinite NP; hence the indefinite article in the Dutch example.

The semantic formula for selective indefinites might then read as:

\[(3) \text{ d. } [\text{indef NP} (=\text{exemplar}) + \text{OF} + \text{indef NP} (=\text{subspecies})] = [(\exists x) (\exists X) (x \in X)], \text{ where } x = \text{exemplar}; X = \text{species.}\]

Note, finally, that in (3)c. the exemplar-constituent is absent, since a predicate nominal is concerned, just like in the case of (2)d.

2.1.2 Indefinites with Presupposed Partition (PP). PP indefinites share with their AP counterparts the property of introducing one or more individuals to the hearer. There is, however, an important difference: in AP indefinites the emphasis is on the species, and the identity of the exemplars, if there are any at all, hardly matters. In PP indefinites, on the contrary, the emphasis is on the exemplars and the circumstance they that belong to a species is redundant. One could say that the individuals are presupposed in the speaker's world, though not in the hearer's, for whom an introduction is needed. On the other hand, both speaker and hearer presuppose that the concerned referents belong to some concrete or abstract set. Hawkins (1978, p.188), who calls PP indefinites specific indefinites (but see below), states that there is a presupposition of existence and exclusiveness. This presuppositional status of PP indefinites entails that these NPs tend to figure in the front of the sentence, just like definites. Often, they are accompanied by specifying modifiers as \((a)\) certain, for example in:

\[(4) \text{ A (certain) student has insulted the professor.}\]

The SR of PP indefinites can be expressed by the existential quantifier as such, i.e. without the proposition which assigns the exemplars to a kind. Such a clause is necessary in the SR of AP indefinites, because the belonging to the species is there asserted. But in the case of PP indefinites, this belonging is presupposed and therefore should not figure in semantic form. Indeed, we have taken a similar position with respect to the presupposition of definites, where the existential operator is itself presupposed in the domain of interpretation and must not be expressed in SR.

PP indefinites display fewer subclasses than their AP counterparts. Since it is typical for PP indefinites that the exemplar is brought to
the fore, PP indefinites cannot occur as non-referential predicate nominals, as exemplified in (2)d. and (3)c. Selective indefinites are, for that matter, all incompatible with presupposed partitioning. This is apparently due to the fact that one wants to stress that a particular subspecies is concerned, so that the latter can hardly be presupposed. We are thus left with two subclasses of PP indefinites: partitive and ordinary ones.

2.1.2.1 Partitive PP indefinites. In the case of partitive PP indefinites the attribution of the exemplar(s) to a concrete set is presupposed: the identity of the set can be inferred from situational factors. An example may illustrate this. Imagine a situation in which there is talk of a cavalry engagement and somebody utters:

(5) A (certain) trooper was wounded and fell off his horse.

Here, it is presupposed that the trooper belongs to the concrete set of troopers given in the speech situation.

2.1.2.2 Ordinary PP indefinites. In ordinary PP indefinites, it is presupposed that the exemplars belong to an abstract set, i.e. the species; there is no question of a concrete set in the universe of discourse; only the abstract species-set is given in the situation:

(6) A (certain) lawyer from Antwerp offered to help my sister.

If no concrete set of lawyers was presented in the context, we can still presuppose the existence of the species of lawyers in the world, and at the same time the exclusion of other potential referents of that species.

2.2 Pragmatic Subcategories of [± definite]

In order to avoid confusion and to complete the picture, I am going to mention briefly some much discussed pragmatic categories cutting across the above semantic-syntactic classification of [± definite] categories.

2.2.1 Specific and Non-specific NPs. In the domain of the pragmatic notions of specificness and non-specificness, I shall consider the scope variation brought about by negation, if-contexts or such world-creating verbs as want, believe, think, etc. Transparency and opacity then are a special subcase of the above opposition.1

Definite as well as indefinite NPs are subject to the distinction; compare some sentences in Baker (1966, p. 20):
(7) a. John wants to catch a fish and eat it for supper.
    b.*John wants to catch a fish. You can see it from here.

In (7)a. the AP indefinite a fish is construed opaquely (non-specifically), being in the scope of want. The same goes for definite it. In (7)b., however, the pronoun it is not in the scope of want and therefore cannot refer back to the opaque NP a fish.

AP indefinites happen to be construed specifically, too. In the following example, the AP indefinite is outside the scope of negation:

(8) There's some people I never saw.

PP indefinites seem to be inherently specific in view of their inherent speaker presuppositions of existence and exclusiveness (consider (5) and (6)).

Note finally that, no more than in the case of the above semantic-syntactic categories of definiteness and indefiniteness, dichotomous features are suitable representations for the pragmatic notions of specificness and non-specificness (see also Jackendoff, 1972). This is borne out by instances where an NP is within the scope of one operator and outside the scope of another, as for example in:

(9) If somebody doesn't like it, I won't be angry.

Here, somebody is inside the scope of if, but outside the scope of not. Therefore, it would be pointless to state that somebody is [+ specific] or [− specific].

2.2.2. Ioup (1977, p.243) rightly argues that 'relative quantifier scope interactions are independent of specificity'. Indeed, her sentence

(10) Everyone believes that a witch blighted their mares.

is four ways ambiguous: a witch may be read with wide scope or narrow scope, as specific or non-specific.

2.2.3 Referential and Non-referential NPs. Another pragmatic distinction is Donnellan's (1966) opposition of referential vs. attributive. As was pointed out by Peterson (1976) and Ioup (1977), this dichotomy should not be confounded with the above-mentioned scope differences. Although the distinctions drawn by these authors do not
completely coincide, they seem to agree that specific NPs can be ambiguous between a referential and an attributive reading, whereas nonspecific NPs are inherently attributive, since, by definition, their potential referents are not identifiable.

A more profound discussion of the above pragmatic distinctions is beyond the limits of this paper. We are therefore returning to the semantic-syntactic subcategories of [± definite].

2.3 Towards a Hierarchy of Complexity for [± definite] Categories

In the various subcategories of [± definite] we can observe a complexity hierarchy. This is illustrated in diagram (11), where a rising complexity in the semantic forms can be read off from left to right:

With respect to the interpretation of (11), I would like to stress that only semantic and not logical form is suited for rendering semantic complexity, because only semantic form takes full account of the presuppositional context. In order to measure semantic complexity it is, among other things, necessary to distinguish between presupposition and assertion. It seems plausible to assume that an assertion necessitates a larger cognitive step than a presupposition. In the case of a presupposition the states of affairs are 'given', whereas an assertion
requires a speaker to introduce these states of affairs himself.

Let us now have a look at the categories in view of their presuppositions and assertions.

1. Definiteness merely involves a presupposition of existence in the interpretation domain and no assertions at all. Therefore, this feature turns out to be the least complex one. Moreover, this is in accordance with markedness theory. As I have explained elsewhere (Van Langendonck 1976; 1979) the unmarked category [+def] has, so to speak, more 'elbow-room' than the marked category [−def]. It determines the surface form in cases of neutralisation, displays zero-form more frequently, possesses a lot more subclasses, a greater morphological and syntactic variability, etc.

2. PP indefinites involve, at least for the hearer, an assertion of existence and a presupposition of exclusiveness. This corresponds in SR to a binding by the existential quantifier, which was not called for in the case of definiteness. Therefore, PP indefinites are to be considered more complex than definites.

Within the category of PP indefinites, partitives are to be considered less complex than ordinary PP indefinites, because the former contain a concrete definite NP, while the latter display an abstract definite species-NP, and as is well known, abstract categories are more marked than concrete ones.

3. AP indefinites involve not solely an assertion of existence, but also an assertion of exclusiveness, i.e. the attribution to a larger concrete or abstract set. In its turn, this larger set, denoted in a definite NP, implies itself a presupposition of existence. As a consequence, AP indefinites are to be viewed as more complex than their PP counterparts.

Within the class of AP indefinites, too, ordinary indefinites are more marked than their partitive counterparts for the same reason as above.

4. Selective indefinites differ from their non-selective counterparts in that the species-constituent is not definite, but indefinite (with presupposed exclusion). This peculiarity stamps this last category as the most complex one.

3 Psycholinguistic Evidence for the Hierarchy Complexity

The present tentative outline of a hierarchy of complexity in NPs of the form [Art + Noun] can be tested by checking the order in which these various NPs are acquired in first language acquisition. The well
known assumption is that generally, unmarked, i.e. less complex, structures are acquired before marked, i.e. more complex, structures.

In order to verify this hypothesis, I have undertaken some research with A.-M. Schaerlaekens concerning the above nominal categories in Dutch-speaking Flemish children from the age of 18 months to 37 months.

The outcome of the enterprise revealed that two principles are relevant here:

(1) There is a certain correspondence between complexity and order of acquisition.

(2) This principle is to be supplemented by another one, viz. that the appearance of marked (complex) categories is governed by context-sensitivity. The more complex the structure, the more it needs situational, cognitive and even linguistic context.

From the data, we could gather that the least complex categories, viz. proper names and other referential definites are no more bound to a context in child language than in adult speech. The cognitive effort that the child has to produce is minimal. As Osgood (1971) puts it: to master these simple cases, the child only has to ‘recognise’ things, since they are given in the speech situation, i.e. the existence of the referents is presupposed: the objects or persons, for example, Daddy, Mommy, Dolly, have already been introduced into the child’s environment. Moreover, it is not even necessary that the referential definite expressions contain a concept. If they do not, we are to call them proper names. It may indeed be the case that, in the beginning of speech production, the child does not yet differentiate proper names and appellative referential definites.

The simplicity of proper name-like NPs is illustrated strikingly by the observation of Lenneberg (1971, p. 536) that animals can learn to know the referent of a proper name, but not the referents of appellative NPs. He says: ‘The hound who has learned to “point to the tree, the gate, the house” in the trainer’s yard will perform quite erratically when given the same command with respect to similar but physically different objects, in an unfamiliar environment.’

It thus seems justified to consider proper names as the prototype of the NP and as the source of reference (together with demonstratives) (see also Van Langendonck, 1978).

Unlike definites, indefinites seem to originate in certain linguistic
contexts: they are restricted to the occurrence of other linguistic categories, at least in the first acquisition stage. In this beginning phase it is not clear whether we meet with presupposed or asserted partition. On the other hand, it appears that the exclusion of exemplars from a concrete set precedes the exclusion from an abstract set (the species). Selective indefinites are completely absent in the material. Let us now review the accompanying linguistic contexts in which the indefinites are created.

The first and most interesting environment is the word nog (German noch) in the reading of English another/more. This is a very frequent key-word in early child language, a 'pivot' as it used to be called in pivot grammar. It is a kind of iteration operator which has predicates in its scope. One of the favourite predicates appears to be the existential quantifier. Typically, in the environment of nog this quantifier introduces a partitive indefinite. We can infer this from the semantics of the pivot. For instance, when a child says another book, or more candy, he perceives the presence of a certain set of things, of which he wants to have an additional exemplar or amount. In other words, the fact that a certain type is or was present in the speech situation makes it easy for the child to introduce, linguistically, a new token of that type. In the beginning, the type is present in the concrete situation, but later on, the type may be the abstract species as such. This is the case of ordinary 'adult' indefinites. The relevance of the 'another/more' context for the origin of existentials also derives from the observation that the first occurrences of the indefinite article on the surface are precisely after the word nog, at least in our material (at the age of about 2½ years). We should notice that this is not the first occurrence of the existential quantifier as such. It even appears in the one-word sentence, the so-called holophrase, albeit reduced to zero-form. When the tiny tot utters the word nog as a holoprase, this may, for example, mean that he wants another toy or more candy.

A role similar to the one of nog is played by the pivot ook (German auch, English also).

There is, however, another type of context which favours the generation of indefinites, viz. factitive verbs like maken and bouwen (German machen and bauen, English make and build). Here too, there is a close relationship between the situational and the linguistic context. When the child says, for example, huis maken, this is, that he is making or wants to make a house with building-blocks, the linguistic introduction of an object is attended by the very creating of the referent in reality.
4 Syntactic Arguments for the SR of Asserted and Presupposed Partition

I would now like to adduce a few syntactic arguments, drawn from some Western languages, in favour of the above semantic analysis of indefinites, especially in favour of the distinction between asserted and presupposed partition.

As for asserted partition, there are syntactic facts that directly point to the existence of an underlying predicate of, i.e. belong to. Other facts, mainly pronominalisation phenomena, suggest the existence of an NP referring to the kind or species, and sometimes of a predicate belong to as well.

On the other hand, the syntactic facts at once indicate that these elements are absent from indefinites with presupposed partition.

Before the evidence is presented, it should be pointed out that NPs denoting a species may display plural as well as singular number in surface structure, as is illustrated by a sentence pair in Quine (1973, p.87):

(12) a. Dog is a species.
    b. Dogs are a species.

4.1 Arguments for a Predicate OF in the SR of Indefinites with Asserted Partition (AP)

French is of especial interest here.²

4.1.1. In French AP indefinites the underlying predicate of surfaces as the preposition de after negative particles,³ for example:

(13) a. Pierre n’a pas de maison(s).
    b. Peter has no exemplar(s) of the kind ‘house(s)’.

That this de is relevant for our hypothesis can be seen from the peculiarity that it is incompatible with PP indefinites and with definites as such, including generics,⁴ instead of the preposition, the article shows up in these positions; compare:

(14) a.*Pierre n’a pas de certain(s) livre(s)/du livre/des livres.
    b. Pierre n’a pas un certain livre/certains livres/le(s) livre(s).
(15) a.*Marie ne déteste pas de chat (s). [if generic].
b. Marie ne déteste pas les chats/un chat.

There seems to be one exception to this rule in that the preposition *de* does not show up in indefinite predicate nominals, although it should, in a negative environment:

(16) a. Ce n’est pas un livre.
   b. Ce ne sont pas des livres.

This may be due to a restriction on the appearance of *de* in those cases where the indefinite NP displays no existential quantifier in underlying structure.

4.1.2. French and Dutch possess a strange, expressive determiner, consisting of an unstressed demonstrative preceded by the preposition *de* in French, *van* in Dutch. Consider the following examples with singular and plural NPs respectively:

(17) a. Charles a de nouveau commis une de ces fautes!\(^5\)
   b. Charles a de nouveau commis de ces fautes!
   c. Karel heeft weer een van die fouten begaan!
   d. Karel heeft weer van die fouten begaan!

Only the singular cases are translatable into English literally:

(17) c. Charles has again made one of those mistakes!

Clearly, the plural object NPs are odd in that they begin with a preposition! We can remove the oddity, however, by positing a head to these prepositional phrases, making them into genuine representations of AP indefinites, for example:

(17) f. Charles has again made an exemplar/(some) exemplars of that (famous) kind of mistakes (we know)!

A genitive construction comparable to the French-Dutch prepositional pattern is found in Portuguese:

(17) g. Ele não entenderia um livro *desses*.
   [He not understand-would a book of-those.]
   (He would not understand such a book.)
4.1.3. French and Dutch have another such determiner, this time consisting of *de/van* + the universal quantifier, for example:

(18) a. Il y a un peu *de tout* ici!
   b. Er is hier zowat *van alles*!

meaning that anything you can think of is here. Again I suspect we have to do with an AP indefinite construction, so that the sentences can be paraphrased as:

(18) c. There are exemplars of about any kind of things here.

4.1.4. Another indication can be deduced from an interesting sentence of Carlson's (1977, p. 433):

(19) a. Mark knows ten linguists, and Freddie knows six of them.

The relevant part is the anaphoric phrase *six of them*, which is, according to Carlson, ambiguous between a partitive reading, viz. *six of the ten linguists that Mark knows*, and an ordinary indefinite reading, where it simply means *six (of) linguists*. It is especially the latter that matters to our hypothesis. Here the pronoun *them* refers not to concrete individuals, but to the species 'linguists'. In this reading, then, sentence (19)a. is to be paraphrased as:

(19) b. Mark knows ten exemplars of the species 'linguists', and Freddie knows six exemplars of the species 'linguists'.

4.1.5. A fifth argument for a predicate of or belong to derives from the way expressions like *something good* are rendered in French. This language uses the preposition *de* between the word for 'something' and the substantivised adjective, for example:

(20) a. Quelque chose *de bon* (something good)

We can say that the substantivised adjective refers to a species and that the whole pattern is an AP indefinite, paraphrasable as:

(20) b. an x of the species 'good'.

In Dutch, the substantivised adjective of such patterns is put in the genitive, for example:
(20) c. iets goeds (something good)

However, it should be remarked that the ending -s synchronically has no longer a real genitive meaning here since -s can now also be used in the corresponding definite NPs, compare:

(20) d. her goeds kat ik gehoord heb
    (the good things I heard of)

Thus, the ending -s seems to derive from the predicate of in origin, but has been assigned a different function in the course of time, viz. the function of marking neuter substantivised adjectives, although this suffixation is still optional in the case of definites.

4.1.6. Another diachronic argument involves the origin of the indefinite articles *du/de la/des* before mass and plural nouns in French, for example:

(21) Jean vient d'acheter *du* pain, *de la* bière et *des* boudins.
    (John has just bought bread, beer and sausages.)

Interestingly, these articles are still termed ‘partitive’ because of their partitive origin. In view of the present theory of indefinites, I see three stages in the development of the French ‘partitive’ articles. In the beginning we have to do with asserted partitioning and the excluded set is concrete. Thus, *de la bière* = ‘(some) of the beer (here present)’. In a second stage, the use of the ‘partitive’ articles is extended to all AP indefinites, i.e. includes ordinary indefinites. Thus, *de la bière* = ‘(some) of the beer (here present)’ or ‘(some) of the species beer’. In the third stage, apparently being the contemporary one, the function of the ‘partitive’ articles parallels that of the other indefinite article *un*, i.e. expresses the existential quantifier which introduces the exemplar constituent. This is borne out by the fact that, just like *un*, the ‘partitive’ articles may accompany the pronoun *en*, which already is the expression of the *of*-phrase in the SR of indefinites (see the next argument), for example in:

(22) a. Paul a du vin rouge; moi j’en ai *du* blanc.
    (Paul has red wine; I have white wine)

    b. Il y *en* a *des* qui ne sont pas bons. [colloquial]
    (There are ones that are not good.)6
4.2 Arguments for the SRs of Indefinites drawn from Pronominalisation Phenomena

4.2.1. A first pronominalisation device is one in which a partitive or genitive pronoun (in plural cases) or an indefinite pronoun and a partitive or genitive pronoun (in singular cases) show up on the surface. This is the case in French and Dutch; compare:

(23)  
a. Paul a un fils; Jean en a un aussi.
b. Paul a des fils; Jean en a aussi.
c. Paul heeft een zoon; Jan heeft er ook een.
d. Paul heeft zonen; Jan heeft er ook.

The use of the partitive particles *en* and *er* may seem normal when antecedent and pronoun are both plural, but is at first sight odd when both NPs are in the singular. For, to what do these plural genitive pronouns refer? It appears that *en* and *er* here stand for the phrase [of + variable denoting a kind], which is clearly the underlying structure proposed for AP indefinites. We can thus paraphrase (23)a.–d. this way:

(23)  
e. Paul has an exemplar of the species ‘sons’; John has one of them, too.
f. Paul has some exemplars of the species ‘sons’; John has some of them, too.

Moreover, the species constituent in both NPs seems to be necessary from a semantic viewpoint as well. It is the element that is common to both antecedent and anaphor. Thus, there is coreferentiality at the level of the species, though not at the level of the concrete individuals. In this way, the species constituents in SR account for the identity of sense between antecedent and anaphor. Otherwise, it would be unclear where this identity of sense would come from.

Since the structure [exemplar of species] merely underlies AP indefinites, we should not find the above partitive particles *en* and *er* referring back to definites or PP indefinites. That this is so can be deduced from the following French and Dutch instances, where only definite pronouns function anaphorically:

(24)  
a. Paul a lu le livre/ un certain livre./ Jean l’a lu aussi./ *Jean en a lu un aussi.
(Paul has read the book/ a certain book. John has read it, too./ *John has read one, too.)

4.2.2. A second pronominalisation device is found in English. The examples come from Carlson (1977, p. 425), who deals with them in a different connection:

(25) a. Queenie is seeking unicorns, and Phil is seeking *them*, too.

Even in non-modal contexts we find:

b. Harriet caught rabbits yesterday, and Ozzie caught *them* today.

In the relevant reading of both sentences, the definite anaphoric pronoun *them* is not meant as strictly, i.e. individually coreferential with the antecedent. There is only a kind of sloppy identity akin to that in the French and Dutch examples in (23). The difference is that these languages use a partitive pronoun, whereas English simply uses an accusative pronoun. The obvious explanation in our framework is that the English pronoun simply stands for the constituent denoting the kind. The paraphrase for (25)a. reads:

(25) c. Queenie is seeking exemplars of the species 'unicorns', and Phil is seeking (exemplars of) the species 'unicorns', too.

When we replace the AP indefinite antecedent in (25)a., b. by a definite or a PP indefinite one, the sloppy identity reading vanishes at once:

(25) d. Queenie is seeking the (or: certain) unicorns, and Phil is seeking *them*, too.

In this instance, strict coreference is the sole possibility. This entails that definites and PP indefinites should not be analysed in terms of exemplars and kinds.

4.2.3. A mysterious pronominalisation pattern was discovered for Dutch by Kerstens and Verkuyl (1977). Since we can find it in other languages also, let us take examples from English:

(26) a. Freddie told me a story as he alone can tell *them*!
b. John has not made *a mistake, but Pete has accumulated *them.
c. This is *a house as you can see *them in any street in England.

The mystery resides in the fact that a plural definite pronoun is connected with a singular antecedent. As Kerstens and Verkuyl put it, there is no solution for this case in any linguistic framework. However, the solution is rather simple if we apply the hypothesised SR for AP indefinites to the antecedents in question. For this provides us with the much wanted plural element in the antecedents, viz. the constituent denoting the species. Let a paraphrase for (26)a. clarify my proposal:

(26) d. Freddie told me an exemplar of the species ‘stories’ as he alone can tell *them.

The closest surface analogue to this SR can be obtained by replacing the singular NP *a story by the expressive variant one of those stories. At the same time this SR produces the necessary common element which is to account for the identity of sense between the singular antecedent and the plural pronoun.

Finally, notice that substituting a definite or a PP indefinite singular NP for the above AP indefinite antecedents in (26) renders the sentence ungrammatical; compare:

(27) a. *Freddie told me the/a certain story as he alone can tell *them!
b. *John has not made the/a certain mistake, but Pete has accumulated *them.
c. *This is the/a certain house as you can see *them in any street in England.

5 Conclusion

If the above analysis is justified, we are entitled to conclude that semantic form determines syntactic form to a considerable extent. Our semantic intuitions can thus be confirmed (or possibly disconfirmed) by syntactic evidence. Moreover, one should take into account psycholinguistic indications from child language or experiments. Finally, one has to bear in mind that semantic and not logical form is suited to setting up hierarchies of semantic-syntactic complexity.
Notes

*I thank the participants of the Antwerp Colloquium on Determiners for their valuable comments on an earlier draft of this paper.

1 For recent discussions, see Peterson, 1976, and Ioup, 1977.

2 On a primarily formal basis, other linguists have been setting up DSs for French indefinites, comparable to ours. Zwanenburg (1976) proposes to derive French indefinites from the DS [indef pron + OF + def plural N], where the definite NP refers either to a determined set or to the set of all the members in the world. The former seems to correspond to our concrete partitive indefinites, the latter to our ordinary indefinites (where the species is involved), for example *un chat = 'quelque un (qui est) de les chats'. One of the author's arguments is - as could be expected - the occurrence of the preposition de after negative particles. In his formalistic framework, however, it remains unexplained why we do have *pas un certain livre in (14)b., *pas un chat in (15)b. and *pas un livre in (16)a.

3. The fact that de surfaces precisely after negation might have a functional explanation. Whenever potential referents are denied existence, it is of little import that the NP in question is singular or plural (compare (13)a.); as a consequence, the number indicating articles un and des respectively can be dispensed with. On the other hand, in a positive context, it will be really informative to know whether one or more referents are involved; hence, it is to be expected that the articles push the preposition de aside; consider the positive counterparts of (13)a.: Pierre a une maison/des maisons.

4. It has been argued by several linguists (see Van Langendonck, 1979, for references and for more evidence) that generic NPs are a kind of definite NPs regardless of the article form (Eng. a, zero or the).

5. It should be pointed out that the plural spelling of fautes in une de ces fautes is rather misleading, since fautes is felt here as a singular. This can be deduced from the fact that in those cases where singular and plural are not homophonous, for example in pairs like travail - travaux, only the singular form is used in the above construction, for example Il a fait un de ces travail! (He has done one of those jobs!) Obviously, travail agrees in number with the singular article un. Here is a striking parallelism with ordinary indefinites. Compare:

un de ces travail - un travail < un de les travaux
de ces travaux - des travaux < de les travaux

(see also argument 4.1.6.)

6. Both sentences of (22) are taken from Zwanenburg (1976, p. 194). The author, however, cites these examples as problems for his DS of indefinites. He does not envisage the possibility that the argument preserves its validity from a diachronic viewpoint.

7. For Zwanenburg (1976) too, en-pronominalisation is a motive to analyse indefinites like un chat as 'un de les chats'. But see above.

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1 Preliminary Remarks on Quantifiers and Determiners

The phenomenon of quantifier floating (QF) has been observed and described fairly extensively for English,¹ but not to the same extent for German.

The term 'quantifier' is borrowed from logic and is usually applied to a class of words that includes all, no, some, any and every, all of which express some quantification and occur as prenominal modifiers within noun phrases. Because of their distribution as prenominal (more exactly: preadjectival) modifiers of nouns as well as because of their delimiting quality, they have very much in common with determiners.² It is very hard to draw the line between quantifiers and determiners, and a survey of the presentation of all, no and the other words mentioned in grammars and more specialised treatises of English reveals that they are treated as both quantifiers and determiners.

Carden (1976, p. 1) lists the following quantifiers:

By 'quantifiers' I mean 'all', 'every', 'each', 'many', 'few', 'much', and 'little', though it appears that much of the analysis will also apply to generics and number words. 'Some', 'any', 'no', 'none', 'not a', 'not one', etc. have been deliberately excluded because of the problems involved with the putative some-any rule... When this difficulty is straightened out, I would expect this group to form a natural class with the quantifiers listed above.

In a special appendix to his book, Carden sometimes analyses both (1976, pp. 91-102) as a quantifier and sometimes as a sentence connector.³ Carden thus assumes that quantifiers form a rather large class including cardinal and indefinite number words and most of the determiners; as a matter of fact, only the, a, this, that and the possessive pronouns (my, your, etc.) are not classified as quantifiers. His argument is not consistent, however. If not a and not one are to be considered quantifiers (see the quotation above), then a — and its variant one — have to be quantifiers too; furthermore, a and one contrast with cardinal and indefinite numbers (I bought a book / two books / many
books; I bought one / two / many). There are even linguists who claim that Engl. the (and respectively German der) is a quantifier (see Cushing, 1977, pp. 71 ff. and Werner, 1978, for reference). I think there are good reasons for not considering the/der to be quantifiers, at least in their non-generic usage (i.e. in definite descriptions).

In this connection, it is interesting to note that Engl. the as well as Germ. der do not participate in QF – in contradistinction to genuine quantifiers, which do. Consider the following examples from German:

(1) a. Alle die Segelboote sind da.
   b. Die Segelboote sind alle da.
(2) a. Die beiden Segelboote sind da.
   b. Die Segelboote sind beide da.
(3) a. Einige Segelboote sind da.
   b. Segelboote sind einige da.
(4) a. Keine Segelboote sind da.
   b. Segelboote sind keine da.
(5) a. Viele/wenige Segelboote sind da.
   b. Segelboote sind viele/wenige da.
(6) a. Die Segelboote sind da.
   b.*Segelboote sind die da.

This seems to indicate that der – apart from the semantic reasons which could be adduced – does not belong to the same subclass of determiners as alle, einige and kein, namely the class that forms a cross-classification of determiners and quantifiers. 

Viele and wenige (and their corresponding singular forms viel and wenig), on the other hand, cannot be considered determiners, cf. (7):

(7) a. Viele/wenige Segelboote sind da.
   b. Die vielen/wenigen Segelboote sind da.

There is an opposition between viele and die vielen (and between wenige and die wenigen), which corresponds to the normal opposition between zero-determiner (expressing indefiniteness) and definite determiner, cf. kleine Häuser, ‘small houses’ – die kleinen Häuser, ‘the small houses’.

German all(e) is – like English all – a difficult case. Consider the following examples:

(8) a. Alle Segelboote sind da.
b. *Alle die* Segelboote sind da.

(9) a. *Alles* gehört mir.\(^6\)

b. *All(es) das* gehört mir.

c. *Das alles* gehört mir.

There is no semantic opposition between (8)a. and (8)b. or (9)a. and (9)b. /(9)c. corresponding to the opposition between (7)a. and (7)b.: all sentences under (8) and (9) constitute definite noun phrases, which suggests that *alle* and *alle die* or *alles*, *all(es) das* and *das alles* are variants of one another—at least in their deictic meaning (which is the only interpretation possible in the b. and c. sentences). In Vater (1963), I treated *alle(e)* as a determiner because it seemed to me that it occupied the same position within a noun phrase as *der* and *ein* and participated in the same network of semantic oppositions (as, for example, generic vs. non-generic, definite vs. non-definite, distributional vs. non-distributional, etc.). A recent book on the determiners of German (Oomen, 1977) proceeds in the same way. Meanwhile, I have my doubts about the classification of *all(e)* as a determiner—because of the combinations with *der* I mentioned above—and, furthermore, doubts about whether there is a homogeneous syntactic class of determiners at all.

The best solutions to the problem of how to handle the relationship between determiners and quantifiers have, to my knowledge, been proposed by two linguists using quite different approaches.

Van Roey (1974), using the structuralist approach, suggests that the class of ‘preadjectives’—i.e. preadjectival modifiers of nouns—is heterogeneous in its semantic as well as in its syntactic qualities (cf. p. 19):

some have a deictic or determining content (E. *the, this, such . . .*), whereas other items denote quantity or number (E. *all, no, one, first, many . . .*). These semantic categories do not, however, fully coincide with the subclasses of Preadjs that can in both languages be distinguished on a basis of word-order, distribution and other formal characteristics. These subclasses. . . are three in number and . . . each contains ‘quantifying’ items. It seems preferable therefore to label the three groups as predeterminers (Predets), determiners (Dets) and Postdeterminers (Postdets) respectively.

Engl. *all* and *both* are Predet, *the, this, that, whose, which* and others are Det, and *first, former, last, other, few* and others, as well as all
cardinal numbers, are Postdet. Of course, there are rather heavy restrictions on the combination of elements from the three groups, which are described by Van Roey in terms of boxes (containing the groups) and arrows leading from each box to the boxes containing the combinable elements.

Jackendoff, on the other hand, using the X approach based on Chomsky (1970), proposes complex NP structures with a higher NP (termed N‴) containing a medium NP (N″ and its modifiers), which in turn contains the lowest NP (N' and its modifiers). Numerals are treated as N. There are, thus, three positional classes (N‴-modifiers, N'-modifiers and Num). Quantifiers can occur as N‴- and N'-modifiers; a ‘Specifier Constraint’ saying that an NP may contain at most one demonstrative (like the, this, which and even a – which I do not think can be classified as a demonstrative), one quantifier (each, every, any, all, no, many, few, much, little and some in some of its uses) and one numeral prevents combinations like *no many men, *any much wine. Since numerals are treated as nouns rather than quantifiers, Jackendoff (1977, p. 105) cannot prevent combinations like *many nine books along with the grammatical combinations no three men, all six men.

In the following, I will limit myself to problems of quantifier floating that can be observed with German alle, beide, kein and einige.

2 Floating of alle and Link’s Rule

Link (1974) is the only study of QF in German that has been presented so far. Link confines himself to forward floating concentrating on the quantifier alle, with some additional examples for the floating of beide.

QF is a movement of a quantifier out of the NP of which it is a constituent. Forward floating consists of a movement to the right of the NP, backward floating is a movement to the left of the NP. There are several ‘goal positions’ (as I would like to call them) for the floated quantifier, as (10) (Link’s example (1), 1974, p. 105) shows:

(10) a. Alle Mitglieder des Hockeyteams haben gestern nach der Niederlage vom Vorsitzenden einen Trostpreis erhalten.
b.*Die Mitglieder des Hockeyteams alle haben gestern nach der Niederlage vom Vorsitzenden einen Trostpreis erhalten.
c. Die Mitglieder des Hockeyteams haben alle gestern nach der
Niederlage vom Vorsitzenden einen Trostpreis erhalten.
d. Die Mitglieder des Hockeyteams haben gestern *alle* nach der Niederlage vom Vorsitzenden einen Trostpreis erhalten.
e. Die Mitglieder des Hockeyteams haben gestern nach der Niederlage *alle* vom Vorsitzenden einen Trostpreis erhalten.
f. Die Mitglieder des Hockeyteams haben gestern nach der Niederlage vom Vorsitzenden *alle* einen Trostpreis erhalten.
g.*Die Mitglieder des Hockeyteams haben gestern nach der Niederlage vom Vorsitzenden *alle* erhalten.

Only (b) and (g) are ungrammatical, with the quantifier in forbidden goal positions. Link observes that there is a sentence which is homonymous — or rather homographic — with (10)b., which contains unstressed *alle*; in this case, *alle* is not floated, but still part of the NP, only in a different position within the NP.  

Link gives the following formalised presentation which is obviously meant as a generalisation of all cases of forward floating:

\[
(F1) \quad \begin{array}{c}
A \\
X \quad NP \quad Y \quad Z \\
Q \quad N \\
\end{array} = = \Rightarrow \\
\begin{array}{c}
A \\
X \quad NP \quad Y \quad Q \quad Z \\
Art \quad N \\
\end{array}
\]

According to Link’s formula, the quantifier is taken out of the NP, leaving the definite article behind (1974, p. 105). The insertion of the article is ‘superfluous’, if a possessive or demonstrative pronoun is present:

(11) a. *Alle* seine Freunde haben ihn verraten.
    b. Seine Freunde haben ihn *alle* verraten.
(12) a. *Alle* diese Umstände trugen zu dem Unglück bei.
    b. Diese Umstände trugen *alle* zu dem Unglück bei.

It is obvious that cases like (11) and (12) are not covered by the formula (F1). I will demonstrate that there is a whole group of cases which is not covered by (F1), namely indefinite NPs; this means that the formula is wrong in specifying ‘Art’ in the output. Link himself admits that the treatment of the article in quantifier floating is *ad hoc* (p. 124, fn 4) and presents an alternative solution, influenced by Perlmutter,
with the article present in deep structure and deleted optionally in cases where no floating occurs. This seems to be more realistic.

The main part of Link’s investigation concerns the restrictions for QF and for the possible goal positions.

2.1 Niches

In accordance with Ross (1967), Link assumes that there are ‘niches’ — possible goal positions for certain kinds of movement transformations — and that there is a rule called ‘niching’ inserting parenthetical constructions like *he said (sagte er) or adverbials into these positions. According to Link’s findings, there are no quantifier niches where there are no niches for parenthetical constructions (cf. (13)), but, on the other hand, not all niches for parenthetical constructions are niches for quantifiers at the same time (cf. (14)):

    b. *Da die Studenten arbeiten *alle möchten.

(13)a. and b. show that there are no niches within VP.

(14) a. Die Regierungsvertreter, sagte er, verschwiegen die tatsächlichen Vorgänge.
    b. *Die Regierungsvertreter alle verschwiegen die tatsächlichen Vorgänge.

On the whole, Link’s statement concerning the relationship between niches for quantifiers and niches for parenthetical constructions seems to be correct. (I have not checked all possibilities in detail, because my main concern was the specification of restrictions on quantifier floating, not its relationship to ‘parenthetical floating’). It is interesting — but maybe not surprising — to see that there are fewer niches for QF in English (namely only in front of the VP) than in German (cf. Link, 1974, p. 113). It is not surprising because German is freer in its word order anyway, as is well known.

2.2 Syntactic Function of the Source-NP

One of the most relevant factors in restricting QF is the syntactic function of the source-NP (i.e. the NP out of which a quantifier is moved).

According to Link (1974, pp.106ff.), a quantifier can always be moved out of a subject NP; (10)c. through f. are examples of QF from a subject NP. Quantifier movement is also possible out of derived
subjects; (15)a. is a passive sentence, (15)b. a sentence that has undergone Tough Movement (examples from Link 1974, p. 107):

(15) a. Die Demonstranten wurden alle von der Polizei festgenommen.
   b. Diese Behauptungen sind alle leicht zu widerlegen.

QF is, however, not applicable from an NP within a subject clause into the superordinate clause, because there is a general restriction forbidding the quantifier to float into a superordinate or subordinate clause.

(16) *Dass die Gäste unpünktlich kamen, hat mich alle überrascht.

QF is obviously applicable to direct and indirect objects in the same way as it is to subjects:

(17) a. Der Lehrer hat die Schüler gestern alle gelobt.
    b. Der Lehrer gab den Schülern gestern allen eine Fünf.

There are restrictions for QF out of prepositional phrases (PPs):

(18) a. Caesar wurde von den Soldaten allen hasasst.
    b. *Von den Soldaten wurde Caesar allen hasasst.

(19) a. Man sollte gegen alle diese Leute gerichtlich vorgehen.
    b.?Gegen diese Leute sollte man alle gerichtlich vorgehen.

QF is not possible if the PP is in initial position and the quantifier is moved into a position after the verb. There is no similar restriction for objects:

(17) a'. Die Schüler hat der Lehrer gestern alle gelobt.
    b'. Den Schülern gab der Lehrer gestern allen eine Fünf.

Link gives a plausible reason: the quantifier forms, after floating has occurred, a sister node with the NP it has been moved out of, but it is still dominated by PP; it cannot be moved out of the range of PP (1974, p, 108):

(F-2)
QF does not apply with genitive NPs:

(20) a. *Man gedachte schweigend der Verstorbenen alle.
    b. *Der Verstorbenen gedachte man schweigend aller.

3 Floating of alle; further Observations

The restrictions for QF which Link (1974) presents concern basically:

- the goal positions (cf. (13) and (14)); and
- the syntactic functions of the source NP (cf. (15) through (20)).

It is my purpose to extend the analysis and to show:

- that there are further restrictions for forward QF of alle;
- that there are additional restrictions for other quantifiers;
- that there are at least two different types of QF (forward and backward QF); and
- that Link's formula has to be revised to take into account the relationship between the quantifier to be floated and other determiners occurring in the same NP.

3.1 Length of the Floating Path and Stress Relations

In comparing sentences (21)a.–c. and (22)a.–c., one gets the impression that the results of QF are worse the longer the distance involved between the source NP and the quantifier which has been floated — or, to put it in other words, the more numerous the constituents that have to be jumped over:

(21) Alle Studenten wurden von Henry Ford zu einem Bankett eingeladen.
    a. Die Studenten wurden alle von H.F. zu einem Bankett eingeladen.
    b. Die Studenten wurden von H.F. alle zu einem Bankett eingeladen.
    c. Die Studenten wurden von H.F. zu einem Bankett alle eingeladen.

(22) Alle unsere Olympiasieger kamen dies Jahr ohne Medaille zurück.
    a. Unsere O. sieger kamen alle dies Jahr ohne Medaille zurück.
b. Unsere O. sieger kamen dies Jahr alle ohne Medaille zurück.
c.*Unsere O. sieger kamen dies Jahr ohne Medaille alle zurück.

On the other hand, there are sets of sentences like (23)a.–d., which seem to be equally good regardless of how many constituents have been jumped over:

(23) Alle Bücher haben den Kindern diesmal wider Erwarten gefallen.
   b. Die Bücher haben den Kindern alle diesmal wider Erwarten gefallen.
   c. Die Bücher haben den Kindern diesmal alle wider Erwarten gefallen.
   d. Die Bücher haben den Kindern diesmal wider Erwarten alle gefallen.

In looking closer at the details, it turns out that the stress on the constituents jumped over plays a role (T. Höhle, University of Cologne, pointed this out to me): it seems as if the quantifier cannot be placed behind the last constituent before the verb (or verbal complex) if this constituent carries the main stress. This is usually the case with objects in German, but frequently also with adverbials: the adverbials zu einem Bankett and – even more distinctly – ohne Medaille carry the main stress of the sentence under normal conditions, i.e. if none of the constituents has emphatic or contrastive stress. There seems to be a conflict between a heavily stressed constituent and the floated quantifier, which also normally carries a rather heavy stress, as soon as they are in adjacent positions. But this condition is not enough. (24)b. shows that there is no conflict if the floating path is fairly short. This seems to indicate that both length of the floating path and the stress relations indicated above combine to form a restriction for QF of alle:\footnote{12}

(24) Alle Kinder haben den Film gesehen.
   a. Die Kinder haben alle den Film gesehen.
   b. Die Kinder haben den Film alle gesehen.\footnote{13}

3.2 Grammatical Number of the Source NP

The quantifier can float out of plural NPs more easily than out of NPs in the singular:
(25) *Alle diese Erfolge waren teuer erkauft.
a. Diese Erfolge waren alle teuer erkauft.

(26) *All(er) dieser Erfolg war teuer erkauft.
a. Dieser Erfolg war aller teuer erkauft.

(27) *Alle seine Anstrengungen waren vergebens.
a. Seine Anstrengungen waren alle vergebens.

(28) *Alle seine Anstrengung war vergebens.
a. Seine Anstrengung war aller vergebens.

(29) *All das Geschrei half nichts.
a.(?) Das Geschrei half alles nichts

(30) *Alles Leid war vergessen.
a. (?) Das Leid war alles vergessen.

Only with neutral head nouns — especially nominalisations (cf. (29) and (30)) — does QF seem to obtain fairly acceptable results.

3.3 Pronominal Source NP

NPs with a pronominal head behave, in many ways, differently from NPs with non-pronominal heads.

3.3.1. One of the main differences lies in the fact that pronominal source NPs allow for backward (right to left) floating, whereas NPs with non-pronominal heads don’t (cf. section 5). Apart from this, there are also differences in forward floating (cf. sections 3.3.2 – 3.3.4).

3.3.2. If the pronominal head is in the third person, floating of the quantifier always obtains a better construction than non-floating:

(31) Wir alle danken dir.
  a. Wir danken dir alle.

(32) Ihr alle seid uns immer willkommen.
  a.(?) Ihr seid alle uns immer willkommen.14
  b. Ihr seid uns alle immer willkommen.
  c. Ihr seid uns immer alle willkommen.

(33) *Sie alle sind gegangen.
  a. Sie sind alle gegangen.

3.3.3. If the pronominal head of an object NP is in the third person, the NP can neither be topicalised — which seems to be a condition for QF out of object NPs — nor can QF take place:
First and second person NPs are possible in first position (unsch alle ./
euch alle . . .) and with QF (unsch . . . alle/euch . . . alle).

3.3.4. The pronoun es, which is always unstressed, cannot occur in first position if it has a quantifier co-constituent (cf. (35)), but QF can apply in this case. This means that QF would have to be evaluated as obligatory if es is the head noun of the source NP. As soon as the NP with es as a head noun is an object, however, neither topicalisation nor QF are allowed (cf. (36') and (36)' a.):

(35) *Es alles wurde gestohlen.
   a. Es wurde alles gestohlen.
(36) Ich habe es alles gesehen.
(36') *Es alles habe ich gesehen.
(36)' a. *Es habe ich alles gesehen.

It is quite obvious that stress relations, and possibly topic/comment relations, play a role, but this requires more detailed investigation.

4 Floating of beide, kein and einige

4.1 Beide

Beide behaves, on the whole, like alle; it can be floated forward and backward, and there is always a determiner (der, dieser, jener, mein, etc.) in the source NP (according to Link, only after floating of the quantifier; I will show later that this is not true). Beide and die beiden both translate into English both (or the two), but there is a difference between them: Beide can only be used distributionally, whereas die beiden can have distributional as well as collective (or reciprocal) meaning; i.e. Beide kennen sich can only mean that each of them knows himself, whereas Die beiden kennen sich has also the meaning that each of them knows the other one. I have not checked yet whether these two different meanings have any influence on the floating of beide, but will investigate this in detail in a separate paper.
4.2 Kein and einige

4.2.1. Exclusion of der. If kein and einige are floated, there is no der left behind in the remaining NP (cf. examples (3) and (4)). Thus, the floating of kein and einige seems to obtain different results from the floating of alle and beide, where – as Link (1974) demonstrates with his formula (F-1) – der always shows up in the rest of the source-NP (unless there is another determiner like dieser or sein as in (11) and (12)). But this cannot be the case with kein and einige: they can never be combined with any other determiner, whether they are floated or not (cf. *die keinen Kinder, *die einigen Kinder). I will come back to this problem in section 6.

4.2.2. With kein the feature [- Countable] seems to play a role in the floating restrictions. The quantifier can be floated easily out of a singular source NP, as long as its head noun is [- count] (cf. (38)a.). It cannot be floated as easily, in Standard German, if the head noun of the source NP is [+ count] (cf. (41)a. and (40)a./b.). There are, on the other hand, examples for floating in these cases in dialectal and colloquial German (cf. (42) and (43)). The comical effect of floating keiner in (42) – which is intended by the author – is obviously connected with the fact that floating in cases like this is deviant in ‘normal’ Standard German.

With einige, which never combines with countable NPs in the singular, the restrictions are of a different kind; it can obviously be moved out of singular subject NPs, but there are restrictions for floating out of object NPs (cf. (46)a.) that have to be further investigated (it is possible to say Geld habe ich ihm einiges gegeben).

There are no restrictions for floating kein or einige out of plural NPs, as long as they are in the position before the finite verb (i.e. in the ‘Vorfeld’).

As in the case of alle and beide in NPs with a pronominal head, NPs with kein are usually bad in initial position of the sentence if kein is not floated (cf. (37), (38), (39), (40)). (41) is OK because both kein and Staat carry main stress. There are evidently no such restrictions for einige. Speakers of German tend to float kein or put the whole NP into the ‘Mittelfeld’ inserting es in Vorfeld-position (cf. the examples under (37) and (40)) rather than place an NP containing kein into sentence initial position. 17

(37) Keine Verträge wurden in diesem Jahr abgeschlossen.
a. Verträge wurden *keine* in diesem Jahr abgeschlossen.

b. Verträge wurden in diesem Jahr *keine* abgeschlossen.

(37') Es wurden *keine* Verträge in diesem Jahr abgeschlossen.


b. *Es wurden Verträge in diesem Jahr *keine* abgeschlossen.

(38) ?*Kein* Geld hat mich die Sache gekostet.

a. Geld hat mich die Sache *keins* gekostet.

(39) ?*Kein* Geld ist da.

a. Geld ist *keins* da.

(39') Es ist *kein* Geld da.

(40) ?*Kein* Vertrag wurde in diesem Jahr abgeschlossen.


b. *Vertrag wurde in diesem Jahr keiner abgeschlossen.

(40') Es wurde in diesem Jahr *kein* Vertrag abgeschlossen.

(41) *Kein* Staat kann sich das erlauben.

a. *Staat kann sich keiner das erlauben.

(42) Vogel war doch *keiner* drin. (*Alles von K. Valentin, Mch. 1978, p. 236)*

(43) Kugelschreiber ist hier *keiner*. (Hörbeleg Lechenich, 9 Nov. 1978)

(44) *Einiges* Geld hat mich die Sache gekostet.


(45) *Einiges* Geld ist noch da.

a. Geld ist noch einiges da.

4.2.3. *Kein* as well as *einige* cannot be moved out of the 'Mittelfeld':

(46) Ich habe *keine* Segelboote in der Bucht gesehen.

a. *Ich habe Segelboote in der Bucht *keine* gesehen.

(47) Ich habe *einige* Segelboote in der Bucht gesehen.

a. *Ich habe Segelboote einige in der Bucht gesehen.

(48) *Einige* Autofahrer wurden angehalten.

a. Autofahrer wurden *einige* angehalten.

(48') Es wurden *einige* Autofahrer angehalten.

a. *Es wurden Autofahrer einige angehalten.

This illustrates another clear difference between the floating of *alle* (cf. (17)a. and b.) and *beide* (which behaves like *alle*) on the one hand and the floating of *kein* and *einige* on the other. Since both *kein* and *einige* are indefinite, whereas *alle* and *beide* are definite, this semantic difference might have something to do with the syntactic difference; but I have not yet inquired into this question.
The phenomenon just described explains why there is no floating from subject-NPs in sentences with *es* in initial position (cf. (37')a./b. and (48')a.): in these sentences (cf. (37'), (39'), (40'), (48')), the subject-NP is in the 'Mittelfeld', since the first position of the sentence is occupied by *es* (the subject cannot be moved into second position because this is reserved for the finite verb).

5 Backward Floating

It was mentioned above (cf. 3.3) that pronominal NPs behave differently in many ways from non-pronominal NPs. One of the differences concerns backward floating. Backward (or: right-to-left) floating is a movement of the quantifier to the left:

(49)  *Alle* (die) Gäste sind gegangen.
     a.  *Alle* sind die Gäste gegangen.
(50)  ?*Sie alle* sind gegangen. (cf. (33))
     a.  *Alle* sind sie gegangen.
(51)  *Die beiden* Gäste sind gegangen.
     a.  *Beide* sind die Gäste gegangen.
(52)  ?*Sie beide* sind gegangen.
     a.  *Beide* sind sie gegangen.

The quantifier can be moved out of NPs with a pronominal head without essential restrictions, whereas backward floating out of NPs with a 'normal' (i.e. non-pronominal) noun obtains either ungrammatical or questionable results (cf. (49)a. and (51)a.).

The regularities shown in examples (49) – (52) can be generalised to cover first and second person pronouns (cf. (53), (54)) and NPs in non-initial positions (cf. (55) and (56)):

(53)  *Wir alle/beide* sind gegangen.
     a.  *Alle/beide* sind wir gegangen.
(54)  *Ihr alle/beide* seid gegangen.
     a.  *Alle/beide* seid ihr gegangen.
(55)  Ich habe *alle* die Gäste/die *beiden* Gäste begrüsst.
     a.  *Alle/*beide* habe ich die Gäste begrüsst.
(56)  Ich habe sie *alle/beide* begrüsst.
     a.  *Alle/beide* habe ich sie begrüsst.
6 Conclusions

6.1

The fact that indefinite NPs never occur together with the definite article — not even after floating has occurred — and that only the definite quantifiers which combine with the definite article leave a definite article behind in the source NP after floating, suggests that Links formula (F-I) is wrong in that the insertion of a definite article cannot be part of the structural change. If the formula is thought to represent a transformation — which I think it is supposed to — it would result in wrong transforms like *die Autos waren keine auf der Strasse, *die Autos waren einige auf der Strasse, *die seine Freunde haben ihn alle verraten, and it could not explain why there are (generic) sentences like: Hunde haben alle eine gute Nase (besides die Hunde haben alle eine gute Nase).

Therefore, it seems to me, (F-I) should be replaced by (F-I?):

\[
(F-I') \begin{array}{l}
\begin{array}{c}
A \\
X \quad NP \\
\quad Y \\
\quad Z \\
\quad U \\
\quad Q \\
\quad W
\end{array}
\end{array} \quad = \Rightarrow \quad \begin{array}{l}
\begin{array}{c}
A \\
X \quad NP \\
\quad Y \\
\quad Q \\
\quad Z \\
\quad U \\
\quad W
\end{array}
\end{array}
\]

This formula states that the quantifier Q is moved out of an NP leaving the rest of the NP (i.e. its preceding and following co-constituents) behind. Among the preceding co-constituents, there might be a determiner like der, dieser, sein. This would suggest that Die Freunde haben ihn alle verraten is explained in a parallel fashion to (11)b. Seine Freunde haben ihn alle verraten.

There is one problem, though, which I cannot solve yet: there are cases — especially in generic statements — where there should be no definite article in the underlying NP: Alle die Hunde haben eine gute Nase does not seem to be interpreted as a generic sentence but rather as a statement about a definite set of dogs. Maybe these are cases where one should follow a suggestion made by Link (1974) (in footnote 8), namely, that the definite article should be deleted in case the quantifier is not floated.

6.2

There are at least two different kinds of floating, forward and backward floating, which are subject to quite different conditions. Backward
floating is restricted to definite quantifiers, presumably only (or primarily) with a pronominal head noun.

There is possibly a third kind of floating, namely forward floating of indefinite quantifiers (like *kein* and *eine*) which requires conditions (for example on the position of the NP in question) which are partially different from the conditions for forward floating of definite quantifiers (cf. section 4.2.3).

6.3
There are a couple of problems that were only touched upon but not solved or even explained in detail. For instance, the behaviour of definite quantifiers like *alle* and *beide* in relation to the definite article (especially in generic sentences with *alle*) belongs here.

Another problem was mentioned in connection with pronominal 'source NPs' in the third person like *sie alle*. It seems to me that sentences like (33) are marked in relation to the corresponding sentences with floated quantifiers like (33)a. There might even be sentences like *Kein Geld hat mich die Sache gekostet*, which is ungrammatical or almost ungrammatical, whereas the derived sentence *Geld hat mich die Sache keins gekostet* is perfectly grammatical. I see only two solutions: either the floating transformation has to be made obligatory in specified cases, or the sentences with a quantifier in 'floated' position cannot be explained as results of a floating process.

Notes

2. Not only do quantifiers like *all* share with determiners like *the*, *this* and *that* the feature of delimitation (cf. *I saw a group of children. All (of the) children wore blue overalls*), but there are also determiners like Engl. *the* and *a*, Ger. *der* and *ein* that express quantity, namely in their generic use: *Der/ein Mensch ist sterblich*, where the quantity of all human beings is understood.
3. Carden (1976, p. 101) comes to the conclusion ‘that a suitable sentence conjunction analysis will also account for the quantifier-like properties of “both”. We conclude that “both” represents an underlying conjunction with some of the properties of a “higher predicate”.’ I have analysed the syntactic qualities of Germ. *beide* in Vater (1979). A more detailed analysis will be given in an article by Marga Reis and myself (forthcoming).
4. According to the criteria described in detail by Keenan (1971), Engl. *the* (and Germ. *der* respectively) should not be quantifiers because they lack the 'predication property': 'A sentential functor is predicational as long as the denial of a sentence formed from it carries solely on the meaning inherent in the functor itself, and so does not affect the information in the operand sentence(s)' (Keenan, 1971, p. 263).
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5. (6)b. is homophous with a grammatical sentence meaning 'sailboats are those over there,' where the sequence die da forms the subject, Segelboote — without die! — being the predicate noun.

6. In the reading which is supported by the speaker pointing at something that is within his range of vision.

7. If one includes partitive constructions and determiners within preposed genitive NPs (like my aunt's many books), there are even more positions for modifiers of nouns.

8. QF seems to have a much larger domain of application in German than it does in English. It includes numerals, as in Bücher habe ich dreissig/hunderte/ein Dutzend but also adverbs like in Bücher habe ich haufenweise and even adjectives: Bücher habe ich unzählige/schöne/sein teure. An example of this type of 'qualifier floating' occurs in an old hit from an operetta Mädchen gibt es wunderfeine, 'girls are there very fine ones'.

9. His remark 'Quantoren-Floating ist offenbar (in Übereinstimmung mit Postals Ergebnissen für das Englische) eine Regel, die von links nach rechts operiert' (1974, p. 108) shows that he dismisses the idea of backward (i.e. right-to-left) floating altogether. Sentences like Alle sind sie gegangen are interpreted as instances of topicalisation.

10. This is my interpretation of Link's statement: 'Es gibt eine Konstruktion im Deutschen, in der der Quantor "alle" in der zugehörigen Nominalphrase nachgestellt auftritt, aber meist an diese "gefesselt" ist' (1974, p. 106).

11. With stressed alle; cf. my remarks referring to example (10)b.

12. J. Van Loon (personal communication) has drawn my attention to the fact that sentences like Die Bücher haben den Kindern diesmal besser alle gefallen are not acceptable, although the floating path is fairly short and besser does not have a stronger accent than wider Erwarten. The reason for this seems to be that besser is more closely related to the verb gefallen than wider Erwarten (or zweifellos, praktisch, etc.).

13. "v" indicates the main stress of the sentence.

14. a. is not as good as b. and c. I am not sure of the reason for this.

15. Sie alle as a form of polite address is, as an NP in the second person, possible in constructions like (34') and (34')a.

16. This was pointed out to me by my colleague Marga Reis.

17. There are no good English translations for the German terms 'Vorfeld', 'Mittelfeld' and 'Nachfeld', which were coined by Drach (cf. Drach, 1963, pp. 17ff.). I am using the terms in the sense they are applied by Höhle, 1976; 'Mittelfeld', thus, comprises the positions before the verbal complex in sentences with word final order and the positions between the finite part of the verb and the rest of the verbal complex in sentences with verb initial or verb second order (i.e. the 'Bereich innerhalb des Satzrahmens', cf. Engel, 1977, p. 300). 'Vorfeld' is the position (usually only filled with one constituent) before the finite verb in verb second sentences.

18. There are, however, grammatical sequences with kein (in object NPs) in initial positions, but they require very special contexts; cf. for example, the famous joke (from a country where there is a shortage of all kinds of goods for everyday usage): 'Ich hatte gern ein Oberhemd.' — 'Hier haben wir nur keine Schuhe. Keine Hemden gibt es nebenan.' (Customer: 'I would like to buy a shirt. Clerk: 'In this store we have only no shoes. You'll get no shirts next door.'
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1 Introduction

1.1 Aims

(i) To distinguish three non-anaphoric senses of determiners, and three anaphoric senses;
(ii) to distinguish three interpretation-types of predicate;
(iii) to show that the anaphoric senses of the determiners are in fact contextually determined varieties of two of the non-anaphoric senses;
(iv) to suggest that there are clear co-occurrence restrictions between the non-anaphoric senses and the predicate senses;
(v) to use these facts in explaining some notorious problems connected with determiners and reference, namely: Russell’s ‘definite descriptions’, Donnellan’s ‘attributive’ vs. ‘referential’ senses, and everybody’s ‘specific’ vs. ‘non-specific’ indefinites.

1.2 Forms of Determiner in this Study

I shall only concern myself with the following eight combinations of four determiners and noun features:

(1) [The [+count] [+sg]]NP \hspace{1cm} \text{The dog is friendly.}
(2) [The [+count] [-sg]]NP \hspace{1cm} \text{The dogs are friendly.}
(3) [The [-count]]NP \hspace{1cm} \text{The water is frozen.}
(4) [A (n) [+count] [+sg]]NP \hspace{1cm} \text{A dog is following me.}
(5) [Sm [+count] [-sg]]NP \hspace{1cm} \text{Sm dogs are following me.}
(6) [Sm [-count]]NP \hspace{1cm} \text{Sm water is on the table.}
(7) [Ø [+count] [-sg]]NP \hspace{1cm} \text{Dogs are often friendly.}
(8) [Ø [-count]]NP \hspace{1cm} \text{Water is essential to life.}

Sm in (5) and (6) is the unstressed form of some: I am not going to do more than mention at this point that the stressed form is quite distinct, since it is either quantificational (with [-count] and [[+count] [-sg]] NPs) or else intensifying (with [[+count] [+sg]] NPs). Clearly – at least on the basis of these combinations -- we can set up a proportion between a(n) and sm on the one hand, and the on the other:
Subsequently, we may see how justifiable this is on other grounds. The zero forms in (7) and (8) obviously do not display the same proportionate behaviour: the missing combination \([-\emptyset [+\text{count}] [+\text{sg}]]_{\text{NP}}\) does occur, but uniquely with the item *man*. I have assumed that this use is exceptional and has no place in any generalisations that can be made about determiners. I have also assumed that uses of \([-\text{count}]\) nouns bearing number, such as *a water* or *the waters*, have been reassigned to \([+\text{count}]\) status, despite the regular semantic variation that accompanies this, i.e. I have assumed that the semantics of such uses is no different in principle from that of regular \([+\text{count}]\) nouns. (The same applies to \([+\text{count}]\) nouns going the other way.) I think there are some interesting problems with such cases, but I will ignore them here.

2 The Senses of the Determiners

There are a number of traditional terms associated with the interpretation of determiners in English. The usual distinction between 'definite' and 'indefinite' articles is commonly explained as incorporating a semantic distinction between 'specific' and 'non-specific' reference. At the same time, it is often pointed out that indefinite articles may have a 'specific' and a 'non-specific' interpretation. The term 'generic' is used of forms (1), (4), (7) and (8), while 'unique' is reserved for certain uses of form (1) in which it may be claimed that reference is unambiguous. There is, however, a basic distinction made by many (for example Quirk et al., 1972, p. 155; Halliday and Hasan, 1976, pp. 33, 71), namely that between *anaphoric* and *cataphoric* uses, the former referring to preceding text, the latter to subsequent text. I shall subsequently make use of the term 'anaphoric' with a somewhat extended sense (i.e. referring to preceding context, both textual and situational). Its complementary will be called 'non-anaphoric', and will include so-called 'first mention' uses. The traditional and taxonomic accounts cited so far have been superseded in recent years by 'locational' accounts of determiner interpretation, notably in Lyons (1977) and Hawkins (1978). A summary of the latter work is given by C. Lyons (this volume), and I will assume many of Hawkins's conclusions in the following chapter. In particular, I will assume that his account of *the* as referring inclusively to some pragmatically defined set of objects is
fundamentally correct, though the precise specification of the pragmatic limitation appears problematic, particularly with generics.

2.1 Non-anaphoric Senses

I shall distinguish three non-anaphoric senses, namely generic, specific and non-specific. These will all be used in more or less their traditional interpretations, and I will provide a gloss for each in a quasi-logical notation in order to bring out their fundamental similarities and differences.

2.1.1 Generic. The generic sense is commonly said to be found with *the*, *∅* and *a(n)*, in such contexts as the following:

(9)  a. *The horse* is a noble beast.
     b. *Horses* are noble beasts.
     c. *A horse* is a noble beast.

However, as Lawler (1972) and Nunberg and Pan (1975) point out, the indefinite article form is not freely substitutable for *the* and *∅* in all contexts:

(10)  a. *The horse* has been domesticated for thousands of years.
      b. *Horses* have been domesticated for thousands of years.
      c. *A horse* has been domesticated for thousands of years.

I shall discuss the (10)c. example at several points in the ensuing paper, but for now, I will merely claim that such uses as (9)c. are not true generics, but are actually non-specifics. (I will justify this in section 2.1.3, and explain the non-occurrence of (10)c. in sections 3 and 4).

The general sense of generic NPs is the set denoted by the NP: the precise sense is then fine-tuned by the determiner. Thus *the* has the overall meaning ‘total’ or ‘whole’ (cf. Hawkins, 1978, p. 167), *∅* means ‘every member’, and *a(n)* means ‘one member’:

(11)  a. *the horse*: ‘whole set’
      b. *horses*: ‘every member of set’
      c. *a horse*: ‘one member of set’

Frank Platteau (this volume) makes the interesting suggestion that generic *the* in fact means ‘superset’, i.e. ‘the set of all sets (of horses, etc.)’. Whether or not this is correct, I shall continue to use the simpler locution of (11)a.
The set, as nominated by the head noun of the NP, may actually be modified by a relative, an adjective, or a prepositional phrase:

\[(12)\]

\(a.\) *The horse which is thoroughbred is*  
\(b.\) *Thoroughbred horses are*  
\(c.\) *A horse with good breeding is*  

of mixed English and Arab stock.

This has the effect of designating a subset, to which generic reference may be made, as in (11). Thus, *the* in (12)a. refers to the whole subset of 'horse which is thoroughbred'. (Strictly, since the members of the subset are designated in general terms, rather than being individually nominated, the resulting group is a set intersection; however, the distinction appears to be of no consequence linguistically).

These various senses may be represented in a language-notation as follows:

\[(13)\]

\(a.\) Set  
Totality: all of (horse)  
\[= (11a)\]

\(b.\) Set: (horse)  
Membership (horse 1, horse 2... horse n)  
Totality: all of (horse 1, horse 2... horse n)  
\[= (11b)\]

\(c.\) Set: (horse)  
Totality: all of (horse)  
Single one among (all of (horse))  
\[= (11c)\]

\(d.\) Set: (horse)  
Subset: ((horse) which is thoroughbred)  
Totality: all of ((horse) which is thoroughbred)  
\[= (12a)\]

The generic sense specification, we may postulate from this notation, is carried by the final stipulation of totality. (13)c., it will be noted, is specified for totality, but this is not the terminal feature: rather, (13)c. allocates its final indication to some one member among the total specified set. This is identical with the non-specific reading (see section 2.1.3), and embodies the intuition that the non-specific sense necessarily makes reference to the total set.

2.1.2 *Specific.* The specific sense of determiners is found in such examples as:
(14) a. *A dog* bit me last night.
   b. John is marrying *an heiress*.
   c. *The dog next door* bit me last night.
   d. Beware of *the dog*.
   e. Has the *postman* been yet?
   f. *Sm youths* were dancing listlessly.

Examples such as (14)a. are commonly said to be non-specific, since the animal in question is not identified; but this is to confuse specific­ness with definiteness: certainly as far as the speaker of (14)a. is con­cerned, it was a painfully specific dog. An interesting subset of the specifically determined NPs are what Halliday and Hasan (1976) call ‘homophoric’ NPs, i.e. those with apparently unique reference. These bear the determiner *the*, and, like all specific determiners (cf. Hawkins, 1978, p. 130), must be interpreted relative to some level of the situation which contains the speaker, the listener, or both. (14)d., e. exemplify this use, and the relevant localities are, respectively, ‘these premises’, and ‘(who delivers to) this house’. Other examples are: *the Queen* ‘of this country’, *the moon* ‘of this planet’, *the sun* ‘of this solar system’, and *the table* ‘in this room’. I shall assume that the homophoric use is equivalent to a modified NP use.

The essential semantic feature of the specific sense is that it pre­supposes existence of its referent in the Universe of Discourse specified by the text or, in the unmarked case, the situationally-defined Universe of Utterance. Thus, in the absence of specific textual indi­cation, the sentence:

(15) *A unicorn* gored me last night,

in which *last night* displaces the temporal reference, but there is no fur­ther indication that reference is to any other Universe but the actual one, such a sentence presupposes that this particular animal existed at the reference time of the sentence. Given, though, that our informa­tion-store about the actual Universe does not contain the datum that unicorns exist, there is a clash in (15) between the specific sense’s pre­supposition of existence, and the denial of that proposition in our information about the unmarked world. This is all the more interesting in view of the fact that if the speaker of (15) had been gored by the King of France, his utterance would have displayed all of those ex­quisitely insoluble problems discussed in detail since Russell (1905); but in (15) as it stands, there is not a single definite description in sight —
yet the problem is identical. I propose to offer a solution to both (15) with indefinite reference, and Russell’s sentence, with definite reference, in section 5.

A reliable test for the specific sense is that it is paraphrasable with there BE (or in Standard-Theory terms, may undergo There-insertion). It is frequently stated as a condition on this construction that it is confined to indefinites:

(16) a. There was a dog (which) bit me last night.
   b. There’s an heiress (who) John is marrying.
   c. There were sm youths dancing listlessly,

and in terms of surface structure, this is undoubtedly the case (with the exception of the ‘afterthought’ or ‘suggestion’ use, pointed out to me by Bob Rigter: Of course, there’s (always) the possibility of a cancellation. Nevertheless, this seems to me to be specific, possibly homophoric.). However, even the definites seem to be paraphrasable in this way, though they require two sentences to do it (or at least, two Ss):

(17) a. There’s a dog next door which bit me last night.
   b. There’s a dog on these premises – beware of it.
   c. There’s a postman (who) delivers to this house – has he been yet?

Compare this with generics and non-specifics, which cannot be paraphrased in this way:

(18) a. *There’s a dog (which) is a quadruped.
   b. *There’s a unicorn (which) is a mythical beast.
   c. *There was a pink-striped bathmat (which) John dreamt he danced with.

(18)c. relates to the problem of referential opacity (which I will return to in section 5): for our present purposes, however, the meaning of dream guarantees that an unmodified indefinite in its complement will be non-referential, hence non-specific, in what I called above the unmarked world.

We may represent the specific sense of, for example, (14)a. in the same sort of notation, though we shall require the existential quantifier in this case:
(19) Set: 
    (dog) 
Membership: 
    ((dog)s) (i.e. (dog 1, dog 2, ..., dog n)) 
Single Member: one among ((dog)s) 
Specific: $\exists x, x$ is (one among ((dog)s)) 

When we come to examine the modified specific sense, however (as in (14)c.), and, as I argued above, in the homophoric (14)d., e. also), an interesting and surprising fact emerges: the definite and indefinite counterparts have semantic representations which differ crucially in the order of elements and relationship between the head noun and its modifier. Compare:

(20) a. *A local dog* bit me last night. 
    b. *The local dog* bit me last night. 

The respective analyses of these are:

(21) a. Set: 
    (dog) 
    Membership: 
    ((dog)s) 
    Subset: local ((dog)s) 
    Single member: one among (local ((dog)s)) 
    Specific: $\exists x, x$ is (one among (local ((dog)s))) 
   
   b. Set: 
    (dog) 
    Membership: 
    ((dog)s) 
    Single member: one among ((dog)s) 
    Modification: local (one among ((dog)s)) 
    Specific: $\exists x, x$ is (local (one among ((dog)s))) 

This is surprising, because on the face of it, (21)a., the indefinite, looks restrictive, while (21)b., the definite, looks unrestrictive. This appearance, however, is misleading, because the bracketing—unlike a bracketed representation of a P-marker, for instance—gets more specific the less embedded it is. Thus, of course, the set is completely unspecific, and each successive line specifies a little more: (21)b. has already specified down to some single member, and *local* further restricts this locationally. In (21)a., on the other hand, *local* has the normal subset sense of intersection (i.e. the intersection of ‘dogs’ and ‘local things’), and the indefinite article picks out some single member of that subset. Thus (21)a. concerns some single member in the intersection of local things and dogs; (21)b. concerns that single dog which
is local. It can readily be seen, therefore, that the latter is really the more restrictive of the pair.

2.1.3. Non-specific. The third non-anaphoric sense is, like the generic, non-referring, but like the specific, may individuate. The usual examples are indefinite:

\[(22)\]
\[
a. \text{Melanie is looking for } a \text{ millionaire.}
\]
\[
b. \text{The Civil Service Commission requires } a \text{ Welshman who dislikes leeks.}
\]
\[
c. A \text{ tarantula which bites my mother-in-law is bound to die in agony.}
\]
\[
d. \text{The doctor told me I needed fresh air and sunshine.}
\]

However, definite NPs may equally well be non-specific too:

\[(23)\]
\[
a. \text{The first man to set foot on Mars will be a scientist.}
\]
\[
b. \text{The winner will receive a holiday for four in Scunthorpe.}
\]
\[
c. \text{The doctor told me I needed the love of a good woman.}
\]

The most important distinction between the specific and non-specific senses is the presupposition of existence, which the latter cannot claim. The status of the NP in non-specific uses is that it has potential reference only (i.e. in some possible, marked, world), but no necessary extension (i.e. in this, the unmarked world). The crucial difference between the generic and the non-specific is that the generic subsumes a whole set, or set-intersection, whereas the non-specific denotes only a proper subset. To illustrate the specific/non-specific distinction, consider:

\[(24)\]
\[
a. \text{Pass me a sandwich.}
\]
\[
b. \text{Make me a sandwich.}
\]

(24)a. requests an activity involving one of a number of existing sandwiches:

\[(25)\]
\[
a. \text{Set: (sandwich)}
\]
\[
\text{Membership: } ((\text{sandwich})\text{es})
\]
\[
\text{Subset: } (((\text{sandwich})\text{es}) \text{here})
\]
\[
\text{Specific: } \exists x, x \text{ are } (((\text{sandwich})\text{es}) \text{here})
\]
\[
\text{Single member: one among } (\exists x, x \text{ are } (((\text{sandwich})\text{es}) \text{here}))
\]
(24)b. requests an activity which will bring a sandwich into existence:

\[\begin{align*}
\text{b. Set:} & \quad (\text{sandwich}) \\
\text{Membership:} & \quad ((\text{sandwich})\text{es}) \\
\text{Single} & \\
\text{member:} & \quad \text{one among } ((\text{sandwich})\text{es})
\end{align*}\]

At the time of speaking, however, it is totally unspecified, apart from being a member of the set (sandwich). Both are non-specific, but (24)a. is non-specific anaphoric (see section 2.2), whereas (24)b. is a pure non-specific. For a specific use, consider the possible continuation:

(26) Eventually, I got a sandwich,

which receives an analysis equivalent to (19). For the generic/non-specific distinction, consider:

(27) a. *Lions* live in family groups.
   b. Kincaid was hunting *lions*.

(27)a. holds for all lions; but in (27)b. Kincaid is manifestly not hunting all lions: he will presumably be satisfied by any proper subset.

The non-specific sense may be represented in our notation as in (25)b., or, for a modified example such as (22)c.:

(28) Set: \( (\text{tarantula}) \)

\[\begin{align*}
\text{Membership:} & \quad ((\text{tarantula})\text{s}) \\
\text{Subset:} & \quad (((\text{tarantula})\text{s}) \text{ which bite my} \\
& \quad \quad \quad \text{mother-in-law})
\end{align*}\]

Single

\[\text{member: one among } (((\text{tarantula})\text{s}) \text{ which bite my} \\
& \quad \quad \quad \text{mother-in-law})\]

Notice the similarity between (28) and (21)a., and between (25)b. and (19). The distinction between specific and non-specific rests entirely upon the stipulation of existence made by specific NPs. This appears to suggest in addition that the so-called generic \( a(n) \) should really have the same semantic representation as the non-specific (25)b.; the regular semantic distinction between:

(29) a. *A horse* is a noble beast.
   b. Hopalong wants to buy *a horse*,

\[\text{one among } (((\text{tarantula})\text{s}) \text{ which bite my} \\
& \quad \quad \quad \text{mother-in-law})\]
must then be handled in some other way. One might attempt to put this distinction down to pragmatics, in the usual rather undefined way in which this temporising exercise is carried out. I shall be making a somewhat more concrete proposal in section 4.

2.2 Anaphoric Senses

Unlike the non-anaphoric senses, the anaphorics cannot occur in discourse-initial position, provided that 'discourse' includes relevant contextual information. This proviso is often made anyway: cf., for example, Hankamer, 1974. It merely allows the generalisation that textual and situational deixis are fundamentally the same phenomenon. Anaphorics turn out to be noticeably more complex than non-anaphorics, at least by one line of semantic representation, and I claim that this is because they are actually founded upon non-anaphorics, in that they are subsequent references to initial non-anaphoric uses.

2.2.1 Specific Anaphoric. This is by far the most common anaphoric use, since the very fact of previous mention is normally enough to specify the subsequent anaphora. This is certainly true of ordinary anaphoric the (+ unmodified NP):

(30) a. Herbert was telling me that he'd met sm actresses at a party
    — I didn't like to tell him that I'd met the actresses myself.
    b. A dog tried to bite me last night. I didn't hang around — I just kicked the dog and fled.
    c. Melanie is looking for a millionaire.
        — *She says that only the millionaire will do.
        — She says that the millionaire owes her sm money.

The semantic representation of this sense is:

(31) Set: (woman)
    Membership: ((women))
    Plural members: some of ((women))
    Specific: \( \exists x, x \text{ are (some of ((women))} \)
    Anaphora: that (\( \exists x, x \text{ are (some of ((women))} \))

Notice that (31) is equivalent to (19), plus anaphora, and the latter is represented as the demonstrative. This takes up the suggestion of Lyons (1977, p. 655), and Hawkins (1978, p. 129) that the incorporates reference to location.
When the anaphoric NP is modified, however, the specification becomes more complex still, since the anaphoric reference may be either to the head NP or to the whole NP + modifier:

(32) a. My hostess informed me there was a literary giant she wanted me to meet, and introduced me to the man who had translated Hamlet into Yiddish.

b. At the Hamlet Translators' Annual Reunion, there were quite a few women who had translated it into Yiddish, but only one man. Addressing a few remarks to the gathering, the man who had translated Hamlet into Yiddish said: 'To be or not to be — that is the question?'

We may gloss (32)a. as bearing on at least one possible reading an anaphoric unique sense: 'the only member of the designated set as previously defined, or known'. This would perhaps be clearer if (32)a. were preceded by some such context as: I heard there was a man at this party who had translated Hamlet into Yiddish. (32)b., on the other hand, has an anaphoric unique subset sense: 'the only man in the designated subset as previously defined'. (32)a. is therefore the anaphoric analogue of sense (21)b.:

(33) a. Set: (man)
Membership: ((men))
Single member: one among ((men))
Modification: (one among((men))) who had translated...
Specific: \( \exists x, x \text{ is } ((\text{one among } ((\text{men}))) \text{ who had translated} ... ) \)
Anaphora: that (\( \exists x, x \text{ is } ((\text{one among } ((\text{men}))) \text{ who had } \) ...

and (32)b. is the anaphoric analogue of sense (21)a.:

b. Set: (person)
Membership: ((people))
Subset
\( \text{Subset}_1: ((\text{people})) \text{ who had translated} ... \)
\( \text{Subset}_2: \text{men among } (((\text{people})) \text{ who had translated} ... ) \)
Single member: one among (men among (((people)) who had ... ))
Specific: \( \exists x, x \text{ is } (\text{one among } (\text{men among } (((\text{people})) \text{ who had } \) ...) ... ) \)
Anaphora: that (x, x is (one among (men among (((people)) who . . )))

These representations are somewhat horrific, but they do in fact show quite clearly the effect of progressive definition of the original unmodified noun. In my thesis (Werth, 1976) I assumed that these two anaphoric senses were actually uniquely referring. However, it now seems clear that while this can be the case, this is an extreme interpretation, and the uniqueness is in fact relative to the stated context. In this respect, these uses are akin to the homophorics, which I suggested in section 2.1.2 above are also to be analysed in terms of (21).

2.2.2 Non-specific Anaphoric. We have already seen one example of this sense, in (24)a. above, in which the general meaning is 'one of a previously-defined or situationally-obvious set'. What is previously mentioned here, therefore, is the modifier rather than the head, or the whole NP, and so the non-specific anaphoric in this respect at least complements the two specific anaphoric senses.

(34) a. Seeing all the kittens in the shop, Jane made up her mind to look for a female.
   b. Employers are prohibited by law from victimising an employee.
   c. The police kept receiving reports that a member of the gang had been sighted.

(34)a., b. illustrate an interesting fact about this use: in order to be non-specific, the unmodified NP must be indefinite; but in order to be anaphoric, an unmodified indefinite cannot repeat the actual noun of the antecedent. In (34)a., a female can probably be assumed to show One-deletion, while (34)b. evinces an associative relationship between employer and employee. (34)c., though, is a modified example, in which, presumably, gang has been mentioned previously. All of them, however, relate the non-specific N to a previously defined set. This N, therefore, is non-referential, and would be satisfied by any member of the stipulated set, in (34)b., c., or by any member of a designated subset, in (34)a. The representation of this sense is:

(35) Set: (gang)
    Membership: ((gang)s)
    Single
    member: one among (gang)s
Specific: $\exists x, x$ is (one among ((gang)s))
Anaphoric: that $(\exists x, x$ is (one among ((gang)s))) = SET$_2$
Membership
of SET$_2$: members of (that $(\exists x, x$ is (one among ((gang)s))))
Single
member: one among (members of (that $(\exists x, x$ is (one among ((gang)s)))))

We can read this off as ‘one member of that specific one gang’.

2.3 Relationship between Anaphoric and Non-anaphoric: Summary

All of the anaphoric cases quite clearly correspond with a non-anaphoric sense, with the addition of the stipulation ‘anaphora’ somewhere in their representation. If we remove this stipulation, then, as we have seen, (31) and (33) revert to a specific representation, and (35) reverts to a pure non-specific (though a rather complex one in that, semantically, (gang) is a set-denoting term, as well as a set). The non-anaphoric version would read ‘a member of a gang’. What, then, does this stipulation of anaphora consist of? I have been talking throughout about ‘previous mention’ and also ‘previous definition’, and in the case of (34)b., I spoke of an ‘associative relationship’. All of these are in fact consequences of textual coherence, a phenomenon of much wider application than its effect on determiners, and too complex to be considered in this paper, though I discuss it in some detail elsewhere (Werth, 1977, in press and forthcoming). In general terms, however, we may say that ‘previous mention/definition’ is clearly a contextual function of running partial identity, which can be handled quite simply and generally with a coherence constraint of the type suggested by Van Dijk in his thesis (1972). This can operate not only with actual repetition of semantic structure, but also with implicationally related structures (i.e. the ‘associative relationship’ mentioned earlier). As we have seen, an anaphoric element may indicate one or two preceding expressions, as in:

(36) a. Two cottages had been built in the hillside from the finely cut masonry of the old castle and two families of peasants ran out to greet them with bunches of mimosa.
   (Evelyn Waugh, 1952, p. 3)

b. Children, grandchildren, great-grandchildren of the peasants who first greeted Gervase and Hermione still inhabited the cottages behind the Castello. (ibid., p. 8)
There has been a constant stream of *visitors to No. 10 Downing St* today, on the eve of negotiations for Phase 63 of the Government's Prices and Incomes Policy. Through the Prime Ministerial portals have passed two Cabinet Ministers, a *TUC official*, the chief of the CBI, the Chairman of British Rail, and a clutch of senior civil servants. *The trade unionist who visited Mr Callaghan* was Mr Len Murray, Chairman of the TUC.

Both of these are specific anaphoric, and both involve reference to two locations: (36) refers to the set of peasants, and to the subset (i.e. intersection) of those peasants who greeted Gervase and Hermione; (37) refers to the (sub)set of visitors to No. 10, and to the member of that set who was a trade union official (by intersection).

We are left, therefore, with the three kinds of non-anaphoric determiner, generic, specific and non-specific, and the possibility of anaphoric reference which is normally specific (since the very act of previous mention is sufficient to specify); in fact even the non-specific anaphoric kind is partially specific in that the anaphoric part of it specifies a set or subset, and the non-specific head is necessarily non-anaphoric. So we may regard anaphora as being, in this case, specifying, though anaphorics which are non-referring can also occur:

(38) *We're looking for a home for some kittens. The home that we find must be warm and loving.*

In (38), *the home* does not refer — in fact no such home may exist in this world. The fact that it might refer in some possible world is irrelevant, since the whole point of uttering (38) is the mismatch between this world of the speaker, and the world of the predication. The definite article in (38) could in fact be replaced by the quantificational *any*, but not by the indefinite article. It is in fact a pure anaphoric, i.e. it 'refers back' solely to the *text*, and does not necessarily correspond to any extratextual reality.

3 Types of Predication

As with the determiners, there are a number of traditional distinctions made concerning the sense of predicates. Many commentators refer to the 'stative'—'dynamic' distinction, which has certain linguistic correlations, such as co-occurrence with progressives (though this is
not completely reliable as a diagnostic). Some philosophers, notably Vendler (1957), and Kenny (1963), have subcategorised these types further, based on such refinements as completability and duration. Leech (1969) suggests the generalisation of the \(+/-\)COUNT feature of nouns to predications, whereby states are \(-\)COUNT and events are \(+\)COUNT. Mourelots (1978) combines these various approaches into a single system:

\[
\begin{align*}
\text{(39) situations} \\
\quad \text{states} \quad \text{occurrences} \\
\quad -\text{COUNT} \quad (\text{actions}) \\
\quad \text{processes} \quad \text{events} \\
\quad (\text{activities}) \quad (\text{performances}) \\
\quad -\text{COUNT} \quad +\text{COUNT} \\
\quad \text{developments} \quad \text{punctual occurrences} \\
\quad (\text{accomplishments}) \quad (\text{achievements}) \\
\quad \text{(Mourelatos, 1978, p.423)}
\end{align*}
\]

He gives examples of the four terminal types:

\[
\begin{align*}
\text{(40) a. State: The air smells of jasmine.} \\
\quad \text{b. Process: It's snowing.} \\
\quad \text{c. Development: The sun went down.} \\
\quad \text{d. Punctual occurrences: The cable snapped. He blinked. The pebble hit the water.}
\end{align*}
\]

These distinctions are real enough. But consider also the following sets:

\[
\begin{align*}
\text{(41) a. Cyanide smells of bitter almonds.} \\
\quad \text{b. Snow melts when the temperature rises.} \\
\quad \text{c. Suns in old age turn into Red Giants.} \\
\quad \text{d. Smooth pebbles skim across the water.} \\
\text{(42) a. A Brownie should smell clean and pleasant.} \\
\quad \text{b. Snow for ski-ing should fall during the night.} \\
\quad \text{c. The most impressive sunsets turn from orange to purple.} \\
\quad \text{d. Hold the pebble flat, and throw it low.}
\end{align*}
\]

In (41) and (42), the same four predicate types seem to recur (more or
less), but the Vendler-Kenny-Mourelatos distinctions do not seem nearly so appropriate. This is the case, I claim, because there are in fact some more basic distinctions which have not, to the best of my knowledge, been made before. The Mourelatos examples in (40) all refer to actual states and events: (40)a., b. describe situations which are presented as actually obtaining; (40)c., d. designate events which are presented as actually having happened. In (41), as far as I can see, a. is a state, b. a process, and so on, but these are not actual situations; they are, rather, criterial or typical. Similarly with (42): the sentences still seem to denote a state, a process etc. (at least arguably so), but this time, they seem to be conditional in some sense.

I propose, therefore, to make a three-way semantic distinction of predicate-senses: respectively, iterative, generalising and stipulative. For present purposes, I am taking predicates to be indivisible units; in fact, of course, they contain, for example, NPs which may themselves vary as described in section 2.

3.1 Iterative

Iterative predicates denote actual states of affairs. They comprise repeated and single actions, states and processes, but the crucial factor is that they are represented as actually obtaining. In making this category I am claiming that the well known distinction between states and actions, for example, is subordinate to the distinction between types of predication. In fact, I would maintain that states and actions are not clearly distinct, but form a semantic continuum, with repeated actions and processes somewhere in the middle. Take for instance the notion teach:

(43) a. Bert is a teacher (of x) (to y).
    b. Bert teaches (x) (to y).
    c. Bert teaches knot-tying at the annual Scout camp (to y).
    d. Bert taught me the Three-Card Trick.
    e. Bert is teaching me the violin.
    f. Bert taught me to cheat and lie.

(43)a., b. are both statives, though a. suggests a constant classification, and b. a repeated activity which characterises. c. is a repeated activity too, but with a slower periodic motion (so that c. does not necessarily entail a.). d. presumably denotes a single action in the past (unless I was an exceptionally poor student), while e. suggests a longer period split up into discrete sessions. f., however, requires no actual sessions
of instruction at all, but merely the provision of a bad example over a long period. Given that the cognitive content of teach is essentially identical in all of these cases, it seems perverse to consider it to be two or more homophonous verbs. We must, I think, conclude that, just as dynamics can vary between single events covering a brief time-span, single events occurring over a period, and repeated series of events taking place over a long or short period, so too can statives range over a time-period calibrated between Eternity and some finite period which includes the present moment (a period which may be very short). If a state may be regarded as obtaining over an infinite sequence of points of time (rather than a period), i.e. if a period were to be thought of as differing from a point only quantitatively, then the difference between ‘punctual occurrences’, ‘duratives’ (‘developments’), ‘repeated (habitual) occurrences’, ‘processes’, and ‘states’ disappears, or is reduced to the distinction between ‘single’ and ‘multiple’ states of affairs.

This conclusion challenges, therefore, the Leech distinction between +/-COUNT predications, also espoused by Mourelatos. Leech (1969, pp. 134 ff.) cites examples such as:

(44) a. I enjoy life. (−COU)
    b. I enjoy films. (+COU)

(44)a. is thus a state, while (44)b. is an ‘iterative occurrence’. But what of the next example?

c. I enjoy the theatre.

The theatre is made up of serial events, like films, but on the other hand, is a continuing source of enjoyment, like life: is it, therefore, +COU or −COU? But is a continuing source of enjoyment really continuous, or more accurately a series of strung-out events, each enjoyed singly? There seems not to be much difference between the predications in (44): the constant in these sentences is the enjoyment principle itself, and in each case this enjoyment must be taken to predicate an actual state of affairs upon the speaker. A further indication that the distinction between continuousness and seriality is in no way clear-cut is the completely free distribution of continuous and serial frequency adverbs (such as always and often, respectively) across such alleged distinctions:

(45) a. 1 \begin{align*}
    &\text{always} \\
    &\text{often}
\end{align*}
    \text{enjoy life.}
b. I \( \begin{cases} \text{always} \\ \text{often} \end{cases} \) enjoy films.

c. I \( \begin{cases} \text{always} \\ \text{often} \end{cases} \) enjoy the theatre.

Iterative, as I am using the term, then, is based on the proposal that there is no clear division between states and events, and that one and the same verb may be now a state, now an event, depending upon contextual factors such as tense, aspect, included NPs and adverbial modification. It refers to an actual state or event, and the basic idea is that iterative predicates in principle denote repeated (or repeatable) states of affairs. I will examine restrictions on the forms of the iterative, along with those on the other predicate senses, in section 3.5.

3.2 Generalising

Generalising predications make universal statements: they make predications of their subjects, that is to say, which are criterial or typical states of affairs. An interesting paper by N.V. Smith (1975) contains some hints which may help us to characterise generalising predicates more finely. Smith distinguishes between two broad classes of generic: the individuated, as in:

\[
\begin{align*}
(46) \ a. \ & \text{The squid lives on seaweed.} \\
& \text{b. Squids live on seaweed.} \\
& \text{c. A squid lives on seaweed.} \\
& \text{d. Any squid lives on seaweed.} \\
& \text{e. All squids live on seaweed.}
\end{align*}
\]

and the class-referring, as in:

\[
\begin{align*}
(47) \ a. \ & \text{The dodo is extinct.} \\
& \text{b. Dodos are extinct.} \\
& \text{c.} \text{A dodo is extinct.} \\
& \text{d.} \text{Any dodo is extinct.} \\
& \text{e. All dodos are extinct.}
\end{align*}
\]

(46) is predicated of each individual squid; (47) is predicated of the whole class (squid). (He points out that (47)e. cannot mean ‘all individuals’: it must refer to ‘all types’, i.e. subsets).

Ö. Dahl (1975) takes a much broader view of what he calls ‘generic tense’ (after Lawler, 1972). He includes it in the following:
(48) a. Beavers build dams.
b. I write with my left hand.
c. John smokes cigars.
d. Dogs bark.
e. The sun rises in the east.
f. Oil floats on water.
g. John does not speak German.
h. A gentleman does not offend a lady.

Summarising Dahl’s arguments drastically (and I hope not distorting them), we can reduce his generics to the following types:

(49) Generics
   Accidental generalisations
   Nomic generalisations
      Prescriptive
      Descriptive
         ‘Normality’
         ‘Probability’
            Universal
            Existential
               all worlds
               at all times
               (Universal)
               all worlds
               at some times
               (Habitual)
               some worlds
               at some times
               (Existential)

The examples in (48) are all nomic (‘law-like’) generalisations; an accidental generalisation would be a purely fortuitous inductive statement like:

(50) All my sister’s male friends are left-handed.

Nomic generalisations may concern physical principles (in which case they are unbreakable, and can be used to make predictions) or moral, behavioural postures (which may get broken). In natural language, though, descriptive generics are statements of typical or characteristic states of affairs, and not universals; i.e. they are normality statements, and not probabilities or certainties. A sentence like (48)g. is actually ambiguous between a descriptive and a prescriptive statement, depending on whether John cannot speak German, or can, but chooses
Finally, Dahl takes Lawler's (1972) distinction between Universal and Existential generics (whereby the *occasions* of the states of affairs are quantified universally or existentially), and translates it into a possible world/possible times account. Thus Lawler's sentences:

\[(51)\]  
\[a. \text{ Delmer walks to school} \]
\[b. \text{ Nephi's dog chases cars} \]

receive the paraphrases:

\[(52)\]  
\[a. \text{ On all occasions when Delmer goes to school, he walks} \]
\[b. \text{ There have existed occasions of Nephi's dog chasing cars,} \]

but sentence \( (48)c. \):

\[(48)\]  
\[c. \text{ John smokes cigars,} \]

according to Dahl, shows that a world/time distinction is required, since it means 'in any possible world, John smokes cigars sometimes'. It is at this point that I begin to disagree with Dahl's analysis. It seems to me that he has been misled by his logical paraphrases: in particular, the paraphrase of the Existential 'there have existed occasions. . .' and of the Habitual 'in any alternative course of events. . .'. In fact, I can see no justification for distinguishing between \( (51)b. \) and \( (48)c. \) along these lines: both state that \( x \) sometimes indulges in \( y \)-behaviour, and the only difference is that cigar-smoking is perhaps a more regular type of behaviour than car-chasing (but then this is precisely the nuance that Dahl admits his analysis fails to capture - p. 106). We might also question the universality of \( (51)a. \): it seems to me that it receives paraphrase \( (52)a. \) only because it is normally contrastive (a matter of context)—Delmer walks rather than any other form of locomotion. Equally, \( (51)b. \) and \( (48)c. \), appropriately stressed, could receive corresponding paraphrases:

\[(53)\]  
\[a. \text{ On all occasions when Nephi's dog has anything to do with cars, he chases them.} \]
\[b. \text{ On all occasions when John smokes, he smokes cigars.} \]

(These are just two of the possible paraphrases.) There are two contrary issues, therefore: the first is that there is no basis for the habitual-existential distinction; the second is that the Lawler-Dahl examples do
not successfully discriminate between the universal-existential categories. However, Dahl's use of modal logic enables us, I believe, to capture the essential distinction between what I will claim are true generics and the Lawler-Dahl examples discussed here, which are in my terms iteratives. Take such sentences as:

(54) a. John sings in the bath.
    b. The nightingale sings in flight.
(55) a. John walks in his sleep.
    b. The lion stalks its prey.

I claim the a. sentences to be iterative, and the b. sentences to be generic. In informal terms, we can say that the predication in a. denotes characteristic behaviour, whereas that in b. denotes criterial behaviour. But in non-modal accounts, both of these are implicational: 'if x is Y, then x does P'. Modal logic, though, enables us to distinguish between necessary states of affairs, and possible states of affairs. Characteristic behaviour consists of behaviour patterns which have been repeated with sufficient frequency to enable the observer to formulate an inductive generalisation which may be added to the list of attributes forming the extension of John. However, this could never claim to be more than a statement of probability ranging over that individual's behaviour. Criterial behaviour, on the other hand, though it may also be based on an inductive generalisation (though ranging over a set, rather than an individual), is nevertheless something more: a statement of criterial behaviour recognises that such behaviour is a necessary attribute of the set — though in any given case, it may only be potential behaviour. Thus, stalking prey is a criterial attribute of the set (lion), i.e. all lions that ever have been, are, or will be (even though some individuals may be prevented from carrying this out — but since this is only one of the criteria for lionhood, they may still be adjudged lions). The a. examples, therefore, contain the possibility operator:

(56) a. $\Diamond (x \text{ is John } \rightarrow x \text{ sings in his bath})$.
    b. $\Diamond (x \text{ is John } \rightarrow x \text{ walks in his sleep})$.

So, assuming that (56)a., b. refer to the same John, we have here two attributes of the extension of that name (though it's anybody's guess what will happen if John falls asleep in his bath — the possibility operator tells us that he may or may not walk; but might he sing in his sleep?). The b. examples will carry the necessity operator:
Singing in flight is a necessary attribute of the nightingale, just as stalking its prey is of the lion. But where does this leave sentences like:

(48) e. The sun rises in the east,

normally cited as ‘gnomic’, ‘timeless’ or ‘universal’ statements? It seems to me that (48)e. is a bad example of any of these qualities, and that it is in fact merely an extreme case of a habitual, like (48)c., (54)a. or (55)a. Certainly a world in which the sun does not rise in the east is perfectly conceivable; in fact, given a cataclysm which stopped or reversed the earth’s rotation, it could even be the sun.

To sum up, then: true generalising predicates state criterial properties — not merely accidental or characterising ones — and must be represented as necessary truths ranging over sets, not individuals.

3.3 Stipulative

Stipulative predicates mention non-actual states of affairs. They state conditions for existence which need to be fulfilled before existence can be guaranteed:

(58) a. The man who wins this competition must be fleet of foot, superior in intelligence, and quick with his bribes.

b. A garden-warbler may be recognised by the absence of any distinctive feature.

c. The successful gardener will pay great attention to compost.

(58)a. says that, before anybody can be the winner, the requirements are speed, wit and bribery; it does not, note, guarantee that the possession of these endowments will ensure victory — but, rather, that in order to have won, a man will have to have possessed them. Anybody who is a successful gardener will always pay attention to compost. Such conditions as these imply moral or value judgements: they are necessary in order that some goal or status may be attained, but the attainment of that goal is not in itself necessary, either in an absolute sense, or even to acquire the designation in question (one could conceivably be a successful gardener without the benefit of compost). I propose to handle the stipulative predicate by placing the necessity operator within the scope of the possibility operator:
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(59)  a. $\Diamond (x \text{ wins this competition} \rightarrow \Box x \text{ is fleet of foot} \ldots )$.
    b. $\Diamond (x \text{ is a successful gardener} \rightarrow \Box x \text{ pays attention to compost})$.

The illocutionary force of these stipulatives is thus one of recommendation. However, predictions seem to come within the same definition:

(60)  a. $A / \text{The tarantula which bites my mother-in-law is bound to die in agony}$.
    b. The first man on Mars will be a scientist.

(61)  a. $\Diamond (x \text{ is a tarantula which bites my mother-in-law} \rightarrow \Box x \text{ will die in agony})$.
    b. $\Diamond (x \text{ is the first man on Mars} \rightarrow \Box x \text{ is a scientist})$.

Notice that pure futures, including statements of prearranged futurity, do not include the necessity operator. As iteratives, they merely claim truth in some possible world:

(62)  a. The man next door is going to Marbella next month.
    b. $\Diamond (x \text{ is the man next door} \land x \text{ is going to Marbella next month})$.
    c. $*\Diamond (x \text{ is the man next door} \rightarrow \Box x \text{ is going to Marbella next month})$.

(62)c. claims that to be the man next door, you must go to Marbella next month.

3.4 Comparisons between the Predicate Senses

3.4.1 Iterative-Generalising. On the face of it, there is a close resemblance between certain types of iterative predicate and the generalising predicates:

(63)  a. Claude is hitting his young brother (repeatedly, on this occasion).
    b. Sheila walks to the clinic (every time she goes, for the present).
    c. The sun rises in the east (every morning, for the foreseeable future).
    d. Charlie understands the Theory of Relativity (all the time, for the rest of his life).
    e. Oil floats on water (every time you try it, for all time).
    f. The square root of 25 is 5 (for all time).
Appropriate frequency and temporal adverbials have been added in parentheses. These chart the temporal continuum which seems to emerge: though the apparently universalising adverb *always* is possible in all cases (albeit somewhat oddly with f.), there is nevertheless a clear-cut distinction. (63)a.–d., the iterative cases, may have universally quantified frequency adverbs, but not universally quantified temporal adverbs:

(64) a. *Sheila walks to the clinic for all time.

(64)a., b. may be ontologically odd, rather than linguistically odd. Dahl (1975) allows the 'generic tense' to be temporally restricted, but as we have seen, this has the effect of muddying the clear distinction between habituals and generalising predicates as defined here. The further specification of the iterative (habitual)-generalising distinction will be taken up in section 4.

3.4.2 Generalising-Stipulative. The entailments of the formulae for generalising and stipulative predicates in the foregoing sections enable us to test the formulae by checking their predictions. Thus:

(65) a. A psycholinguist studies the faculty of language
   b. A psycholinguist must take care with experimental design

receive the following analyses:

(66) a. □ (x ∈ (psycholinguist) → x studies the faculty of language).
   b. □(x ∈ (psycholinguist) → □ x takes care with experimental design).

(66)a. has as an entailment:

(67) ∀ x, x ∈ (psycholinguist) → x studies the faculty of language,

which is, of course, true. (66)b. has as an entailment (68)a., but not (68)b.:

(68) a. □(x ∈ (psycholinguist) → ¬ □ x takes care with experimental design).
   b. *∀x, x ∈ (psycholinguist) → x takes care with experimental design).
(68)a. acknowledges that it is possible to be a psycholinguist and not take care with experimental design (i.e. a bad one, but a psycholinguist nevertheless); (68)b. wrongly infers that all psycholinguists take care with experimental design, whereas (67) correctly infers that all psycholinguists study the language faculty.

3.4.3 Iterative-Stipulative. Just as habitual iteratives and stative iteratives approach generalising predicates in that all suggest validity of predication over long periods, so too do dynamic iteratives approach stipulatives. Part of the total meaning of stipulatives, as we have seen, is to recommend or predict: this is in fact a function of the form of such predicates (see next section). The essence of the stipulative meaning, however, is (a) that there is an implicational relationship between the subject and the predicate of such sentences (as with generalising predicates), and (b) that the consequence of the implication is held to be necessary. Like iteratives, however, the whole sentence occurs in the scope of the possibility operator. Non-habitual iteratives, though, differ from habituels in not being implicational:

(69) a. My friend is in hospital.
    b. ◊(∃x, x is my friend ∧ x is in hospital).
    c. Harvey discovered the circulation of the blood.
    d. ◊(∃x, x was Harvey ∧ x discovered the circulation of the blood).

(I am treating proper nouns in exactly the same way as common nouns so far as quantification is concerned, since extensionally they behave identically. I have also at this point begun to quantify the propositions, as well as marking them with modal operators, in order to bring them into line with my earlier description of determiner-senses, which I will presently be incorporating into a fuller representation.) The difference between iterative and stipulative readings of ambiguous sentences may therefore be represented as follows:

(70) a. The gardener must pay attention to compost.
    b. ◊(∃x, x is ((gardener) on our property) ∧ x must pay attention to compost).
    c. ◊(x ∈ (gardener) → ◊x pay attention to compost).

(70)a. can either be an indirect order to be transmitted to some specific individual, or it can be a recommendation on being a (good) gardener.
An entailment of (70)b., but not of (70)c., is that there is someone who is a gardener (on our property). An entailment of (70)c., but not of (70)b., is that it cannot be the case that one is a gardener and yet not paying attention to compost (however, this is ‘softened’ by the possibility operator).

3.5 Forms of the Predicate-Senses

There are not a great many formal distinctions for the predicate senses discussed above. The iterative, as might be suspected, tolerates a wide variety of forms; the generalising and the stipulative are considerably more restricted, and the iterative cuts across both. It will be convenient to look separately at verbal forms and predicate nominals.

3.5.1 Verbal Forms. Stipulatives contain future or conditional modals, i.e. those modals having future reference. Will, however, is used epistemically rather than as a root modal.

Generalising predicates always contain the unmarked tense, by which I mean the text-neutral tense. This will usually be present simple, but in a text which is ‘automatised’ (to use a Prague School term) in the past or future orientation, the unmarked tense will be past simple and root will + bare infinitive, respectively.

All of these may, in the right circumstances, be iterative also, but since the other two types are so much more restricted, there are some tense forms which appear to be confined to iterative alone: certainly, aspectually marked forms seem to be exclusively iterative (i.e. perfects and progressives).

3.5.2 Predicate Nominals. Certain verbs, as N.V. Smith (1975) points out, restrict the reference-category of their objects: hunt takes individuated objects, while decimate requires a class-referring object. However, it is doubtful whether such objects are necessarily generic. Similarly, he mentions some verbs which he claims must take a specific object: write, tread on. Generic and specific may be mutually exclusive so far as these verbs are concerned, but none of them exclude a non-specific object (in fact, of course, hunt cannot take a generic object either, and presumably Smith was not claiming that it could). As far as I can see, transitive verbs fall into four groups: those taking either specific or generic objects, those with either specific or non-specific objects, those with either non-specific or generic objects, and those allowing all three categories. The last group, furthermore, divides in practice into the other three, since there is no single form of NP which
is ambiguous between all three readings. This is, in itself, a suspicious fact which I hope to explain in the next section. For practical purposes, then, we have three groups:

(71) Specific/Generic
   a. The ichthyologist studies the fish.
   b. John has abandoned the horse.

(72) Specific/Non-specific
   a. Kenneth wants to catch a pike.
   b. John is hunting lions.
   c. Sidney is looking for a lamb.

(73) Non-specific/Generic
   a. Maria is interested in men.
   b. Hitler wanted to wipe out Jews.

All the verbs in the third group that I have been able to think of are actually in the fourth group, i.e. with a differently determined object they can be specific:

(74) a. Maria is interested in a man
   can be specific or (just, for me) non-specific;

   b. Hitler wanted to wipe out the Jew
   can be generic or, if wipe out is not a class-referring item, specific. (If it must be class-referring, then the Jews provides an example of a specific object, i.e. that subset of (Jew) alive at the time.) Study is also of this type.

The important question at this point, then, is: how far does the presence of a specific, non-specific, or generic object constrain the whole predicate? Is a predicate with a generic object (on one reading) a generalising predicate (on that reading)? Is a predicate with a specific object necessarily iterative? Complete answers to these questions are well beyond the scope of this chapter, but it seems that we can make some tentative generalisations: predicates with generic objects allow a generalising reading (as in (71)a.), but they also allow an iterative reading (as in (71)b. or the alternative reading of (71a. – (71)b., though, must be iterative because of the perfect aspect, i.e. the abandonment is iterative, but what is abandoned can be either specific or generic); predicates with specific objects are almost always iterative (as in the
relevant readings of (71) and (72)), but they do appear to allow a stipulative reading when themselves occurring in the complement of a higher verb:

(75) The king ordered that ichthyologists should study the strange fish that James had caught,

though in general I have not investigated the interpretational possibilities of complement sentences, and am not even sure that (75) is stipulative; finally, predicates with non-specific objects seem to allow both stipulative and iterative readings with equal facility, and in certain cases, also admit a generalising reading:

(76) a. An ichthyologist must closely study sm fish (stipulative)
    b. An ichthyologist of my acquaintance studies fish whenever he can get hold of some (iterative)
    c. The ichthyologist studies a fish in all its aspects (generalising)

However, the precise specification of these distributions depends very much upon such variables as verb tense and, as we shall see in the next section, the determiner-sense of the subject. In general, though, we can see that these possibilities are hierarchically ranked:

<table>
<thead>
<tr>
<th>(77) Object</th>
<th>Non-specific</th>
<th>Generic</th>
<th>Specific</th>
</tr>
</thead>
<tbody>
<tr>
<td>Predicate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>∨</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stipulative</td>
<td>+</td>
<td>?−</td>
<td>?−</td>
</tr>
<tr>
<td>Generalising</td>
<td>+</td>
<td>+</td>
<td>−</td>
</tr>
<tr>
<td>Iterative</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>

From this, we note that generalising predicates cannot have specific objects, and stipulative predicates are odd with generic objects; with specific objects they are dubious too:

(78) a. *The lion stalks my dog Rover.
    b. ?An ichthyologist will study the fish.
    c. ?Ichthyologists study the strange fish James caught.

All of these are to be judged on the relevant reading.
The Semantics of Determiners

In summary, then, we can say that stipulative predicates tend to have modalised verbs with non-specific objects. Some modality can in fact emanate from an optative-class verb, whose object will then probably be ambiguous between a specific and non-specific reading, but unless this optative (want, look for, etc.) is itself modalised, the whole predicate will not be stipulative. The simple present tense, since it can have future reference with a modal meaning, can also occur in a stipulative. Generalising predicates almost always have the simple present tense with generic or non-specific objects. Iterative predicates are the most tolerant: in principle, they appear to allow all verbal forms with all types of object. However, as we are now about to see, there are restrictions even here.

4 Subjects and Predicates

It must be fairly obvious by now that with three types of determiner sense, and three types of predicate sense, some attempt is going to be made to relate them to each other. I now want to examine the possibility, therefore, that there is a one-to-one relationship between these two sets of items, as follows:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Predicate</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Generic</td>
</tr>
<tr>
<td>B</td>
<td>Specific</td>
</tr>
<tr>
<td>C</td>
<td>Non-specific</td>
</tr>
</tbody>
</table>

(79) Subject Predicate

Examples of type A:

(80) a. The horse and mule live for forty years.
     b. Water finds its own level.
     c. Fools rush in where angels fear to tread.

Examples of type B:

(81) a. A horse on a neighbouring farm lived for fifty years.
     b. The water quickly drained away.
     c. Some fools tried to sell me a sweepstake ticket.

Examples of type C:
(82) a. A horse would speed my escape.
b. Pure rain water should be used on house plants.
c. Only a fool would buy a car without inspecting it.

The mere possibility of co-occurrence does not by itself, of course, prove that there exists any true restriction at this point. To prove a restriction, it must be shown that apparent violations of A–C are either ungrammatical, or else systematically ambiguous.

4.1 Ungrammaticalities

Some of the determiners under examination, as we saw earlier, do not bear certain of the determiner senses. Of the three non-anaphoric senses, \( \emptyset \) cannot be specific, and \( sm \) cannot be generic. Therefore, \( \emptyset \) with iterative should be ungrammatical:

(83) a. ?Water is frozen.
b. ?Dogs bit me last night.

While the examples are somewhat odd, as predicted, there is no doubt that in general such co-occurrences are perfectly acceptable:

(84) a. Cigarettes are ruining my health.
b. Boys are playing football near my greenhouse.
c. Bananas have given me curvature of the spine.

(84)a., c. appear to be somewhat generic in nature: the subjects allow a generic interpretation, though the predicates seem to be iterative. But these are, in fact, cases of generalising propositions:

(85) a. \( \Box (x \text{ smokes cigarettes} \rightarrow \text{cigarettes ruin } x\text{'s health}) \).
    I smoke cigarettes.
    \( \therefore \) Cigarettes ruin my health.

Such cases as these of iterative predicates with generic subjects, then, are taken to be inferentially related (by modus ponens etc.) to generalising predicates with generic subjects (viz. type A). Non-inferential cases like (84)b. (and indeed (84)a., c.) on a possible non-inferential reading) are more puzzling, and I can only invoke the notion of fuzziness: certainly judgements are extraordinarily difficult in this area.

We are fortunately on much firmer ground when assessing the ungrammaticality of \( sm \) with generalising predicates:
(86) a. *Sm horses have been domesticated for thousands of years.
    b. *Sm oil floats on water.
    c. *Sm military governments are dictatorships.

In general, though, the determiners, as we have seen in section 2, are ambiguous between several senses. We therefore have to assess the possible range of ambiguity with the predicate senses, rather than being able to locate straightforward ungrammaticality.

4.2 Ambiguities

Where sentences are ambiguous as to predicate type, they should, if my claims are correct, have parallel ambiguities in determiner type. For example, a(n) can be generic, specific or non-specific; a predicate such as was friendly and helpful can bear all three predicate senses:

(87) a. The Civil Servant was friendly and helpful (in those days) —
generalising (can also be iterative).
    b. Jim’s mother was friendly and helpful — iterative.
    c. Anybody who wanted a reference was friendly and helpful
       — stipulative.

This means that if the subject of such a predicate is determined by a(n), we might predict that the resulting sentence is nine ways ambiguous. That it is in fact only three ways ambiguous is indirect proof that the situation outlined in (79) is accurate. Take the sentence:

(88) A waiter who wanted a good tip was friendly and helpful.

The generalising sense is ‘(in those days) a waiter of a certain type was characterised by certain properties’. In such an interpretation, the subject is a defined subset:

(89) Set: (waiter)
     Subset: ((waiter) who wanted a good tip)
     Totality: all of ((waiter) who wanted a good tip)
     Single member: one among (all of ((waiter) who wanted a good tip))

The predicate is generalising: ‘possessed properties of friendliness and helpfulness’, i.e.:

(90) □ (x = (89) → x was friendly ∧ x was helpful)
The iterative sense is ‘There was a waiter who wanted a good tip, and he was friendly and helpful (don’t you remember?).’ The subject refers here to a specific individual:

\[
\text{Set:} \quad \text{(waiter)} \\
\text{Membership:} \quad \text{(waiter)s) } \\
\text{Single member:} \quad \text{one among ((waiter)s)} \\
\text{Modification:} \quad \text{(one among ((waiter)s)) who wanted a good tip} \\
\text{Specific:} \quad \exists x, x \text{ was ((one among ((waiter)s)) who wanted a good tip)}
\]

The predicate refers to an actual state of affairs which really happened:

\[
\Diamond (\exists x, x \text{ was } \ldots (91) \rightarrow x \text{ was friendly } \land x \text{ was helpful})
\]

Finally, the stipulative sense is ‘(in those days) any waiter who wanted a good tip had to be friendly and helpful’. The subject is a non-unique defined subset (‘any waiter’) of an undefined set (‘all waiters’):

\[
\text{Set:} \quad \text{(waiter) } \\
\text{Membership:} \quad \text{((waiter)s) } \\
\text{Subset:} \quad \text{((waiter)s) who wanted a good tip} \\
\text{Single member:} \quad \text{one among (((waiter)s) who wanted a good tip)}
\]

The predicate here is stipulative, i.e. in order to change from a waiter without a tip to a waiter with a tip, certain conditions had to be fulfilled:

\[
\Diamond (x = (93) \rightarrow \Box (x \text{ was friendly } \land x \text{ was helpful}))
\]

Sentence (88) does not, however, appear to admit any of the other six possible meaning combinations. I conclude therefore that this is very strong evidence for my hypothesis.

### 4.3 Linking up Subjects and Predicates

I shall now propose that the respective notations for determiners and predicates should be linked up in an obvious and regular way. Take the generic: all generics in my notation contain a ‘totality’ feature, translated into ‘all of (set)’. Let us express this instead as universally quantified.
set-membership, and insert it into the formula for generalising predicates:

\[(95) \quad \begin{align*}
    \text{a. The Englishman drinks tea.} \\
    \text{b. } \square (\forall x, x \in (\text{Englishman}) \rightarrow x \text{ drinks tea})
\end{align*}\]

'Necessarily, all members of the set (Englishman) drink tea.'

Next, the specific: specifics in my notation are existentially quantified. They are also partitively quantified, though this is not a regular logical operator; let us nevertheless abbreviate 'one among' to '1', and 'some among' to '2'. The existential is, of course, already part of the formula for iteratives:

\[(96) \quad \begin{align*}
    \text{a. A dog bit me.} \\
    \text{b. } \Diamond (\exists x, x \text{ was (1 (dog)s}) \land x \text{ bit me})
\end{align*}\]

Finally, the non-specific, which like the specific has a partitive-quantification, but bears no specification of existence, since it is non-referring:

\[(97) \quad \begin{align*}
    \text{a. A horse would help my escape.} \\
    \text{b. } \Diamond (x \text{ is (1 (horse)s}) \rightarrow \square x \text{ helps my escape}).
\end{align*}\]

At this point, I should mention again the so-called 'generic \(a(n)\)', which I have variously denounced and referred to. The difference between the non-specific (97) and the specific (96) lies chiefly in the existential, but also in the distinction between the conjunctive (96) and the implicative (97) (though, as we have seen, a habitual iterative is implicative).

Compare with this, though, the 'generic' (98):

\[(98) \quad \begin{align*}
    \text{a. A horse is a quadruped.} \\
    \text{b. } \square (x \text{ is (1 (horse)s}) \rightarrow x \text{ is a quadruped})
\end{align*}\]

(98)b. is generic in that it contains the universal quantifier and the necessity operator; it is non-specific in that it is partitively quantified, and this does not occur in the scope of an existential.

5 Some Notorious Problems

5.1 Definite Descriptions

There is an ample philosophical literature, originating with Russell
(1905), which discusses the problem of 'definite descriptions'. The logical problem involved here centres on the question of asserting existence: does the use of a definite description necessarily suggest the existence of the corresponding entity (if indeed there is one)? If not, what is the status in logic of propositions containing definite descriptions? In particular, how can their truth-value be assessed? (The discussion in philosophical circles has included, as far as I know, only subject examples, largely because, perhaps, of the extremely simple sentences considered. Definite descriptions in object and oblique positions, however, are just as common, and while it may be the case that these present no further problems, definite descriptions in subordinate clauses certainly do. This, though, is another interesting area I shall ignore at this time.) For Russell, such sentences as the well known:

(99) a. The king of France is bald

are logically equivalent to the conjunction of three propositions:

b. There is a king of France. (= ‘existence’)
c. There is not more than one king of France. (= ‘uniqueness’)
d. This person is bald. (= ‘assertion’)

By the usual truth-table for conjunction, if any conjunct is false the whole conjunction is false. Since (99)b. was false in 1905, as it continues to be in 1979, Russell concluded that (99)a. – the conjunction of (99)b., c., d. – was also false.

The problem with Russell's conclusion for many people is that it is counter-intuitive: at least to the extent that, while one may agree with Russell's answer, some of his accompanying assumptions are hard to swallow. In particular, many find it hard to accept that propositions (99)b., c. are of equal weight to (99)d.: we may note that the consequences of (99)d. being false are different from those of (99)b., c. being false. If (99)a. was uttered before 1793, say (when Louis XVI died), then if (99)d. were false, the negative of (99)a. would necessarily be true, viz.:

(99) e. The king of France is not bald.

This is, of course, exactly what is to be expected of a false proposition: its negative must be true. But the negative of (99)a. – i.e. (99)e. – when spoken today, is no easier than (99)a. to assess for truth value,
though if (99)a. were indeed false, as Russell concluded, (99)e. should necessarily be true.

The reason for this seems to be that ontological (synthetic) predications are dependent upon the stipulation of existence: the ascription of real properties must be made to existing entities (though the reverse is not required). This existence may be in some possible world of the imagination, for instance, the 'text-world' of a fictional narrative, for example:

(100) The unicorn was white, with hoofs of silver and a graceful horn of pearl. (T.H. White, 1958)

Thus (99)a. will be perfectly acceptable in, say, a Dumas novel or a modern 'alternative history' fantasy. This means that if the real (i.e. testable) quality of baldness cannot be ascribed either positively or negatively (and ignoring the possibility of partial baldness), this must be due to the non-existence of the ascribee. If neither (99)a. or (99)e. are true, this can only be because (99)b. is false (the uniqueness proposition (99)c. is, I think, irrelevant to this discussion, though not to the broader issue of finding a representation for the senses of the definite determiner, as we have already seen).

In terms of the notation we have developed earlier, and the constraint suggested in section 4, a sentence like (99)a. would be two- and possibly three-ways ambiguous, as follows:

(101) a. ◻(∃x, x is ((J ((king)s)) who is of France) ∧ x is bald).
b. ◻(∀x, x ∈ ((king) who is of France) → x is bald).
c. ◻(x is (J ((king)s)) who are of France) → ◻x is bald).

(101)a. is the iterative predication, which is the usual interpretation of at least the second half of the sentence. It states: 'There is a possible state of affairs in which there is somebody who is that one among kings who is of France, and that person is bald.' (101)b. is the generalising predication, and it states a generalisation about kings of France (which as far as I know, and with at least one exception, is false): 'It is necessarily the case that for all entities, if an entity is king of France, then that entity is bald.' This would thus be a statement of the type: The Pope is unmarried, which has a generalising and an iterative sense (and probably a stipulative one also). (101)c. is the stipulative interpretation, which I think is just possible: 'there is a possible state of affairs in which if some entity is one among the kings of France, then that
entity is necessarily bald,' i.e. you have got to be bald to be the king of France. (101)a. seems to be the interpretation relevant to the dispute: if it is possible that there is a bald king of France, it must also be possible that there is not, i.e. that the whole expression in the scope of the possibility operator is false. It does not, however, allow a possible world in which there is no x satisfying the description of the first conjunct, and who is bald, i.e. a bald figment. It is, of course, the case that a conjunction is falsified if either or both of the conjuncts are false. In the case of (101)a., the negation of the first conjunct gives not 'there is no king of France', but 'there is an x who is not the king of France.' This unroyal individual may be described as bald without metaphysical compromise.

A possible counterargument to this claim and explanation would involve violations of selection restrictions such as:

(102) This rock is very wise.

If iterative predicates, such as . . . is bald, . . . is wise, demand existence of their subjects, and if (102) is false, then does not my above claim lead me into the ridiculous position of holding that this rock does not exist? It is, of course, quite clear that (102) could be uttered by a schizophrenic brandishing a very substantial rock. What is in doubt is not the matter of existence, but the nature of the predication itself. Notice, first, that violations of selectional restrictions happen only with (at least partly) analytic propositions:

(103) a. The mountain belched
    b. Two tables elapsed
    c. The tree denied the charges

in the sense that selectional restrictions are satisfied when semantic features of the NP match up with semantic requirements of the predicate. Purely analytic propositions are tautologous, because they do no more than match NP with predicate, i.e. the predicate does no more than render explicit semantic features that are already present by virtue of the sense of the subject NP. The negation of such propositions renders them false because contradictory:

(104) a. All men are male. (tautologous)
    b. Not all men are male. (false: contradictory)
    c. All men are not male. (false: contradictory)
If selectional restrictions are stipulations of an analytic nature, as I am proposing, they should behave in a fashion comparable with (104) — indeed, (104) itself, it could be argued, is a paradigm case of selectional restriction operating. Specifically, violations of selectional restriction should be comparable with falsifications of analytic propositions, and their negatives should be comparable with non-negated analytic propositions:

(105)  a. The mountain didn't belch.
       b. Two tables didn't elapse.
       c. The tree didn't deny the charges.
       d. This rock isn't at all wise.

It seems reasonable to hold that, at least on one reading, these sentences are tautologous — rather more directly comparable, perhaps, to the tautology of:

(106)  a. Men are not female.
       b. When I am in, I am not out.

By the same token, it seems reasonable to hold that the selectional violations of (103) are false because contradictory. Just as (104)b., c. deny a property that we know must be ascribed to men by virtue of their being men, so do (103) assert properties that we know cannot, by virtue of their being mountains, tables and trees, be ascribed to mountains, tables and trees. We cannot, though, call (103) true contradictions since there is no overt negation; there is instead the assertion of properties incompatible with those of the subject NP. (For an account of analyticity in terms of semantic features, cf. Katz, 1972, Ch. 4.5. Katz also points out that not only the subject-predicate relationship is involved.)

Analytic propositions would seem to be clear cases of generalising predications, since they must be governed by the necessity operator. Their predicates, that is to say, can ascribe real properties, but they do not stipulate existence: they merely stipulate necessary properties of that particular class of objects. Their negatives then deny that such necessary properties are necessary; they say nothing about existence. I am contending, therefore, that selectional violations like (102) do not, ridiculously, deny the existence of the subject simply because the predication is false: like the negatives of analytic propositions, they deny that certain necessary attributes of the subject (or whatever
grammatical relation) are in fact present — and if they are not present, they cannot be necessary; but like the negatives of analytic propositions too, they say nothing about the existence of the subject NP.

To return to the king of France, therefore (which is clearly neither analytic nor a selectional violation), we can say that the oddity of (99)a. stems from the discrepancy between the existence requirement imposed by the iterative predicate (as interpreted in (101)a.), and our present knowledge of the unmarked world. Interpretations (101)b., c., however, if they are indeed possible, do not impose such a condition upon the unmarked world, and so do not fall foul of the same discrepancy.

5.2 Referential vs. Attributive

The distinction between referential and attributive uses of definite descriptions was made in Donnellan (1966). Donnellan pointed out the definite description in such sentences as:

\[(107) \text{The murderer of John Smith is insane}\]

allows two interpretations: 'The murderer of John Smith — i.e. Peter Brown, who is now languishing in Broadmoor — is insane' and 'Whoever murdered John Smith must be insane.' The first of these is referential, the second attributive. The distinction, according to some (for example Cole, 1975, 1978b), is relevant to the vexed question of referential opacity: however, I shall not allow myself to be drawn into discussion of that difficult topic at present.

What is relevant to the present issue, however, is the status of the respective predications in referential and attributive uses. As my paraphrases of (107) make obvious, the referential use predicates an actual state of affairs of an existing entity, while the attributive use states an inferential fact about a presumed entity. It seems reasonable to conclude from this, therefore, that the referential use is iterative, while the attributive use is stipulative (since in this case, at least, it does not concern a set).

The referential-attributive distinction is, I take it, identical to the specific-non-specific distinction, discussed above in section 2.1.3. The subject of (107) in its attributive reading is therefore non-specific (i.e. non-referring); in its referential reading, the subject is specific, and is marked as existing.
6 Summary

Three main senses associated with determiners have been isolated: the generic, the specific and the non-specific. The generic refers to the totality of the indicated set or subset; the specific refers to some existing entity or quantity; the non-specific denotes some proper subset as having potential reference. There are also a number of anaphoric senses of the determiners, which are usually specific references to entities previously mentioned textually. However, non-specific anaphora is also possible.

I also noted three types of predication: generalising, iterative and stipulative. Generalising predicates make criterial statements about sets or subsets; iterative predicates denote actual states of affairs, or states of affairs deemed to be actual in some possible world close to the 'real', i.e. unmarked, world; stipulative predicates state conditions leading to some goal, which are presented as necessary, but not sufficient, conditions for the attainment of that goal.

I then suggested that there is a one-to-one relationship between the three determiner senses, and the three predicate senses: the generic-generalising bond predicates criteria of sets; the specific-iterative bond predicates actual states of affairs of referring entities; and the non-specific-stipulative bond predicates conditions for set-membership on to potential proper subsets. Evidence from ambiguity, in particular, seems to bear out this suggestion.

Finally, assuming that this hypothesis has the function of a constraint, I examined two vexed questions of logic in the light of it: the problem of definite descriptions and the problem of referential vs. attributive use. The former can be explained as a contrary to the constraint use of an iterative predicate with a non-referring subject; the second can be explained as an ambiguity between a specific-iterative (= referential) and a non-specific-stipulative (= attributive).

Notes

I am indebted to many people for help and advice on this paper, and in particular to my colleague, Nigel Vincent. A shorter version of the paper, entitled 'The Predication of Definite Descriptions', was read to the April 1979 meeting of the Linguistics Association in Hull, and I should like to thank all questioners and commentators there. Of course, it goes without saying that .
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15 SOME REFLECTIONS ON THE FRENCH ARTICLE SYSTEM

Otto Winkelmann

1 Introduction

It is generally recognised that French differs from many other languages in that it has three articles, namely a definite, an indefinite and a partitive article. However, the distinction between the indefinite and the partitive article is sometimes difficult and explanations of French grammars are often unclear on that point. One of the purposes of this chapter is to give a morphological description of the French article system.

As regards meaning, quite a lot of functions have been attributed to the articles. For example, the indefinite article has been described as determinative, individualising, descriptive or familiarising. Nevertheless, in my opinion, it is wrong to say that the definite article alone determines the reference of a noun, which – without article – would be undefined.

Recently, it has been pointed out that making reference has to be considered as an activity of the speaker and that articles only play a minor part in the meaning of a noun phrase. I wish to show that the semantic-pragmatic value of the French article, and perhaps of the article in general, can be better explained within the framework of the theory of speech acts put forward by Austin, Searle and others.

Finally, I shall discuss what may be called the process of article selection. Article selection is a complex of rules which determine the choice of a correct article form within a given context. I shall argue that article selection can be divided into a semantic-pragmatic and a morphological-syntactic phase.

2 Morphological Description of the French Article System

The definite, the indefinite and the partitive article can be regarded as sub-classes of the French article. Some of the forms have a double membership; for example, *du* occurs either as a partitive article or as a combination of the preposition *de* and the definite article *le*. I have

The description of the French article system I have found in these grammars is partly incomplete, partly inconsistent. Most difficulties arise from the classification of the partitive article. The following list indicates, which forms, according to the above-mentioned grammars, have to be classified as partitive articles (abbreviated as PA):

<table>
<thead>
<tr>
<th>Author</th>
<th>PA Forms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mauger (§273)</td>
<td>du, de la, de, des</td>
</tr>
<tr>
<td>Larousse (§335)</td>
<td>du, de la, de l', des</td>
</tr>
<tr>
<td>Grevisse (§327)</td>
<td>du, de la, de l', des (de)</td>
</tr>
<tr>
<td>Wagner/Pinchon (§93)</td>
<td>du, de la</td>
</tr>
</tbody>
</table>

The disagreement between the grammarians is quite obvious. Wagner/Pinchon records only two forms. The form *de l'* , which is used when the noun following begins with a vowel, is omitted in both Mauger and Wagner/Pinchon. The allomorph *de*, which can also be a preposition in a different context, is classified as a partitive article by Mauger and Grevisse. The fact that Grevisse notes *de* in parentheses indicates that he has some reservations about considering *de* as a partitive article.

In my opinion, *de* has to be regarded as a syntactically conditioned allomorph of the partitive article. *De* replaces the regular forms of the partitive article *du, de la, de l'* if

1. the noun is preceded by a negation morpheme:
   1. Le marchand vend *du* lait. (affirmative)
   2. Le marchand ne vend plus *de* lait. (negative)
2. the noun is preceded by a quantifying adverb:
   3. L'année dernière il y avait *de la* neige.
   4. L'année dernière il y avait beaucoup *de* neige.
3. the noun is preceded by an adjective (a so-called *adjectif qualificatif épithète*) which does not form a semantic unit with the noun (like *des bons mots* in the plural):
   5. Jacques a acheté *du* fromage.
   6. Jacques a acheté *de* bon fromage.

The third rule is still valid in written language ('selon la syntaxe rigide')
but spoken French uses the regular forms *du, de la or de l’. In the three cases de has to be replaced by d’ if the following word begins with a vowel.

(7) Il n’y a plus d’eau dans la carafe.

Apart from de and d’, there is still another allomorph of the partitive article. If a noun phrase containing a partitive article is preceded by the preposition de, the partitive article is omitted or, in other words, is represented by a zero-form. The combination de (preposition) plus *du, de la or des is ungrammatical in French. Consider the following examples:

(8) Françoise s’occupe de la littérature française. (DA)
(9) Françoise s’occupe de ∅ littérature. (PA)

Now we must turn to the question whether there is a plural form of the partitive article or not. Mauger, Larousse and Grevisse agree in classifying des both as plural of the indefinite article and as plural of the partitive article. According to Krámský (1972), the partitive article and the indefinite article are neutralised in the plural — they are distinguished only in context. In my opinion, however, there is no plural of the partitive article at all. The reason is this: if you take any occurrence of des which is not a contracted form of the definite article and transform it into the singular, you will always get un or une, which is to say, a singular form of the indefinite article. Consider the utterances:

(10) Il y a des pommes dans le garde-manger. (plural)
(11) Il y a une pomme dans le garde-manger. (singular)

If des were a plural of the partitive article, the corresponding singular form ought to be *de la pomme, which is obviously ungrammatical.

Although some grammarians are aware of the arguments against a plural form of the partitive article, they try to justify their classification on morphological and semantic grounds. Larousse speaks of the symmetry of forms which exists between des and du, de la.

Par un souci de symétrie on donne des comme pluriel de du, de la. Des peut articuler tous les substantifs en marquant une quantité indéfinie. (Larousse, §335).
Grevisse states that the semantic similarities between *des* and *du, de la* (both express the notion of indefiniteness) are sufficiently clear and that there is no reason why *des* should not be considered as a partitive article, too.

Néanmoins dans ce qui suivra, nous joindrons *des* (pluriel de *un*) aux partitifs *du, de la, de l’, de*. Il n’y a d’inconvénient à le faire, puisque l’article partitif n’est pour le sens qu’un article indéfini, tout comme *un, des*. (Grevisse, §327, Remarques 1)

On the other hand, I do not subscribe to Weinrich (1974) who proposes completely giving up the category of the partitive article and to classify the forms *du, de la, de l’* as indefinite articles with neutralised number. It is true that the indefinite and the partitive article are often in complementary distribution and that together they contrast with the definite article. Nevertheless, there is a clear opposition between the indefinite and the partitive article. Whereas the indefinite article combines with so-called unit-words or count-nouns, the partitive article is used in French with continue-words or mass-nouns.

In my opinion, the partitive article in French contains the following allomorphs:

\[
PA = \{du, de la, de l’, de, d’, \emptyset\}
\]

*du, de la, de l’* are regular forms; *de, d’* and zero may be called reduction forms, because their morphological shape is somewhat reduced in comparison to the regular forms.

Figure 15.1 represents the French article system as I see it. Apart from the block diagram which I propose, other methods of representation like a tree diagram can also be used. On the left, the category article is subdivided into the three sub-classes DA (definite article), IA (indefinite article) and PA (partitive article). Above the article forms one finds indications concerning number, gender and word formation.

Perhaps some forms in the diagram need further explanation: *ès* is an archaic contraction of *en* plus *les* and is only used in idiomatic expressions as *docteur ès lettres* (equivalent to PhD). The plurals of the indefinite article and the partitive article have the same set of reduction forms *de, d’* and *∅*. If the syntactic elements which cause the use of a reduction form are eliminated, it will be obvious which article sub-class is concerned. Compare the following pairs of sentences, the first is negative, the second affirmative:
<table>
<thead>
<tr>
<th>Singular</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Masculine</strong></td>
<td><strong>Plural</strong></td>
</tr>
<tr>
<td>Simple contracted</td>
<td>Reduction forms</td>
</tr>
<tr>
<td>le def. art.</td>
<td>de, d', l'</td>
</tr>
<tr>
<td>du, au</td>
<td>des, aux, es</td>
</tr>
<tr>
<td>la</td>
<td>les</td>
</tr>
<tr>
<td><strong>Feminine</strong></td>
<td><strong>Gender neutralised</strong></td>
</tr>
<tr>
<td>Simple contracted</td>
<td>Reduction forms</td>
</tr>
<tr>
<td>la</td>
<td>des</td>
</tr>
<tr>
<td>une indef. art.</td>
<td>de, d', l'</td>
</tr>
<tr>
<td>du part. art.</td>
<td>de, d', l', phi</td>
</tr>
<tr>
<td>la</td>
<td>les</td>
</tr>
</tbody>
</table>

**Figure 15.1: Morphological Description of the French Article System**
(12)  a. Le magasin ne vend plus *de* vin.
    b. Le magasin vend *du* vin.
(13)  a. Le magasin ne vend plus *de* fruits.
    b. Le magasin vend *des* fruits.
(14)  a. Marie n'a pas acheté *de* robe.
    b. Marie a acheté *une* robe.

In certain specific contexts like proverbs, enumerations or appositions every article sub-class can be realised as zero.

3 The Semantic-pragmatic Function of the French Article

Having given an outline of some morphological aspects I will now turn to the meaning of the French article. As I said above, it has often been stated that the definite article defines, specifies or individualises the following noun or creates a textual coherence. In the past, the semantic function of the article has been overestimated. There is no doubt that the definite or indefinite article cannot by itself individualise or generalise a noun.

It depends on the speaker whether he uses a noun phrase in a specific or generic sense:

(15)  *Un* chat ne vous caresse pas, il se caresse à vous.
(16)  *Un* chat courut après une souris.

If the noun phrase *un chat* is separated from the rest of the sentence, it turns out to be ambiguous, because it is not clear whether *un chat* denotes a certain individual animal or the whole species. Moreover the definite article cannot bring about textual coherence if the text itself is nonsensical:

(17)  Jeannette a acheté une voiture neuve. *L'hélice est très puissante et *la* cale offre assez de place.

From a semantic point of view, the article forms of a particular text are not directly comparable. The semantic opposition expressed by the definite, indefinite and partitive article is not constant but depends on the type of the noun phrase in which the article occurs. In other words, the three French article sub-classes realise their semantic function only in certain types of noun phrases.
In my opinion, noun phrases can be used in at least four different ways in a speech act, namely:

(1) to refer to a whole species (generic reference);
(2) to refer to certain individual objects which exist in the real world or in the mind of the speaker (specific reference);
(3) to denote one or more objects which are arbitrarily chosen from the class of objects described by the noun (non-specific reference). Non-specific noun phrases do not necessarily have a referent.
(4) to state a property of an object or individual which has already been referred to by a different noun phrase (predicative use).

These different types of noun phrases can be regarded as parts of the propositional act put forward by Searle. The relationship between the above-mentioned types of noun phrases is illustrated by the following tree diagram (Figure 15.2).

![Figure 15.2 The Semantic-pragmatic Function of the French Article](image)

The italicized knots of the diagram may informally be called function classes of the French article. Any of the three article sub-classes can be chosen within one function class. It is necessary to give a detailed description of the use of the article sub-classes within each function class or noun phrase type. I propose such a detailed description for the so-called specific noun phrases. As for the other three types of noun phrases, only the most important sub-classifications are indicated.

3.1 Generic Noun Phrases

The choice of the article in generic noun phrases partly depends on the distinction between count-nouns (unit-words) and mass-nouns (continuate-words). If a continuante-word is used in a generic sense, a speaker of French can only choose the singular definite article.
(18) *L'or est un métal précieux.

As for count-nouns, the definite and indefinite article are equivalent if the general statement concerns every single object of a species.

(19) *Une baleine est un mammifère.
(20) *La baleine est un mammifère.

Following Quine, I shall call that kind of generic noun phrase 'generic with divided reference'. The above examples are paraphrasable by *tout and the plural of the definite article:

(21) a. *Toutes les baleines sont des mammifères

or by *tout alone, as in:

(21) b. *Toute baleine est un mammifère.

There is another kind of generic noun phrases containing count-nouns in which only the singular definite article can be used.

(22) *L'automobile est dans la crise.

The insertion of *tout is ungrammatical.

(23) *Toutes les automobiles sont dans la crise.

In (22) the general statement concerns a certain type of an object, namely the motor-car as such. This sort of generic reference can be called 'typical' or 'generic with cumulative reference'.

As a rule, the French partitive article never occurs in general statements. There are, however, some particular cases with verbs expressing activities like eating and drinking where even the partitive article seems to be used in a generic sense. Consider the question:

(24) Est-ce que tu bois *du vin?

Sentence (24) is ambiguous. One of its readings is the question whether the other person generally drinks wine.
3.2 Specific Noun Phrases

Specific noun phrases can be subdivided into definite referring and indefinite referring NPs. Indefinite noun phrases serve to introduce new referents into the universe of discourse which are not supposed to be known by the hearer. On the contrary, definite referring noun phrases presuppose previous knowledge about their referents on the part of the hearer. The previous information about a referent can be localised in the linguistic or extra-linguistic context. Accordingly, the definiteness of a specific noun phrase can be motivated by contextual or situational factors.

Contextual definiteness can be anaphoric or implicit (contiguous).

(25) Jean a acheté une voiture. La voiture était rouge.

In (25) the definiteness of la voiture is motivated by the antecedent une voiture. There are several kinds of anaphoric relations, but I shall not
go into detail here. By contextually implicit definiteness or contiguity I mean the fact that, after a certain referent has been mentioned, a set of other referents, which are in close relation with the first referent, are supposed to be known by the hearer. In the utterance

(26) De loin, on vit une église. La tour était de style gothique

the indefinite reference to a certain church implies the existence of a tower, bells, an altar, etc. The definite article in the noun phrase la tour expresses the speaker’s belief that the hearer knows that churches usually have a tower.

Situational definiteness can be realised in deictic noun phrases or in noun phrases presupposing a common frame of orientation within a group of people.

(27) Regarde la jolie robe là.

In (27) the deictic noun phrase refers to a certain object which is part of the immediate situation the sentence is uttered in.

(28) Salut! Tu as déjà rencontré le moniteur?

In the above sentence, the speaker refers to a person who is supposed to be known by the hearer. The previous information about that person can be explained by a common frame of orientation which could be established by the fact that both speaker and hearer are in the same holiday camp.

3.3 Non-specific Noun Phrases

Non-specific noun phrases with the indefinite article do not presuppose the existence of a referent.

(29) Corinne veut se marier avec un professeur.

The sentence (29) has a specific and a non-specific reading. If the noun phrase un professeur is non-specific, then there is no teacher Corinne wants to marry and perhaps she will never find one. There are also non-specific noun phrases with the definite article. Consider the utterance

(30) Je prendrai l'avion pour aller aux Etats-Unis.
In the non-specific reading of the noun phrase *l'avion* there is no reference to a particular plane which the speaker will take to fly to the United States. But the existence of at least one plane, whichever the speaker will actually take, is presupposed.

3. non-specific noun phrases

- not presupposing existence: IA/PA
- presupposing the existence of at least one referent: DA

Figure 15.5

Indefinite and definite non-specific noun phrases do not contrast in the same context. If one substitutes the definite article for the indefinite article in (29), one gets a specific noun phrase.

(29) a. Corinne veut se marier avec *le* professeur.

Karttunen (1972, p. 192) has shown that this is only a superficial phenomenon, because the two NPs involved have a different deep structure.

3.4 Predicative Noun Phrases

Singular predicative noun phrases are constructed with the definite article if the predicate they express is — according to the speaker — only true of a unique referent as in

(31) Paris est *la* plus belle ville du monde.

The predicate or property of being the most beautiful town of the world is attributed to Paris alone. If an indefinite noun phrase is used in such a context, the speaker presupposes that the predicate is also true of other objects.

(32) Paris est *une* ville élégante.

This utterance presupposes that the quality of being an elegant town is also shared by other towns.
The last point of my chapter concerns the problem of article selection. If one accepts the view that utterances can be generated by a grammar, there must be a certain point in the derivation of the sentence where the decision on the insertion of an article is made. In theory, two phases, or four steps, of the article selection can be distinguished.

First there must be a kind of semantic-pragmatic phase where one of the article sub-classes (definite, indefinite or partitive article) is chosen. The selection of one sub-class depends on certain referential-semantic, text-linguistic and pragmatic factors. If analysed in detail, the semantic-pragmatic phase contains at least three steps:

(1) A certain type of a noun phrase is chosen, that is, a generic, specific, non-specific or predicative noun phrase, depending on the kind of information the speaker wants to give.

(2) The selected type of noun phrase gets a further sub-classification according to referential-semantic, pragmatic and text-linguistic factors which characterise the meaning of the utterance or belong to the situational framework of the speech act.

(3) In so far as there is a choice between the indefinite and the partitive article with the same function, it will depend on whether the article form determines a count-noun or a mass-noun. Count-nouns (unit-words) combine with the indefinite article, and mass-nouns (continuate-words) combine with the partitive article.

After the three steps of the semantic-pragmatic phase one sub-class of the article is chosen.

Finally, there is a so-called morphological-syntactic phase (equivalent to step 4) where the convenient article form of a sub-class is chosen according to gender and number of the noun and depending
on certain syntactic and phonological conditions of the context. This kind of article selection is illustrated in Figure 15.1.

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Abbreviations

DA = definite article
IA = indefinite article
PA = partitive article
Dem = demonstrative adjective
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