Theoretical Approaches to Linguistic Variation

Edited by
Ermenegildo Bidese
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Ermenegildo Bidese, Federica Cognola, and Manuela Moroni
Introduction

Triggers for language variation*

Ermenegildo Bidese, Federica Cognola &
Manuela Caterina Moroni
University of Trento

1. General overview: Current trends in language variation and aims of this volume

How to account for linguistic variation while assuming one uniform and universally shared language faculty is indisputably one of the main questions, and the key research area, of the generative enterprise in linguistics. In the 1970s and early 80s a convincing answer to the above question was formulated, in the form of a valuable design of the language faculty within the Principles and Parameters framework (Chomsky 1981). As is well-known, in this model language was captured as composed of invariant (innate) principles and open parameters whose values were assumed to be specified through the language-specific input received by children. This elegant and both descriptively and explanatory powerful model allowed us (a) the conception of a particular grammar as a set of mutually exclusive options; (b) an approach to the problem of linguistic variation in terms of parametric choice (the famous switchboard metaphor introduced by James Higginbotham, see Rizzi 2014: 17), and (c) to provide a plausible solution to the so-called Plato’s Problem of language acquisition (Chomsky 1986). However, the “format of parameters”, i.e. a definition of what can be considered a parameter and what cannot, was not clearly established at any point during the development of the Principles and Parameters model, according to Rizzi (2014:18, see also the discussion in Biberauer 2008 and references therein). As a result, the approach ended up explaining virtually every syntactic phenomenon as connected to a specific parameter and expressed through a principle of the UG (see Rizzi 2014:17), thus undermining both the original claim of explanatory adequacy

* Ermenegildo Bidese is responsible for Section 1., Federica Cognola for Section 3. and Manuela Moroni for Section 2. of the introduction. Responsibility for Section 4 is shared by the three editors. We thank Rachel Murphy for editing the English of this introduction. All errors are our own.
at which the Principles and Parameters model aimed, and even the very notion of parameter. In fact, the idea of parameter was essentially connected with variation among the main word order patterns that characterise typologically distinguished language families (V-to-C = Germanic V2 vs. non-Germanic languages or believe-type verbs select an IP = English vs. Romance) or single languages (long-distance anaphors = Islandic vs. English or overt wh-movement = English vs. Chinese) (see Rizzi 2014: 28). This turned out to be a problem, since it soon became clear that too many languages displayed imperfect or disharmonic behaviour with respect to the main parametric differentiation.

A fundamental shift took place within the Minimalist Programme (Chomsky 1995 and subsequent work). According to Minimalism, language is designed to efficiently meet the conditions imposed by the conceptual-intentional and the articulatory-perceptual interfaces. Hence, the products of syntactic computation, i.e. of narrow syntax, must satisfy legibility requirements at both interfaces. A further step in the development of Minimalism has been the proposal of an asymmetric view of language design which assumes that legibility conditions only apply at the conceptual-intentional interface (Chomsky 2005, 2006; Berwick & Chomsky 2012).

Within Minimalism the computational core of the language faculty is argued to be uniform (see Chomsky 2001) and based on three fundamental operations: Merge (external merge), Move (internal merge), and Agree (relations between the constituents). This approach leads (a) to the abandonment of the idea of a direct parameterisation of narrow syntax – conceived now as being “as small, simple and empty as possible” (Richards 2008: 134) and “of a recent evolutionary vintage” (Hornstein 2009: 4) –, and (b) to the assumption that the locus of the parameters should be sought in the lexicon, i.e. in the morphosyntactic feature specification of functional lexical items. Importantly, an earlier hypothesis (see Borer 1984; Manzini & Wexler 1987; and Kayne 2000, 2005) has been reevaluated and renamed, by Baker (2008: 353), The Borer-Chomsky-Conjecture:

(1) **The Borer-Chomsky-Conjecture**

All parameters of variation are attributable to differences in the features of particular items (e.g., the functional heads) in the lexicon.

The theoretical benefit yielded by such an approach is clear, for, among others, the following reasons: (i) it preserves the simplicity and uniformity of the faculty of language (see Roberts & Holmberg 2010); (ii) variation is associated with the part of the language faculty that is visibly different, i.e. the lexicon (see Roberts & Holmberg 2010); (iii) acquiring the lexicon of a language implies the acquisition of the language itself, including all its abstract properties and rules (see Biberauer 2008; Roberts & Holmberg 2010); (iv) the restriction of the parameters to the functional heads has the advantage of constraining the parametric space (see Rizzi 2014: 20).
The selection of IGG40 papers for this book has been guided by three main aims: (i) to discover whether *The Borer-Chomsky-Conjecture* can be extended beyond cross-linguistic variation to other levels like the idiolectal, or to particular contexts like heritage language acquisition; (ii) to specify the implications of variation being restricted to the functional lexicon; (iii) to explore if further *loci* or triggers for variation should be taken into account.

The first goal is thus to verify the sustainability of the above-mentioned approach, by testing it at different levels of linguistic variation, like, for instance, idiolectal variation (see the contribution of Danckaert, D’Hulster & Haegeman), dialectal variation (see Alber & Meneguzzo, Cognola & Bidese, Silvestri), cross-linguistic variation (see Alber & Meneguzzo, Casalicchio, Padovan), diachronic variation (Biberauer & Roberts, Krämer, Poletto). The very particular situations of code-switching and creoles (see Veenstra & López), language attrition (Colonna-Dahlman & Kupisch) and the multilingual context of heritage language acquisition (see Cognola & Bidese) are also dealt with.

Secondly, and inspired by a suggestion made by Rizzi (2014), the volume aims to explain the claim that variation is limited to the functional lexicon. In fact, the characterisation of parameters as lexical items cannot be understood in the sense of the traditional functional-contentive divide: this would make it difficult to explain why a lexical item like *believe* selects infinitive sentences as complements in English with a clearly structured range of restrictions, while its Romance counterpart displays exactly the opposite properties (see Rizzi 2014:21 for detailed discussion). In order to deal with this problem, an articulated typology of parameter-sizes has recently been suggested (see Baker 2008; Cinque & Rizzi 2010) and then elaborated upon, from macro- to nanoparameters (see Biberauer & Roberts 2012; Biberauer, Holmberg, Roberts & Sheehan 2014; and Biberauer & Roberts this volume), giving rise to parametric hierarchies. In the case of the problem of cross- and inter-linguistic variation connected with the verb *believe*, a consistent solution lies in the assumption that only a small subclass of functional heads, say *believe*-type epistemic verbs, shares the same micro-parameter (for instance $v_{\text{epist}}$, see Rizzi 2014:21), with some further subspecifications connected to more distinctive single verbs within this class (nanoparameter, see the difference between *allege* and *believe*, Rizzi 2014:21, Footnote 4). Many of the contributions in this volume provide evidence for the above-mentioned assumption: they reveal instances of meso-, micro- and nanoparameters at different levels of variation and show what consequences for our understanding of the triggers for variation the assumption of “sized” parameters has. Even the contributions that do not explicitly share this approach (see Alber & Meneguzzo and Krämer) explain microvariation in terms of typological properties of a system understood as “the necessary and sufficient ranking conditions generating every single language of the system (Alber & Prince in preparation, see also Alber, Del Busso & Prince 2015)” (Alber & Meneguzzo this
volume). This means that from this perspective too the variation space is assumed to be hierarchically constrained and minimal changes in the set of property values defining each language are taken to give rise to different languages within the same system. This is a very welcome and relevant result for our understanding of language variation, as it shows that phenomena found in typical domains of sociolinguistic research, such as idiolects and dialects, can be successfully captured with the tools of formal linguistics (see Kayne 2000, 2005; Polletto 2000; Adger & Smith 2005; Barbiers 2009; Abraham & Leiss 2013, among many others on formal approaches to dialect variation). Moreover, it indicates that system-internal variation can be very complex, but has clear limits (see Biberauer 2008 and Barbiers 2009 among others). By including wide-ranging empirical perspectives, dealing with different kinds of data, e.g. from dialects, language acquisition, language attrition and creolization, and different levels of analysis (syntax, phonology and prosody) this volume is a contribution to the understanding of these limits. A particularly relevant result comes from the investigation of ‘bilingual light verb constructions’ in the process of code-mixing (see Veenstra & López this volume). According to the Root Hypothesis (see Alexiadou, Borer & Schäfer 2014; Harley 2014) a verb is supposed to be a combination of a little v and a Root. Sifting through different examples of code-switching in different languages in which the source language of the little v and the source language of the VP/RootP have different word order settings (little v VO – RootP OV or little v OV – RootP VO), Veenstra and López convincingly show that in both cases it is always little v and its selectional properties that establish the linearization of the complement, as the following Spanish/German bilingual example demonstrates (see Veenstra & López this volume):

(1) Spanish/German (González-Vilbazo & López 2012)

Juan ha hecho verkaufen die Bücher.  
Juan have.3sg do.part sell.inf det book.plur
‘Juan has sold the books.’

Their conclusion is particularly significant for the question of how The Borer-Chomsky-Conjecture can be implemented, since it displays the importance of the functional layer of the verb, rather than its lexical root, in determining the linearization of the verb complements.

The book’s third and last aim is to explore loci of variation that can be considered system-external triggers (see Chomsky 1995, 2001 on the possible role of the PF interface in variation; Ramchand & Svenonius 2008 on the role of LF in variation; Kayne 1994; Richards 2004 on linearisation). These include, most importantly, conditions that are operative at both the level of syntax/prosody mapping (see Hinterhölzl this volume) and at the syntax/pragmatics interface (see Colonna Dahlman & Kupisch this volume); in addition, triggers that may be involved in specific contexts such as language contact (see Veenstra & López this volume), attrition and multilingual heritage
acquisition (see Cognola & Bidese this volume) are also considered. Some of these system-external triggers for language variation might be connected to Chomsky’s (2005) “third factor” of language design (see Richards 2008; Etxepare 2014 among others, see also the contributions in Eguren, Fernandez-Soriano & Mendikoetxea 2016). For instance, Dahlman and Kupisch (this volume) show that differences between the grammars of adult speakers of the Gallipolino dialect (introduction of optionality) who have migrated and those who have not, cannot be explained in parametric terms, since it can be established that the former have not actually lost the specific phenomena of their grammar. Therefore, the migrants’ divergence from the performance of the non-migrant control-group must be explained by taking into account other components of the language faculty.

2. Language variation and the notion of interface

The notion of interface, like that of parameter, has evolved with the development of generative grammar, playing a key role in the debate on the architecture of language. Three main uses of the term “interface” are relevant to the ongoing debate in generative grammar; they all relate in some way to the topic of the present volume, language variation.

In a “narrow sense” the term “interface” designates the relations between the modules/internal components of grammar: syntax, morphology, semantics and phonology (Ramchand & Reiss 2007: 1–2). Thus, the faculty of language is conceived as “containing” these modules; one of the main goals of the generative enterprise is to investigate how they communicate and integrate with each other in order to produce each utterance. From this perspective, one locus of language variation is the interfaces within the computational system of grammar.

Further triggers for variation are taken to lie “outside” grammar proper, in domains which concern pragmatics, discourse and prosody (White 2011). The relationships between grammar and these domains are also conceptualised as interfaces. The results reported in Colonna Dahlmann and Kupisch (this volume) deal with the interface with pragmatics. The authors show that Gallipolino post-puberty migrants display effects of language attrition which lies at the interface between syntax and pragmatics/discourse. This confirms Sorace’s (2011) Interface Hypothesis according to which in contexts of bilingualism the acquisition of linguistic phenomena involving the interfaces is more likely to undergo attrition giving rise to language variation and emergent optionality.

The development of Minimalism and that of the biolinguistic perspective (Chomsky 1995, 2005) have brought about a new view of the architecture of language in which the faculty of language is no longer conceived as modular (Boeckx 2010: 493)
and in which the term “interfaces” indicates primarily the levels at which the faculty of language is assumed to connect to two external systems: the sensory-motor system (sound) and the conceptual-intentional system (meaning). Within this new view, the focus of research has shifted from the internal modular structure of the faculty of language (which is now conceived as much simpler, see Chomsky 2005) to the question of how the two external systems constrain language architecture (Chomsky 2005: 8–11) through interface conditions. Within Minimalism and linguistic theories related to it like Cartography (see Cinque & Rizzi 2010 among others) and the Phase Theory (Chomsky 2005), the question of how interface conditions work, and whether certain categories belong to the faculty of language or to the interfaces with external systems, is still highly controversial (see for instance the debate on the status of information structural categories in the architecture of language in Büring 2007 and the contributions in Picallo 2014). As Chomsky (2005: 10) says, referring to the interface conditions imposed by the conceptual-intentional and the articulatory-perceptual system: “[…] these external conditions are only partially understood: we have to learn about the conditions that set the problem in the course of trying to solve it. The research task is interactive: to clarify the nature of the interfaces and optimal computational principles through investigation of how language partially satisfies the conditions they impose […]]. Independently, the interface systems can be studied on their own, including comparative study that has been productively underway […].”

An approach that combines variation at the external interfaces with Phase-Theory is pursued by Hinterhölzl (this volume). He shows that the phenomenon of head final effects in German and English, which is traditionally taken to be syntactic in nature, can be better accounted for if analysed as the result of the different constraints at the interface with the sensory-motor system (to which prosody belongs) that come into play in every phase. Thus, in phase-based accounts like that of Hinterhölzl, phases – understood as syntactic objects cyclically sent to the interfaces – become the main locus of variation.

3. On the relationship between language variation and language change

Many chapters of the volume directly or indirectly investigate the relationship between language variation and language change, and they present novel data from a multidisciplinary perspective that challenge the “traditional view of classical dialect geography, historical and sociolinguistics, structuralism and generative linguistics that interprets (often tacitly) the presence of variant competition as a symptom for change in progress” (De Vogelaer & Seiler 2009: 25).

The idea that every linguistic change presupposes a state of variation is central to historical linguistics (see Weinreich 1953; Weinreich, Labov & Herzog 1968: 188;
Anttila 2002: 213; Kroch 1989). One intensively studied example of linguistic change preceded by a period of variation is the shift from OV to VO in the history of English. A number of scholars (Kroch 1989; Pintzuk 1999; Taylor & van der Wurff 2005) have shown that Old English (450–1100 AD, henceforth: OE) syntax was characterised by strong intra-speaker variation in clause word order. Taylor and Pintzuk (2012) write: “in OE, finite verbs can appear in almost any position in both root and subordinate clauses, and complements and adjuncts can appear either before or after the main verb” (Taylor & Pintzuk 2012: 47). The empirical facts of OE indicate that, from a typological point of view, this language stage was characterised by mixed OV/VO syntax, i.e. it was neither strict OV nor strict VO. The frequency of OV/VO word orders co-occurrence decreased dramatically in the history of English, and OV word orders were already becoming rare in the Early Middle English period (1100–1500), see Pintzuk (1999), Kroch & Taylor (2000), Taylor & Pintzuk (2012).

The type of variation observed in OE has been described in terms of grammatical competition between VO and OV structures (Kroch 1989). According to this approach, also known as the double-base hypothesis (Pintzuk 1999), variation results from the availability of speakers of two competing grammars characterised by different parameter settings (head-initial, VO, and head-final, OV). One key assumption of this approach applied to the history of English is that head-initial word order was an innovation brought by Scandinavian settlers in the 10th century, i.e. the mixed system followed from a situation of language contact and bilingualism between Anglo-Saxons (characterised by an OV grammar) and Scandinavians (whose grammar was VO). This competition between grammars with different parameter settings lasted until the early Middle English period, when OV became rare.

The idea that syntactic variation can be due to language contact and bilingualism, which eventually leads to the loss of one of the two competing options, is challenged by several studies, on the relation between language acquisition and language change (see in particular Cognola & Bidese this volume) and on the mechanism of diachronic change.

The example of Old High German (850–1050, henceforth: OHG) offers a particular challenge to the first assumption of the analysis, i.e. that language variation results from the availability of two grammars in competition in a bilingual context. Hinterhölzl (2009) discusses a series of data on OV/VO word orders in OHG, showing that this language patterned just like OE, and that the mixed OV/VO orders are fully

1. The type of variation found in OE is obviously different from the type of variation commonly dealt with by sociolinguistics and dialectology, since it is found within one and the same variety and is independent of diatopic and diamesic factors, and of registers. The same type of variation affects other disharmonic OV/VO systems, like Mòcheno (see below).
comparable in the two languages. This implies that German was also characterised for a certain period of its history (the OHG stage) by variation between VO and OV. Crucially, this variation could not have been due to contact between languages with different parameter settings in a bilingual situation, because OHG was not influenced by any other language – unlike OE. The OHG facts indicate that the availability of mixed OV/VO might be a property inherent to a particular language, and not necessarily due to external factors like contact (for a typology of mixed-syntax languages, see Haspelmath, Dryer, Gil & Comrie 2000).

A similar, though not identical, argument can be drawn from Mòcheno, a present-day Germanic variety spoken by around 600 speakers in the Fersina valley, Northern Italy (Cognola 2013a, b). This dialect is characterised by the presence of mixed OV/VO word orders, which, as discussed in detail by Cognola (2013a, b), result from rules internal to a single grammar (that of Mòcheno), and are not the effect of the presence of competing Romance (featuring VO) and Germanic (featuring OV) grammars. The fact that Mòcheno is characterised by a type of mixed OV/VO word order generated by rules internal to its own grammar (which is very likely to be a conservative aspect of the language), irrespective of the bilingualism of its speakers and the pressure of regional Italian (Cognola 2011), indicates that disharmonic systems like those exhibited by OE and OHG can exist in natural languages, and are not necessarily due to the availability of two competing grammars (see contributions in Biberauer & Sheehan 2013).

This observation about Mòcheno leads us to the second assumption that variant competition is an indication of change in progress. Even though we have few historical documents in Mòcheno, an analysis of oral and written sources from the 19th Century onwards indicates that mixed OV/VO word order has been a stable characteristic of the language since records began (Cognola 2013b). This indicates that language variation can be a stable characteristic of a language, and does not necessarily lead to parameter change.

The fact that linguistic variation is not a necessary precondition for linguistic shift has important implications for the evaluation of most of the contributions on synchronic microvariation in this volume, at both the syntactic (Casalicchio this volume, Silvestri this volume) and the phonological (Alber & Meneguzzo this volume) levels. These authors, in fact, simply document microvariation without considering it to be a sign of ongoing change in the languages.

The above discussion on language variation reveals the issue of language change from a different perspective: how do stable disharmonic systems become harmonic systems? Put in another way: how does one of the competing variants become more prominent over time?

In generative work on diachronic syntax, it is generally assumed that language change results from children’s reanalysis of their parents’ grammar, and the consequent
introduction of innovations (possibly explicable in terms of the resetting of parameters, see Battye & Roberts 1995; Biberauer & Roberts this volume; Lightfoot 1979, 1991; Roberts 1985; Pintzuk 1999; van Kemenade 1987) that are carried into subsequent generations (Andersen 1973; Hale 1998; Lightfoot 1979, 1991, 1999; Mc Mahon 1994; Roberts 2007; Walkden 2012, among many others).

Theoretical approaches to phonological change (for instance in the so-called amphichronic model (Kiparsky 2006; Bermúdez-Otero 2014) applied to diachronic change in the history of Italian by Krämer (this volume)) also assume children's language acquisition to play a central role in the process. Within this model of diachronic change, “change occurs when some aspect of the target language is never acquired. […] Changes which in the end simplify the language can pass through quite messy intermediate stages” (Kiparsky 2015, cited in Krämer this volume).

Thus, the assumptions made by syntacticians about the role of language acquisition in parameter change and by phonologists about phonological change are the same. Children and imperfect language acquisition are seen as the triggers for historical change, which is gradual in both models, since it involves a period in which two variants (older and newer options) compete.

The idea that children are the trigger for language change has been challenged by recent research in language acquisition, with converging results showing that intergenerational transmission failure in L1 language acquisition cannot alone lead to language change, since children’s Language Making Capacity is extraordinarily robust and allows perfect acquisition of a target grammar even in the presence of ambiguous, contradictory and reduced input (see Meisel 2010: 138; Weerman 2010 and references cited there; Westergaard 2009). Other factors are, therefore, assumed to play a role. Lightfoot (1991) suggests that these are: (i) changes in the frequency of use of particular constructions, (ii) structural ambiguity of constructions, and (iii) exposure to conflicting evidence in situations of language or dialect contact.

Meisel (2010: 127–129) discusses these three possible causes of incomplete language acquisition from the perspective of contemporary research in (bilingual) language acquisition. He starts from the idea that “in order to maintain the hypothesis according to which the language learning child is the main agent of grammatical reanalysis in diachronic change, acquisition research must demonstrate that transmission failure is indeed a likely phenomenon […]” (Meisel 2010: 130). Research in language acquisition has clearly shown that transmission failure/incomplete acquisition never happens in monolingual L1 and simultaneous L2 acquisition, but can take place in child and adult L2 language acquisition (Meisel 2010; Weerman 1993; Weerman 2010, among others). For theories of diachronic change, Meisel (2010) takes this to imply that early monolingual and simultaneous bilingual language acquisition can never be the locus of language change, and that incomplete acquisition is only possible if children are exposed mainly to input from L2 speakers, i.e. if L2
speakers become the majority in a linguistic community (see Kroch & Taylor 2000; Lightfoot 1997; Weerman 1993). This requires specific sociolinguistic conditions and must be prompted by some language-external event.

More controversial is whether contexts where heritage and minority languages are spoken can lead to incomplete acquisition of the non-dominant language, which is a topic specifically addressed with novel empirical data on heritage situations by Cognola & Bidese (this volume). Montrul (2004), Montrul & Potowsky (2007) and Silva-Corvalán (1994) discuss the case of heritage Spanish in the USA, and suggest that the non-dominant language is incompletely acquired in this heritage context. That heritage contexts can be seen as specific acquisition scenarios where acquisition failure is likely to happen is challenged in Meisel (2010), who discusses specific arguments that suggest that supposed incomplete acquisition may be due to other factors, such as attrition, or the removal of the target language (see also Sorace 2004; Pascual y Cabo & Rothman 2012).

Cognola and Bidese (this volume) provide evidence that language acquisition in the specific heritage context of the Fersina valley follows from general mechanisms of successive and simultaneous bilingual language acquisition and does not automatically lead to transmission failure (Meisel 2007, 2010). More specifically, changes in the target grammar involve very few areas of grammar and only affect successive bilinguals, i.e. children who had less input in the heritage language than simultaneous bilinguals.

For the slightly different scenario of post-puberty migrants, Colonna-Dahlman and Kupisch (this volume) reach a result partially comparable to that of Cognola and Bidese (this volume). They show that language change as a consequence of language attrition is likely in post-puberty migrants, but (i) not all speakers are affected, or are not affected in the same way, by the change, and (ii) the changes introduced by heritage speakers consist in emergent optionality due to the influence of the standard language.

The data on the relationship between language acquisition and language change discussed in Cognola and Bidese's chapter point in the same direction as those of Meisel's (2007, 2010) studies (and references therein), since they indicate that children's Language Making Capacity is extremely robust and allows them to acquire language even in difficult circumstances. Conversely, grammars are unlikely to be changed in any general or dramatic way in contexts of language attrition, as Colonna-Dahlman and Kupisch's study shows.

Given that children have been proved to be excellent at acquiring the language(s) they are exposed to, and that dramatic loss of grammar competence in situations of attrition is not likely, what are the causes of language change?

Meisel (2010) claims that the only circumstance documented by current research in language acquisition which is compatible with the idea that children can be the actors of language change is L2 language acquisition. In other words, children can
only introduce changes in the target grammar when they receive input from L2 (non-native) speakers. In L2-contexts, the changes introduced by children (i) are systematic, i.e. they are found in all children’s production (whereas in all other acquisitional scenarios, incomplete acquisition can be found in individual children), and (ii) can involve macro-properties of the target grammar (which is compatible with the idea of parameter resetting due to incomplete acquisition).

For diachronic change, this finding implies that language change could plausibly be triggered by children due to imperfect acquisition only in situations in which L2 speakers have become the majority in the linguistic community. Such a scenario can only happen as a consequence of a dramatic event. Meisel (2010) proposes that one such event was the Black Death, responsible for the demographic decimation of 14th Century Europe; this corresponded to a shift in the grammar of all Romance languages, which lost their V2 property and became non-V2 languages (see Adams 1987; Benincà 1984, 1994, 2001, 2006, 2013; Benincà & Poletto 2004; Fontana 1993; Hirschbühler & Junker 1988; Ledgeway 2005, 2007, 2008; Poletto 2002, 2014, this volume; Roberts 1996, 1997, 2004; Salvesen 2013; Salvi 2000, 2004; Vance 1989; Vanelli 1989; Wolfe 2015, in press). Meisel (2010) speculates that the demographic decimation of Europe caused by the Black Death and the subsequent migrations within and between countries might have lead to situations in which children were mostly exposed to input from L2 speakers, so that children did not get enough cues for V2.

According to this approach to language change, which takes account of current research in language acquisition, a dramatic extra-linguistic event is needed for children to become the actors of language change. Thus, in the absence of some specific event, one competing variant (for instance the type of wh-raising documented for some idiolectal varieties of English by Danckaert, D’Hulster & Haegeman this volume), or one of the two orders in disharmonic OV/VO systems (like that of Mòcheno) are unlikely to spread into other varieties, or to become the only possible order in the language. When such events do not occur, variants remain at the level of idiolectal grammars, and disharmonic systems can be passed on to subsequent generations without transmission failure.

4. The single contributions

In their contribution, Alber and Meneguzzo tackle synchronic micro-variation at a phonotactical level by analysing consonant clusters in onset positions in Romance and Germanic dialects (the Trentino dialects, Mòcheno and Cimbrian) and in the standard varieties (Standard German and Standard Italian) all spoken in the Italian region Trentino-Alto Adige/Südtirol. Adopting Parker’s (2011) universal hierarchy of relative sonority, the authors observe a gradual progression from more tolerant to less tolerant
varieties in terms of sonority distance. In both Germanic and Romance dialects, onset clusters of low sonority (with a sonority distance of 2 levels of the hierarchy) are allowed, whereas in their corresponding standard varieties the minimum sonority distance between the members of the onset is higher (i.e. of 3 levels and of 4 for the native lexicon). Alber and Meneguzzo account for this micro-variation in cluster phonotactics by assuming the existence of an underlying system with fixed typological properties where minimal shifts in the property values give rise to the patterns observed in all the languages of the typology. This approach seems to be theoretically less costly than previous analyses within the framework of Optimality Theory, as it allows us to dispense with the assumption of universally fixed constraint rankings.

In his chapter, Jan Casalicchio describes and analyses a case of synchronic micro-variation in Romance. By focusing on the distribution of infinitives and gerunds in perceptive constructions, he demonstrates that a set of very complex empirical data can be accounted for by the interplay of three parameters, along the lines of Rizzi’s (2014) latest approach to parametric variation. The parameters involved in the case for micro-variation considered are ±progressive, ±agreement, and ±functional (i.e. the possibility of using perceptive verbs as functional verbs). The interplay of these parameters can account for the distribution and the properties of perception constructions in Gardenese (a Rhaeto-romance variety spoken in Northern Italy) and Spanish. In Gardenese, infinitive perceptive verbs are +progressive and -functional, and gerunds are negatively marked for the agreement feature; in Spanish infinitive perceptive verbs are ±progressive, ±functional, while gerunds have a +agreement feature. The author shows that the proposed theoretical account also allows us to make sense of perception constructions in Sardinian and Veneto dialects.

The contribution of Giuseppina Silvestri investigates the phenomenon of adverb agreement in the Southern Italian varieties, focusing on new data from dialects spoken in the northwest of Calabria and in the south of Basilicata (the so-called ‘Lausberg Area’). As some authors (Cruschina 2010; Ledgeway 2011) have demonstrated, in the varieties of Southern Italy manner adverbs and adjectives are not morphologically distinguished and may agree with a referring noun. In the dialects of the ‘Lausberg Area’, however, the patterns of the agreeing arguments are shown by Silvestri to depend structurally on the in/transitive configurations of the verb and on the roles of its arguments. This suggests that the previous explanations of the phenomenon, mostly centred on phono-morphological features, need to be integrated with a morpho-syntactic perspective, which, in fact, correctly predicts the syntactic configurations underlying the specific agreement patterns. By adopting a hierarchical ordering of parameters (see the model proposed by Biberauer & Roberts this volume), Silvestri’s analysis is able to explain the micro-variation both between the Southern Italian dialects and the varieties of the ‘Lausberg Area’, and among the latter varieties themselves.
In his chapter, Andrea Padovan focuses on prepositional verbs in English (V + P), drawing attention to the fact that not all prepositional verbs allow for the extraction of the PP-object and its passivation. Relying on previous analysis – from Baker (1988) on – he analyses the class of passivisable prepositional verbs as applicative constructions where the preposition belongs to the verb as a functional element rather than as a lexical item and acts as the head of the Applicative Phrase within the v-projection. Cross-linguistic data from Bantu languages such as Chichewa, in which the applicative consists of a verbal morpheme incorporated by the verb, and from Northern German varieties and Dutch, in which it is expressed by a verbal prefix, confirm the idea that different instantiations of the same functional head give rise to a wide range of variation, both cross-linguistically and within the same Germanic language family.

In their contribution, Lieven Danckaert, Tijs D'Hulster and Liliane Haegeman address idiolectal variation in English with regard to the phenomenon of wh-subject raising out of a finite clause. They document that a long moved wh-subject triggers T-agreement in both the embedded and the matrix clause, in violation of the widely accepted generalization that allows for subject raising only when the subject is extracted out of a non-finite clause. Actually, sentences like these are only accepted by a subset of English speakers. They assume them to be a case of idiolectal variation due to underlying micro-variation in the grammar, and their paper attempts to identify the locus of this variation. Following Rizzi's (2006) approach to subject extraction, the authors relate the observed inter-speaker variation to the nature of the left-peripheral head ‘Φin’ which is involved in licensing subject extraction. Variation depends on whether or not the CP-selecting predicate can incorporate the Φin head of its complement. In the grammar of speakers who allow wh-subject-raising, this Φin head can be deficient and has to incorporate in the next higher head, with the result that the lower wh-subject has to agree with the dominating T. The authors, therefore, provide evidence that even this kind of variation is connected with the properties of one specific functional head (in this case the left peripheral head Fin), and can therefore be captured as nanoparametric variation (Biberauer, Holmberg, Roberts & Sheehan 2014; Biberauer & Roberts this volume).

In his contribution, Roland Hinterhölzl focuses on variation from both a cross-linguistic and a synchronic perspective. Developing a phase-based theory of the mapping between syntactic and prosodic structures, he proposes an interface account of word order asymmetries, the so-called head-final effects (i.e. a left-hand phrase under a right-hand one) in German and English. In his analysis, he shows that a purely syntactic approach fails to account satisfactorily for head-final effects in the German and English nominal and verbal domain. Hinterhölzl suggests, instead, that such asymmetries should not be taken as a uniform syntactic phenomenon but rather as the result of cross-linguistic variation, manifesting as constraints at the syntax-morphology
and syntax-prosody interfaces. Hinterhölzl shows that in both German and English the final surface word order in the verbal domain can be described as the result of a syntactic derivation which is then metrically evaluated and restructured according to specific conditions at the syntax-prosody interface. In the nominal domain, while head-final effects in English result from constraints that rule the mapping of the syntactic structure onto the prosodic one, German displays morphological head-final effects.

In his paper, Martin Krämer proposes an Optimality Theory analysis of phonological processes in the development from Latin to Italian. Focusing on velar palatalisation, mid vowel breaking and lateral palatalisation, he shows that phonological changes can be described as the product of minimal variation in constraint ranking through time. In line with the main approach to language acquisition within the framework of Optimality Theory, Krämer assumes that language change emerges through imperfect acquisition. From this perspective, he claims, crucially, that adults’ adoption of loan vocabulary with phonotactically non-target sequences prevents new generations of speakers from finding the right constraint ranking of the target grammar, thus bringing about phonological innovations understood as minimal differences in constraint ranking.

In her article, Cecilia Poletto proposes a theoretical approach in which the three traditional phases – C, D and v – are taken to display the same structure with respect to the left periphery at their edge, and to allow the same operations in this area. Empirical data in support of phase parallelism come from Old Italian: here, the left periphery shows a Focus/Operator position – preceded by a set of Topics located just at the edge of each phase – that triggers a V2-like movement. Poletto finds that the same position can be detected in all phases: in the v-phase into which exactly on the same conditions as in the C-phase (i.e. optionality, more than one element moved, and no fixed ordering of the moved elements) any sort of constituent can be scrambled: due, in the D-phase, to a structural genitive position; and also in the AdjP. With regard to cross-linguistic variation, Poletto argues for a fundamental difference between the V2-like property of OI and that of modern German: the Old Italian situation can be explained as the final step in a process of change which started in Latin and turned the basic word order of the constituents from OV to VO. This indicates that both the triggers and the target positions for movement in the two languages are fundamentally different.

In their chapter, Biberauer and Roberts examine the phenomenon of Conditional Inversion in the history of English, suggesting that it exemplifies the mechanisms of parametric diachronic change. Following the parametric framework developed by the authors in collaboration with Holmberg and Sheehan (Roberts 2012; Biberauer, Holmberg, Roberts & Sheehan 2014; Sheehan 2014; Biberauer & Roberts 2015, in press), the authors propose that Conditional Inversion should be considered to be a prototypical
case of the mechanisms ruling diachronic parametric change. By building on the idea that parameters vary “in size”, they show that Conditional Inversion was subsumed in what the authors call a mesoparameter, the V2 parameter, i.e. V-to-C movement was not restricted to conditional sentences, but took place in all main clauses. From the Middle English period onwards, the features triggering V-to-C movement become more and more specific, as did, consequently, the parameters involved (from meso- to microparameter). In the final stage, V-to-C movement is triggered by a restricted number of constructions, one of which is Conditional Inversion (only possible with three auxiliary verbs). The authors propose that this should be captured in terms of a nanoparameter, i.e. a parameter that only involves lexically specified items. Biberauer and Roberts’ contribution neatly captures a complex set of data within a parametric model of diachronic change, positing that diachronic change (fed by reanalysis of primary linguistic data by children) proceeds in a top-down fashion within the parameter hierarchy.

In their chapter, Colonna-Dahlman and Kupisch examine language attrition in heritage post-puberty migrants. They focus on the understudied context of bilectals and consider 14 native speakers of Gallipolino, an Italian dialect spoken in Apulia, who have spent most of their adult life in Northern Italy, where their everyday language became regional/standard Italian. To test whether the Gallipolino post-puberty migrants exhibit signs of language attrition in their native language, the authors focus on the distribution of finite and non-finite verb forms with the complementisers ku and ka. A distinctive property of the Salentino dialects below the Taranto-Ostuni isogloss (to which Gallipolino belongs) is the lack of infinitives in embedded clauses (see Rohlfs 1969, 1972 and Ledgeway 2000 and subsequent work, among others). In cases in which standard Italian matrix predicates select an infinitival clause, Salentino dialects make use of finite constructions introduced by two different complementisers: ka and ku. The authors show that post-puberty migrant speakers of Gallipolino exhibit emergent optionality in the selection of tenses with complementisers and therefore accept options judged ungrammatical by the control speakers. This attrition does not affect all speakers (one patterns with people who have never left Gallipoli), or all speakers in the same way (there are significant differences between simultaneous and sequential bilectals).

Addressing the very special phenomenon of light verb constructions in code-switched utterances, Veenstra and López’s contribution aims to contribute to the discussion concerning the locus of functional elements within the lexical verb. More specifically, the authors present convincing evidence that support the idea that bilingual light verb constructions, in which, for instance, a German verbal phrase is combined with a light verb from Turkish are realisations of little v. The key of Veenstra and López’s proposal is that essential properties of the verbal phrase such as (i) (accusative) Case-assignment, (ii) passivisation, (iii) transitivity, (iv) stativity, (v) subcategorisation or c-selection clearly depend on the featural nature of the light verb. This is
particularly evident when the two languages that are combined display contrasting selectional properties. Moreover, the authors show that different ways of licensing little v (incorporation of a lower head, lexicalization by a light verb, and incorporation into a higher functional head) lead to cross-linguistic variation and thus provide a strong argument in support of The Chomsky-Borer-Conjecture.

In their contribution, Cognola and Bidese investigate whether or not heritage contexts can be considered to be special acquisitional scenarios in which imperfect language acquisition is likely. Focusing on the acquisition of the pro-drop parameter by pre-school children (age 4–6) in the specific heritage context of the Fersina valley, where the minority language Mòcheno is spoken along with Regional Italian and Trentino dialect, they show that it is not. In fact, all children in the study had acquired the syntactic and discourse properties of the pro-drop parameter in both Mòcheno and Regional Italian. Only two children appeared to instantiate a reduced system of subject pronouns in the heritage language (absence of clitics); this does not lead to ungrammaticality, and follows from their being simultaneous bilinguals, who have been exposed to less input in the heritage language than successive bilinguals. Therefore, heritage scenarios should be considered similar to any other monolingual or bilingual acquisitional setting where, as discussed by Meisel (2010), transmission failure is very unlikely. This result has important implications for the idea that children can be seen as a trigger for diachronic language change, since it demonstrates that children are very good at acquiring the language(s) they are exposed to, even in difficult acquisitional scenarios like heritage contexts.

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PART ONE

Synchronic variation in phonology and syntax
Germanic and Romance onset clusters – how to account for microvariation

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In this paper the restrictions imposed on onset clusters in Standard German and Standard Italian are compared to the – minimally different – restrictions in the Germanic dialects of Tyrolean, Mòcheno and Lusern Cimbrian, and the Romance dialects of Trentino. Both standard varieties allow onset clusters with a sonority distance (SD, computed according to the sonority indexes proposed in Parker 2011) of 4, marginally 3 intervals, while the corresponding dialects allow for SD = 2. The observed pattern of microvariation can be understood as minimal variation between grammars. We give a precise measure of this minimal grammatical difference by performing a typological analysis in the framework of Optimality Theory, yielding the typological properties of the system, understood as the necessary and sufficient ranking conditions generating every single language of the typology (Alber & Prince, in preparation, see also Alber, DelBusso & Prince 2016). Minimal grammatical difference can then be defined as minimal change of the property values defining each language.

Keywords: consonant clusters; microvariation; sonority; typological analysis; Tyrolean; Mòcheno; Cimbrian; Trentino dialects

1. Introduction

Even though the sonority sequencing principle (Selkirk 1984a and seq.) is largely observed cross-linguistically, languages seem to vary with respect to the restrictions they impose on the minimum sonority distance that has to be observed between two adjacent segments in a consonant cluster. In this paper we describe the restrictions in terms of sonority distance imposed on onset clusters in Standard German and Standard Italian and compare them to the – minimally different – restrictions in German and Romance dialects. The dialects we examine are the Southern Bavarian

* Birgit Alber takes responsibility for Sections 5 and 6. Marta Meneguzzo takes responsibility for Sections 2, 3 and 4. Both authors take responsibility for Section 1.
dialects of Tyrolean, Mòcheno, and Lusern Cimbrian and the Romance dialects of Trentino, all of them spoken in the administrative region of Trentino-Alto Adige/Südtirol. Interestingly, both German and Standard Italian agree in allowing onset clusters with a sonority distance of 4, marginally 3 intervals, according to the sonority indexes proposed by Parker (2011), while the corresponding dialects allow for sonority distances as low as 2 intervals. We conclude that a pattern of microvariation can be observed from the ‘core’ lexicon of the Standard varieties (sonority distance = 4) over more marginal clusters in the standard (sonority distance = 3) to the clusters of the dialectal varieties (sonority distance = 2).

The pattern of microvariation we observe in Germanic and Romance onsets can be understood as minimal variation between grammars. We give a precise measure of this minimal grammatical difference by performing a typological analysis of the system underlying the observed patterns in the framework of Optimality Theory (Prince & Smolensky 1993/2004). The typological analysis yields the typological properties of the system, where typological properties are understood as the necessary and sufficient ranking conditions generating every single language of the system (Alber & Prince, in preparation, see also Alber, DelBusso & Prince 2016). Minimal grammatical difference can then be defined as minimal change of the property values defining each language. We claim that such an approach to microvariation is superior to approaches assuming fixed rankings of markedness constraints, which add the unnecessary component of fixed constraint rankings to the theory, or to an approach in terms of minimal re-ranking, which fails to make the correct predictions with respect to which re-ranking generates minimal grammatical differences.

The paper will be structured as follows: in Section 2 we summarize the proposals made in the literature with respect to principles determining syllable structure which are related to the sonority of the segments involved, and we define the concept of sonority distance following Parker (2011); Section 3 contains descriptions of the onset clusters allowed in Standard German as well as in the Southern Bavarian varieties of Tyrolean, Mòcheno, and Lusern Cimbrian; Section 4 contains descriptions of the onset clusters allowed in Standard Italian and the Trentino dialects; in Section 5 we perform a typological analysis of sonority distance in onset clusters and propose a measure of minimal grammatical variation in terms of minimal change in property values, arguing that an approach in these terms is superior to previous analyses.

2. Consonant clusters and the sonority sequencing principle

Cluster phonotactics is heavily constrained by the Sonority Sequencing Principle (SSP; also known as the Sonority Sequencing Generalization, SSG), which can be defined as in (1):

\[ (1) \]
(1) Sonority Sequencing Principle (following Selkirk 1984a: 116)

In any syllable, a segment constituting a sonority peak is preceded and/or followed by a sequence of segments with progressively decreasing sonority values.

Sonority is a central characteristic of segments and determines the possible clusters within a syllable. Only those onset sequences whose sonority rises towards the nucleus will be allowed; likewise, only those coda clusters whose sonority decreases from the nucleus to the syllable margin will be well-formed. Obeyance of the SSP can be observed in all languages, but certain languages and certain contexts allow for violations (Morelli 1999:8, Cavirani 2015). For instance, we observe that in Tyrolean onset clusters involving sibilants, such as [kʃt]ohn ‘stolen’ (past participle), a rise in sonority from the plosive [k] to the sibilant fricative occurs, but sonority decreases from the sibilant to the second plosive [t], therefore leading to the conclusion that sibilants should be given a special status in such varieties (see discussion below). Similarly, Standard German [ʃpʀ]ache ‘language’ presents decreasing sonority from the sibilant to the plosive, which is not allowed according to the SSP, and this is the reason why in the literature sibilants are assigned an extrasyllabic status in this context (see, for instance, Hall 1992, Wiese 1996 for discussion).

The different approaches proposed to treat sonority have led to the proposal of sonority scales on which segments are organized, and it has been discussed extensively whether sonority scales are universal (Selkirk 1984a; Clements 1990; Butt 1992) or language-specific (Steriade 1982; Morelli 1999:5). In addition to the discussion of its universal vs. language-specific value, various refinements of the scale have been proposed. The most recent implementation has been proposed by Parker (2011), according to which the characteristics in (2) should apply to sonority scales:

(2) Requirements of the sonority scale (Parker 2011:1176; his emphasis)

a. it should be universal (= “it potentially applies to all languages”)

1. In the present study, “sonority scale” and “sonority hierarchy” are used as synonyms.
2. Clements’ (1990) universal sonority scale for consonants only presents four major natural classes: obstruents (O) < nasals (N) < liquids (L) < glides (G). Butt (1992), on the other hand, separates voiceless from voiced obstruents: Voiceless O < Voiced O < N < L < G < V. Selkirk (1984a) distinguishes further degrees within the classes of obstruents and liquids: p, t, k < b, d, g < f, θ < v, z, ð < s < m, n < l < r. Thus, finer distinctions among segments can be derived from sonority-independent parameters such as voicing, but also coronality (see Morelli 1999: 5, for discussion).
b. it should be *exhaustive* (= “it encompasses all categories of speech sounds”)

c. it should be *impermutable* (= “its rankings cannot be reversed, although they may be collapsed or ignored”)

d. it should be phonetically grounded (= “it corresponds to some consistent, measurable physical parameter shared by all languages”)

In light of such requirements, Parker proposes the universal hierarchy of relative sonority in (3), which we will adopt in our analysis:

(3) **Universal hierarchy of relative sonority**  

<table>
<thead>
<tr>
<th>natural class</th>
<th>sonority index (SI)</th>
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</thead>
<tbody>
<tr>
<td>low vowels</td>
<td>17</td>
</tr>
<tr>
<td>mid peripheral vowels (not [ə])</td>
<td>16</td>
</tr>
<tr>
<td>high peripheral vowels (not [i])</td>
<td>15</td>
</tr>
<tr>
<td>mid interior vowels ([ə])</td>
<td>14</td>
</tr>
<tr>
<td>high interior vowels ([i])</td>
<td>13</td>
</tr>
<tr>
<td>glides</td>
<td>12</td>
</tr>
<tr>
<td>rhotic approximants ([ɻ])</td>
<td>11</td>
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<tr>
<td>flaps</td>
<td>10</td>
</tr>
<tr>
<td>laterals</td>
<td>9</td>
</tr>
<tr>
<td>trills</td>
<td>8</td>
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<tr>
<td>nasals</td>
<td>7</td>
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<tr>
<td>voiced fricatives</td>
<td>6</td>
</tr>
<tr>
<td>voiced affricates</td>
<td>5</td>
</tr>
<tr>
<td>voiced stops</td>
<td>4</td>
</tr>
<tr>
<td>voiceless fricatives (including [h])</td>
<td>3</td>
</tr>
<tr>
<td>voiceless affricates</td>
<td>2</td>
</tr>
<tr>
<td>voiceless stops (including [ɻ])</td>
<td>1</td>
</tr>
</tbody>
</table>

If the SSP rules out many of the disallowed sequences, it is also true that the making-up of well-formed syllables depends on additional language-specific phonotactic requirements. For instance, while the onset clusters [kl] and [kn] both satisfy the SSP and many languages allow onset clusters of these types, those of the type [kn] occur much less frequently than the former. For some sequences, the fact that they are ruled out even though they obey the SSP can be accounted for if we assume that different languages impose different requirements with respect to the minimum sonority distance
between segments (see Vennemann 1972; Steriade 1982; Selkirk 1984a; Zec 2007, among others). In other words, the segments constituting a tautosyllabic cluster must be separated by a minimum of intervals on the sonority scale, under which the cluster is to be considered ill-formed in a certain language. The sonority distance (SD) of two segments can be calculated as in (4):

\[(4) \text{ Sonority Distance} \quad \text{(adapted from Parker 2011: 1168)} \]

Given a tautosyllabic two-member cluster C1 C2, where the segment C2 is closer to the nucleus than C1, the sonority distance of C1 C2 results from the difference between the sonority index of C2 and the sonority index of C1.

Languages vary as to the minimum sonority distance they allow for their clusters. While, for instance, some languages allow for clusters of type [kn], with an SD of 6 (SD = 7 (nasal) – 1 (voiceless stop) = 6), others will be more restrictive, requiring higher SD values, allowing only for clusters with SD = 8 or higher, as, for instance, [kl] (SD = 9 (laterals) – 1 (voiceless stop) = 8). Generally, if a language allows for clusters with a SD value n, it will also allow for clusters with SD values higher than n.

3. Onset clusters in Standard German and in Southern Bavarian varieties

In this section we will present data from Standard German and the Southern Bavarian varieties of Tyrolean, Mòcheno, and Lusern Cimbrian. We will see how the Southern Bavarian varieties differ minimally from Standard German in terms of admitted clusters and sonority distances. The described data come from our own fieldwork and other available data sources, as indicated.

3.1 Standard German

Onset clusters in Standard German consist of at most two consonants, where C1 is an obstruent and C2 either a sonorant or an obstruent. In onset clusters with three consonants, such as [ʃtR]eit ‘fight’, the first segment is always a sibilant and is considered to be extrasyllabic in the literature (see discussion below). Table (5) lists all possible two-member onset clusters for Standard German:

3. For a typological overview of minimum sonority distances across languages see Zec (2007).
Standard German two-member onset clusters (following Hall 2000: 231)\(^4\)

<table>
<thead>
<tr>
<th>c1 obstr</th>
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<td></td>
<td>(+)</td>
</tr>
<tr>
<td>f</td>
<td>+</td>
<td>+</td>
<td></td>
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<tr>
<td>v</td>
<td></td>
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<td>(+)</td>
<td></td>
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<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>s</td>
<td></td>
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<td>(+)</td>
</tr>
<tr>
<td>f</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td>(+)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Examples of each cluster type are listed in table (6):

Standard German two-member onset clusters (examples from Hall 1992, Wiese 1996 and our own)

<table>
<thead>
<tr>
<th>obstr-son cluster</th>
<th>gloss</th>
<th>obstr-obstr cluster</th>
<th>gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>[pr]inz</td>
<td>‘prince’</td>
<td>[pt]erodaktylus</td>
<td>‘pterodactyl’</td>
</tr>
<tr>
<td>[pl]atz</td>
<td>‘place, square’</td>
<td>[ps]ychologie</td>
<td>‘psychology’</td>
</tr>
<tr>
<td>[pn]eu</td>
<td>‘tire’</td>
<td>[kv]elle</td>
<td>‘spring’</td>
</tr>
<tr>
<td>[br]ei</td>
<td>‘mash’</td>
<td>[tsv]eig</td>
<td>‘branch’</td>
</tr>
<tr>
<td>[bl]itz</td>
<td>‘lightning’</td>
<td>[sk]at</td>
<td>card game</td>
</tr>
<tr>
<td>[tr]acht</td>
<td>‘costume’</td>
<td>[fp]ät</td>
<td>‘late’</td>
</tr>
</tbody>
</table>

4. Wiese (1996: 238 f.) argues that in the onset clusters [kv, tsv, f] the second consonant has to be interpreted as an underlying back vowel [ʊ]. If Wiese is correct, clusters of this type would result in a sonority distance SD = high peripheral vowels (15) – voiceless plosive (1) = 14, in the table below. Furthermore, as Wiese notices, this would mean that there are no clusters in Standard German consisting of two obstruents (except those in loanwords and those containing sibilants).

5. Here, as well as in the other tables, brackets stand for onset clusters which we find only in loanwords (e.g. [pn]eu, ‘tire’) or proper names (e.g. [gm]ünd, ‘place name’).
Germanic and Romance onset clusters – how to account for microvariation

Two-member onset clusters in Standard German mainly consist of the pattern obstruent+sonorant. This is in line with what is stated in the SSP, given that sonority must increase the closer to the nucleus we get. Within this pattern, restrictions occur: homorganic clusters such as [tl] are disallowed, even if sonority rises from the first to the second segment. Furthermore, a limitation of stop+nasal clusters can be found. The only combinations which are possible are velar plosive+nasal, as in [gm, gn, kn], while clusters such as [pn] occur only in loanwords (Pneu, ‘tire’). Among clusters consisting of a velar stop and a nasal, only [kn] can be considered to be part of the core native lexicon, since [gm] is only attested in place names and [gn] is attested for very few lexical items such as Gnade, ‘mercy’ (see discussion below).

The pattern obstruent+obstruent is attested only if C2 is the labial fricative [v] or if the first segment is a sibilant [s, ʃ] or the affricate [tʃ]. The relative freedom with which sibilants are combined with other obstruents, and the fact that sibilant+plosive sequences violate the SSP has led analysts to the conclusion that sibilants have to be considered extrametrical in German (Hall 1992; Wiese 1996, among others). Since

| [dr]ang | ‘impulse’ | [ft]adt | ‘city’ |
| [kIr]anz | ‘crown’ | [fIr]opau | place name |
| [kl]ang | ‘sound’ | [fIr]er | ‘heavy’ |
| [km]er | ‘khmer’ |
| [kn]echt | ‘servant’ |
| [gr]oß | ‘big’ |
| [gl]anz | ‘glitter’ |
| [gm]ünd | place name |
| [gn]ade | ‘mercy’ |
| [pfIr]opf | ‘tampon’ |
| [pfIr]aume | ‘plum’ |
| [fIr]ei | ‘free’ |
| [fl]ug | ‘flight’ |
| [vr]ack | ‘wreck’ |
| [vl]adimir | masc. proper name |
| [sl]ogan | ‘slogan’ |
| [sm]aragd | ‘emerald’ |
| [fIr]ank | ‘wardrobe’ |
| [fl]ank | ‘slim’ |
| [fm]alz | ‘lard’ |
| [fn]eiden | ‘cut’ (inf.) |
sibilants seem indeed to have a freer distribution than other obstruents, we will consider only clusters not containing any sibilants when calculating the sonority distance of clusters in Standard German, as in table (7). We will furthermore not consider the bracketed clusters above, which occur only in loanwords or place names:

(7) Sonority distances for Standard German two-member onset clusters

<table>
<thead>
<tr>
<th>cluster</th>
<th>sonority distance</th>
<th>cluster</th>
<th>sonority distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>[pl], [kl]</td>
<td>lateral (9) – vcless plos (1)= 8</td>
<td>[gl], [bl]</td>
<td>lateral (9) – voiced plos (4)= 5</td>
</tr>
<tr>
<td>[pf]</td>
<td>lateral (9) – vcless affr (2)= 7</td>
<td>[kv]</td>
<td>voiced fric (6) – vcless plos (1)= 5</td>
</tr>
<tr>
<td>[pr], [kr], [tr]</td>
<td>trill (8) – vcless plos (1)= 7</td>
<td>[br], [dr], [gr]</td>
<td>trill (8) – voiced plos (4)= 4</td>
</tr>
<tr>
<td>[pfr]</td>
<td>trill (8) – vcless affr (2)= 6</td>
<td>[gn]</td>
<td>nasal (7) – voiced plos (4)= 3</td>
</tr>
<tr>
<td>[kn]</td>
<td>nasal (7) – vcless plos (1)= 6</td>
<td>[vfr]</td>
<td>trill (8) – voiced fric (6)= 2</td>
</tr>
<tr>
<td>[fl]</td>
<td>lateral (9) – vcless fric (3)= 6</td>
<td>[fr]</td>
<td>trill (8) – vcless fric (3)= 5</td>
</tr>
</tbody>
</table>

At the lowest end of the SD scale for German we find [vr] clusters, which display a sonority distance of SD = 2. However, words containing a [vr] onset cluster such as Wrack ‘wreck’, Wrasen ‘haze’, wringen ‘to wring out’ are few in number and all derive from Low German (cf. Duden 1996), thus forming a dialectal enclave in the Standard German lexicon. Furthermore, [vr] onset clusters are limited in their distribution, occurring only word-initially. For these reasons we will exclude [vr] clusters from our calculation of the minimum sonority distance of Standard German. There is only one attested onset cluster of SD = 3, the cluster [gn] as in the word Gnade ‘mercy’. There are very few words containing this cluster, but words such as Gnade can not be considered to be part of a special subset of the lexicon, as was the case for words containing [vr]. Furthermore, the rarity of clusters with SD = 3 may in part also be due to the fact that velars are the only onset consonants that can be followed by a nasal, while onsets such as [*bn, bm, dn, dm] are excluded. We reach the core of the German lexicon when turning to onset clusters with SD = 4. There are several clusters of this type ([br, dr, gr]), many lexical entries containing them, and they are not restricted in their distribution to word-initial contexts. We will therefore assume that the minimum sonority distance for German onset clusters is SD = 4 and we will furthermore assume that onset clusters with a sonority distance of 3 are admitted only at the margins of the German lexicon (or, at an outer stratum of the lexicon, in the sense of Ito & Mester 1999). The marginality of clusters of SD = 3 should, however, be confirmed by further research and is put forward here only as a hypothesis.

We therefore distinguish between Standard German, with a minimal SD = 3 and ‘core’ Standard German, with a minimal SD = 4.
3.2 The Tyrolean dialects, Môcheno, and Lusern Cimbrian

Table (8) represents two-consonant onset clusters in Tyrolean, Môcheno, and Lusern Cimbrian. All cluster types attested in Standard German are also attested in the Southern Bavarian varieties, therefore clusters which are identical to those attested for Standard German are ignored and only the possibilities of combination beyond Standard German are listed here:

(8) Two-member onset clusters in Tyrolean, Môcheno, and Lusern Cimbrian
(sources: our fieldwork, s kloa’ be.be 2009, Tyroller 2003 and Panieri 2014)

<table>
<thead>
<tr>
<th>c1 obstruent</th>
<th>c2 sonorant</th>
<th>c2 obstruent</th>
<th>c2 obstruent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tyrolean, Môcheno, and Lusern Cimbrian</td>
<td>Tyrolean</td>
<td>Môcheno and Lusern Cimbrian</td>
</tr>
<tr>
<td>r</td>
<td>l</td>
<td>m</td>
<td>n</td>
</tr>
<tr>
<td>p</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>k</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>jf</td>
<td>o</td>
<td>o</td>
<td></td>
</tr>
<tr>
<td>ts</td>
<td></td>
<td>♦</td>
<td></td>
</tr>
<tr>
<td>kx</td>
<td>♦</td>
<td>♦</td>
<td></td>
</tr>
<tr>
<td>f</td>
<td></td>
<td>⬤</td>
<td></td>
</tr>
<tr>
<td>v</td>
<td>o ♦</td>
<td>o ♦</td>
<td></td>
</tr>
<tr>
<td>s</td>
<td></td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>f</td>
<td></td>
<td>o ♦</td>
<td></td>
</tr>
</tbody>
</table>

■ clusters occurring in Tyrolean
○ clusters occurring in Môcheno
♦ clusters occurring in Lusern Cimbrian

The examples in table (9) show that, differently from Standard German, Tyrolean commonly allows for obstruent clusters where a plosive is followed by a fricative:

(9) Obstruent-obstruent clusters in Tyrolean (data from our fieldwork)

<table>
<thead>
<tr>
<th>cluster</th>
<th>German cognate</th>
<th>gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ps]unders</td>
<td>besonders</td>
<td>‘particular’</td>
</tr>
<tr>
<td>[pf]eid</td>
<td>Bescheid</td>
<td>‘news’</td>
</tr>
<tr>
<td>[kf]ollen</td>
<td>gefallen</td>
<td>‘fallen’ (p. p.)</td>
</tr>
<tr>
<td>[ks]ok</td>
<td>gesagt</td>
<td>‘said’ (p. p.)</td>
</tr>
<tr>
<td>[kf]icht</td>
<td>Geschichte</td>
<td>‘story’</td>
</tr>
</tbody>
</table>
The possibility for Tyrolean to freely combine stops with fricatives of same voicing means that the sonority distance tolerated by this variety is lower than for Standard German, amounting to 2, as illustrated in table (10):

(10) Sonority distances for Tyrolean obstruent-obstruent clusters

<table>
<thead>
<tr>
<th>cluster</th>
<th>sonority distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>[kf]</td>
<td>vcless fric (3) – vcless plos (1) = 2</td>
</tr>
<tr>
<td>[gv]</td>
<td>voiced fric (6) – voiced plos (4) = 2</td>
</tr>
</tbody>
</table>

The fact that clusters such as [ml], which would also exhibit a sonority distance of 2, are not attested in Tyrolean can be explained by taking into account the historical origin of clusters as the one above. Clusters such as [ps] or [kf] arise through the historical process of schwa-syncope, which leads to the deletion of unstressed schwa in almost all positions of the word. Thus, clusters of the type [k] or [g] + fricative typically arise in the formation of past participles, where the past participle prefix corresponding to Standard German [ga] historically has undergone schwa-deletion and therefore can form a cluster with the initial consonant of a following root. Thus, in correspondence to Standard German [gəˈfɑːrən], ‘gone, p.p.’ we have Tyrolean [kfoːrən] (see Alber & Lanthaler 2004 for details). Note, however, that obstruent+obstruent clusters do not only arise in morphologically complex forms, but also in forms which have completely lost their morphological transparency, such as [pfʌnt], ‘particular’ or [pfɔːt] ‘news’.

The Tyrolean clusters illustrated above, as well as those of Mòcheno and Cimbrian, have their historical origin in schwa-syncope, but they are not a historical accident, since they occur systematically in all contexts where clusters of a sonority distance of at least SD = 2 could be formed, while schwa deletion was avoided (e.g. [gəbɾɔxt], ‘brought’, p.p.’) or deletion of the whole prefix occurred (e.g. [bɾɔxt, ‘brought’, p.p.’) when this minimum sonority distance threshold could not be reached (see Alber & Lanthaler 2004 for discussion). We therefore think that the observed patterns reflect the competence of the speakers of these varieties at the point of time when schwa-syncope took place: the grammar of varieties with a relatively high tolerance for low sonority distances, such as Tyrolean, accepted [kf] clusters, as resulting from schwa-syncope, while other German varieties, with less ‘tolerant’ grammars, did not.

Mòcheno, to some extent, displays a different cluster inventory from Tyrolean but it agrees with the neighboring variety in allowing clusters of low sonority:
Germanic and Romance onset clusters – how to account for microvariation

Even if we ignore among these clusters those containing sibilants, assuming that sibilants freely combine with other obstruents and hence are not reliable markers to calculate the minimum sonority distance, we still find onset clusters of rather low sonority, specifically [vl] and [vr] with SD = 3 and SD = 2, respectively, as in (12):

(12) Mòcheno two-member onset clusters of SD = 2

<table>
<thead>
<tr>
<th>cluster</th>
<th>sonority distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>[vl]</td>
<td>lateral (9) – voiced fric (6)= 3</td>
</tr>
<tr>
<td>[vr]</td>
<td>trill (8) – voiced fric (6)= 2</td>
</tr>
</tbody>
</table>

The emergence of the clusters [vr] and [vl] can again be attributed to historical reasons, specifically to a voicing process active in Old and Middle High German targeting presonorant fricatives (Althochdeutsche Spirantenschwächung, Paul 1881 [2007]: 122, 154f.), which has been preserved and extended to all presonorant contexts in Mòcheno (Alber 2014:20).

Examples for onset clusters in Lusern Cimbrian are listed in table (13):

(13) Lusern Cimbrian onset clusters (examples from Tyroller 2003 and Panieri 2014)

<table>
<thead>
<tr>
<th>obstr-son cluster</th>
<th>German cognate</th>
<th>gloss</th>
<th>obstr-obstr cluster</th>
<th>German cognate</th>
<th>gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>[tsn]icht</td>
<td>zunichte</td>
<td>‘bad’</td>
<td>[fbb]estar</td>
<td>Schwester</td>
<td>‘sister’</td>
</tr>
<tr>
<td>[khr]aide</td>
<td>Kreide</td>
<td>‘clay’</td>
<td>[sk]alzn</td>
<td>‘kick (out)’ (inf.)</td>
<td></td>
</tr>
<tr>
<td>[kxl]agar</td>
<td>klagen</td>
<td>‘whiner’</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[kxn]app</td>
<td>Knappe</td>
<td>‘miner’</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[fn]isarn</td>
<td></td>
<td>‘giggle’ (inf.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[vr]aita</td>
<td>Freitag</td>
<td>‘Friday’</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[vl]aisch</td>
<td>Fleisch</td>
<td>‘meat’</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Again, as for Mòcheno, we find among the examples the onset clusters [vl] and [vr], amounting to a sonority distance of 3 and 2.

Summarizing, we observe that while Standard German allows for onset clusters with a sonority distance of 4, marginally of 3 intervals, the Southern Bavarian varieties appear to be more tolerant: they allow for clusters where the sonority distance between C1 and C2 is 3, or even 2. Clusters of SD = 2 are attested for Tyrolean among clusters consisting of a stop and a fricative, such as [ps] or [kf], while they are represented in Mòcheno and Lusern Cimbrian by the cluster [vr].

4. Standard Italian and the Trentino dialects

In Standard Italian as well as in the Trentino dialects onset clusters range from 1 to 3 segments. In three-member onsets, however, similarly to the Germanic languages, the first segment is always a sibilant and can therefore be regarded as extrasyllabic. The second segment can be any consonant, whereas the third one is always a liquid ([r, l]).

(14) Standard Italian two-member onset clusters (following Krämer 2009: 129)

<table>
<thead>
<tr>
<th>c1 obstr</th>
<th>Standard Italian c2 son</th>
<th>Standard Italian c2 obstr</th>
</tr>
</thead>
<tbody>
<tr>
<td>r</td>
<td>l</td>
<td>m</td>
</tr>
<tr>
<td>p</td>
<td>b</td>
<td>t</td>
</tr>
<tr>
<td>t</td>
<td>d</td>
<td>k</td>
</tr>
<tr>
<td>d</td>
<td>g</td>
<td>f</td>
</tr>
<tr>
<td>k</td>
<td>s</td>
<td></td>
</tr>
<tr>
<td>f</td>
<td>s</td>
<td></td>
</tr>
<tr>
<td>s/z</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Some examples for licit clusters are listed in table (15):

(15) Standard Italian two-member onset clusters (our examples)

<table>
<thead>
<tr>
<th>obstr-son cluster</th>
<th>gloss</th>
<th>obstr-obstr cluster</th>
<th>gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>[pr]ato</td>
<td>‘meadow’</td>
<td>[sp]accare</td>
<td>‘break’ (inf.)</td>
</tr>
<tr>
<td>[pl]acido</td>
<td>‘peaceful’</td>
<td>[zb]adato</td>
<td>‘careless’</td>
</tr>
<tr>
<td>[pn]eumatico</td>
<td>‘tire’</td>
<td>[st]ato</td>
<td>‘state’</td>
</tr>
<tr>
<td>[br]usco</td>
<td>‘rough’</td>
<td>[zd]egno</td>
<td>‘disdain’</td>
</tr>
<tr>
<td>[bl]occo</td>
<td>‘block’</td>
<td>[sk]udo</td>
<td>‘shield’</td>
</tr>
</tbody>
</table>
Proceeding in the same fashion as for the Germanic varieties above, we calculate the sonority distance ignoring loanwords (e.g. [pn]euromatico) and proper names (e.g. [kn]osso) as well as clusters containing sibilants, where we cannot be sure that the sibilant is contributing to the SD-count:

(16) Sonority distances for Standard Italian two-member onset clusters

<table>
<thead>
<tr>
<th>cluster</th>
<th>sonority distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>[pl], [kl]</td>
<td>lateral (9) – vless plos (1)= 8</td>
</tr>
<tr>
<td>[pr], [kr], [tr]</td>
<td>trill (8) – vless plos (1)= 7</td>
</tr>
<tr>
<td>[fl]</td>
<td>lateral (9) – vless fric (3)= 6</td>
</tr>
<tr>
<td>[fr]</td>
<td>trill (8) – vless fric (3)= 5</td>
</tr>
<tr>
<td>[gl], [bl]</td>
<td>lateral (9) – voiced plos (4)= 5</td>
</tr>
<tr>
<td>[br], [gr], [dr]</td>
<td>trill (8) – voiced plos (4)= 4</td>
</tr>
</tbody>
</table>

Italian, according to the table above, is a language where onset clusters must have a minimum sonority distance of SD = 4. There are however sequences of segments, where the sonority distance appears to be lower. These are sequences where a lateral is followed by a glide, as in the examples [lj]eve, 'light' or [lw]ogo 'place'. The sonority distance between a glide (=12) and a lateral (=9) amounts to SD = 3, thus lying below the sonority distance calculated for the clusters in the table above. Sequences such as [lj] and [lw] are not usually listed among the licit onset clusters of Italian, since the glide is considered to be part of the diphthongs [je] and [wɔ], respectively (Nespor 1993; Graffi & Scalise 2002; but see Krämer 2009: 129, who integrates them in his analysis of
Italian onsets). Note, however, that the diphthongs [je] and [wɔ] participate regularly in the process of penultimate open syllable lengthening, as e.g. in [je:]ri and b[wɔ:]no, which means that the glide does not occupy a V-slot of its own (Nespor 1993: 124) and hence might have become part of the onset. However, the glides [j] and [w] do not freely occur as the second member of an onset, they only occur in those lexemes where we find the historical diphthongs [je] and [wɔ]. For this reason we will consider them as marginal and assume here that – as in the case of Standard German – the core lexicon of Italian allows for onset clusters with a sonority distance of at least 4, but that in a subpart of the lexicon clusters of SD = 3 are also allowed.

The Trentino dialects that were the focus of our fieldwork allow for the same clusters as Standard Italian, but in addition they also allow for the cluster [vr] as in ca[vr]a ‘goat’, as illustrated in table (17):

(17) Trentino two-member onset clusters (data from our fieldwork)

<table>
<thead>
<tr>
<th>obstr-son cluster</th>
<th>gloss</th>
<th>obstr-obstr cluster</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>[pr]a</td>
<td>‘meadow’</td>
<td>[sp]acar</td>
<td>‘break’ (inf.)</td>
</tr>
<tr>
<td>[pl]acido</td>
<td>‘peaceful’</td>
<td>[zb]ada</td>
<td>‘careless’</td>
</tr>
<tr>
<td>[br]usc</td>
<td>‘rough’</td>
<td>[st]ato</td>
<td>‘state’</td>
</tr>
<tr>
<td>[bl]oco</td>
<td>‘block’</td>
<td>[zd]egno</td>
<td>‘disdain’</td>
</tr>
<tr>
<td>[tr]anquilo</td>
<td>‘calm’</td>
<td>[sk]udo</td>
<td>‘shield’</td>
</tr>
<tr>
<td>[dr]it</td>
<td>‘straight’</td>
<td>[zg]onfio</td>
<td>‘deflated’</td>
</tr>
<tr>
<td>[kr]eder</td>
<td>‘believe’ (inf.)</td>
<td>[sf]orzo</td>
<td>‘effort’</td>
</tr>
<tr>
<td>[kl]ase</td>
<td>‘class’</td>
<td>[zv]endita</td>
<td>‘sale’</td>
</tr>
<tr>
<td>[gr]ant</td>
<td>‘big’</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[gl]obo</td>
<td>‘globe’</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[fr]esc</td>
<td>‘cool’</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[fl]auto</td>
<td>‘flute’</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ca[vr]a</td>
<td>‘goat’</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[zr]adicar</td>
<td>‘uproot’ (inf.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[zl]aciare</td>
<td>‘untie’ (inf.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[zn]atura</td>
<td>‘cruel’</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6. Our generalizations are based on data both from the Lombardian as well as the Veneto type of Trentino dialects. Fieldwork was carried out for the dialects of the Valli Giudicarie, Val Lagarina, Valsugana, and Val di Non.

7. Further examples of words containing [vr] clusters include be[vr]e ‘to drink’, ca[vr]ero ‘shepherd’ and cia[vr]iol ‘roe deer’ (see also Cordin 2005).
The Trentino dialects thus – similarly to the Germanic varieties under discussion –
allow for sonority distances below those allowed for the corresponding standard
variety, as illustrated in (18):

(18) Trentino two-member onset clusters of SD = 2

<table>
<thead>
<tr>
<th>cluster</th>
<th>sonority distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>[vr]</td>
<td>trill (8) – voiced fric (6) = 2</td>
</tr>
</tbody>
</table>

As in the case of the Germanic varieties described above, the cluster [vr] is the result
of historical sound change, in this case of intersonorant lenition, which has taken place
in Western Romance varieties, but not, e.g. in Central and Southern Italian dialects
(Loporcaro 2009:85). Thus Western Romance *cavra*, ‘goat’ corresponds to forms like
*capra* in Central and Southern varieties.

Summarizing, we have observed that Standard German and Standard Italian
allow for a sonority distance of SD = 4, in certain, more constrained contexts for
SD = 3. Their corresponding dialectal varieties appear to be more tolerant, allowing
for a sonority distance of SD = 2.

The fact that the dialectal varieties allow for the more marked SD = 2 sequences
may receive multiple explanations, none of which can be singled out as being the only
decisive one. One reason for the emergence of SD = 2 clusters are the historical sound
changes of schwa-deletion (for Germanic varieties) and of intervocalic lenition (for
Northern Italian dialects) favoring the emergence of SD = 2 clusters, which then are
not repaired, but accepted even though relatively marked. The fact that the dialects
have undergone these sound changes while the Standard varieties have resisted them,
might also in part be due to the normative pressures of the standard. This is plausible
at least for the Germanic varieties where the historical process of reduction and dele-
tion of unstressed vowels, active since the earliest stages of the history of German,
has been blocked and frozen in the Standard while it continued in the dialects. As
for the Italian varieties, Standard Italian takes as a model the central variety of Tus-
can, which does not display the same intersonorant lenition process distinctive for
the Western Romance varieties (Loporcaro 2009:85) to which the Trentino dialects
belong. Finally, we cannot exclude that the convergence on a minimal SD = 2 for the
dialects under investigation here has to do with the fact that these varieties have been
in contact for centuries, maybe supporting each other in the acceptance of a relatively
marked structure.

5. An analysis of dialectal microvariation

In our analysis we concentrate on the feature of microvariation which emerges
from our data, where we observe a step-wise progression from SD = 4 (typical for
the Standard varieties and, presumably, the historical varieties from which they descend) to SD = 3 (marginally possible in the Standard varieties) to SD = 2 (in the dialects).

Graduality, often leaving its traces in the form of minimal dialectal variation, is a typical feature of language change (see Kiparsky 2014 for an overview). In the history of German or the Romance varieties there are many examples of gradual language change, from the gradual progression of s-retraction, turning alveolar [s] into postalveolar [ʃ] before consonants (see Benware 1996) to the gradual progression of vowel-apocope in Western-Romance varieties (Rohlfs 1949). Our case at hand is not the clearest of these cases, since the historical relationship between three grammars with SD = 4, SD = 3 and SD = 2, respectively, is not well documented. Since core Standard German has a similar syllable structure as the Middle High German varieties from which Tyrolean, Mòcheno, and Cimbrian descend, we may take its grammar as representing the historical stage from which, gradually, the Southern Bavarian varieties evolved. The same can be said for Standard Italian, that, with its grammar, may represent the historical stage before intersonorant lenition allowed for clusters of low sonority distance to arise. Rather hypothetical, however, remains the existence of an intermediate stage allowing for minimal SD = 3. With respect to the Germanic varieties, for instance, an extensive study of historical Southern Bavarian sources would be needed to determine whether an intermediate stage of the language existed where clusters of SD = 4 or 3 were admitted, but clusters of SD = 2 were still not allowed.

Also at the synchronic level, given the diglossic situation of the speech communities involved, it is plausible to assume a continuum from the Standard varieties (SD = 4) to the dialectal registers (SD = 2). Again, determination of an intermediate stage with minimal SD = 3 would have to be found in the intermediate registers of the regional languages. So far, the only evidence for this intermediate grammar comes from the margins of the lexicon of the Standard varieties.

Given, however, the widespread documentation of dialectal or historical microvariation patterns, we will nevertheless discuss the possibility of accounting for such patterns, notwithstanding the necessity of more detailed empirical documentation in our particular case.

We will address here the question whether microvariation can be modeled in terms of minimal differences between the grammars of the varieties involved. Our proposal is that a measure for minimal differences between grammars can be found after performing a typological analysis of the phenomenon, extracting its typological properties (Alber & Prince, preparation, see also Alber, DelBusso & Prince 2016). We will claim that grammars differ minimally if they display a minimal switch in property values and that these minimal changes in typological properties can account for minimal differences between varieties.
5.1  A typology of sonority distance in onset clusters

To generate a typology of languages differing minimally in sonority distance in onset clusters (SD-typology) we will assume the constraint set in (19):

(19)  SD-typology – constraint set

*SD {2} = assign one violation mark to onset clusters of sonority distance 2
*SD {2, 3} = assign one violation mark to onset clusters of sonority distance 2 or 3
F = faithfulness: no changes in input-output mappings

The constraint *SD {2} penalizes all clusters of sonority distance 2, while *SD {2, 3} penalizes clusters of sonority distance 2 as well as clusters of sonority distance 3. To account for sonority distances in the languages of the world we would of course have to imagine a much larger constraint set, which would range from the constraint *SD {0} (no clusters of sonority distance 0) over *SD {0, 1}, *SD {0, 1, 2}, *SD {0, 1, 2, 3}, *SD {0, 1, 2, 3, 4} etc. to the constraint *SD {0, 1, 2, 3, 4 … n}, where n represents the largest sonority distance for clusters required by a natural language. For our purpose of analyzing minimal variation among the varieties discussed above it is sufficient to concentrate on a section of this universal constraint set, ignoring for the time being languages which allow for sonority distances below 2 or languages which require a sonority distance larger than 4. We will therefore use constraints targeting sonority distances 2 and 3, but ignore constraints against lower or higher sonority values.

*SD {2} and *SD {2, 3} are subset inclusion constraints in a stringency relation (Prince 1999, de Lacy 2002), which can account for the fact that a language which disallows for clusters of SD = 3 will also disallow for clusters of SD = 2, since the constraint *SD {2, 3}, if dominant, will penalize clusters of SD = 3 as well as clusters of SD = 2. A constraint set with these characteristics can generate a typology of languages following a markedness scale SD = 2 > SD = 3, where clusters with sonority distance 2 are more marked than clusters with sonority distance 3.

In our constraint set we include a general faithfulness constraint F penalizing all types of faithfulness violations which could lead to avoidance of a cluster not respecting the required sonority distance, be it deletion, epenthesis or something else.

---

8.  For a similar analysis extracting the typological properties of a set of languages related by reference to a markedness scale see also Danis (2014).

9.  For an analysis with the same set of constraints see also Wiltshire & Maranzana (1999) and Krämer (2009: 145), who, however, redundantly assume that the constraints be organized in a universally fixed ranking (see discussion below).
Our set of constraints evaluates the candidates in (20):

\[(20)\] **SD-typology – candidates**

a. \(/gn/_{SD=3} \rightarrow [gn]\)
b. \(\rightarrow \emptyset\)
c. \(/vr/_{SD=2} \rightarrow [vr]\)
d. \(\rightarrow \emptyset\)

We have a set of four candidates, consisting of two pairs of input-output mappings. The two inputs represent clusters of sonority distance 3 (/gn/) and 2 (/vr/). As discussed above for the constraint set, a full-fledged SD-typology would contemplate also candidates with lower or higher SD values, but we will limit ourselves here only to a section of the SD-scale. Each input can either be mapped faithfully to an output (candidates a. and c.), or it can undergo some change, violating thus the constraint F (candidate \(\emptyset\), as in b. and d.). We will assume that candidate \(\emptyset\) stands for all unfaithful realizations (deletion, epenthesis or something else) that avoid violation of \(*SD\ {2}\) or \(*SD\ {2, 3}\). A language which consists of the optima \(/gn/_{SD=3} \rightarrow \emptyset\) and \(/vr/_{SD=2} \rightarrow \emptyset\) will therefore be a language that has no clusters of sonority distance 2 or 3, because it repairs a potential input /gn/ or /vr/ by deletion, epenthesis or other means.

The evaluation of the above candidate set by the proposed set of constraints generates the following factorial typology consisting of three languages (generated with OT-Workplace, Prince, Tesar & Merchant 2007–2016), as shown in (21):

\[(21)\] **SD-typology – factorial typology**

<table>
<thead>
<tr>
<th>language</th>
<th>[gn]</th>
<th>[vr]</th>
<th>Germanic and Romance dialects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lg.1</td>
<td></td>
<td></td>
<td>Germanic and Romance dialects</td>
</tr>
<tr>
<td>Lg.2</td>
<td>[gn]</td>
<td>(\emptyset)</td>
<td>standard varieties</td>
</tr>
<tr>
<td>Lg.3</td>
<td>(\emptyset)</td>
<td>(\emptyset)</td>
<td>‘core’ standard varieties</td>
</tr>
</tbody>
</table>

The typology contains a language, which allows both for clusters with SD = 3, like [gn] as well as for clusters of SD = 2, like [vr] (lg.1). We can identify this language type as the Germanic and Romance dialects described above. Lg.2 is a language that allows for clusters with SD = 3, such as [gn], but disallows for clusters of SD = 2, choosing for input clusters of SD = 2 the unfaithful mapping \(\emptyset\). Lg.2 corresponds to Standard German and Standard Italian, if we count among the allowed forms also the marginal clusters of SD = 3, such as [gn] for German and lateral+glide for Italian. Lg.3 neither allows for clusters of SD = 2 nor for clusters of SD = 3. Both inputs with these sonority distance values are mapped unfaithfully to an output \(\emptyset\). This language type corresponds to what we call the ‘core’ standard varieties, intended as the core lexicon of standard German and Italian, which does not allow for clusters with a sonority distance smaller than 4, hence banning clusters with SD = 2 or 3.
The grammars that generate the three languages can be represented with Hasse diagrams in (22) (generated by OT-Workplace):

(22) Grammars of lg.1 – 3:

Lg.1 (Germanic and Romance dialects) is a language where F dominates both markedness constraints penalizing sonority distances 2 and 3. It will therefore be a language where the two inputs /gn/ and /vr/ are mapped faithfully, as can be garnered from the comparative tableau and its elementary ranking conditions (ERCs) in (23):

(23) Comparative tableau – lg.1 (Germanic and Romance dialects)

<table>
<thead>
<tr>
<th>input</th>
<th>winner</th>
<th>loser</th>
<th>F</th>
<th>*SD [2]</th>
<th>*SD [2, 3]</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. gn</td>
<td>gn</td>
<td>Ø</td>
<td>F</td>
<td>*SD [2]</td>
<td>*SD [2, 3]</td>
</tr>
<tr>
<td>b. vr</td>
<td>vr</td>
<td>Ø</td>
<td>F</td>
<td>*SD [2]</td>
<td>*SD [2, 3]</td>
</tr>
</tbody>
</table>

ERC a. tells us that for the faithful mapping /gn/ → [gn] to win over the unfaithful mapping /gn/ → Ø, the constraint F has to dominate the markedness constraint *SD {2, 3} penalizing clusters of SD = 2 or SD = 3. In order for the mapping /vr/ → [vr] to win over its unfaithful competitor, the faithfulness constraint F has to dominate both markedness constraints, since [vr], with its sonority distance of 2, violates both *SD {2} and *SD [2, 3] (ERC b.). Domination of the two markedness constraints by F as stated by ERC b. entails domination of one markedness constraint, as stated by ERC a. ERC b. is therefore everything we need to know to construct the grammar of lg.1 (for ERCs and their logic see Prince 2002 and Brasoveanu & Prince 2011).

The ERCs determining the grammar of lg.2 (standard varieties) are listed in tableau (24):

(24) Comparative tableau – lg.2 (standard varieties)

<table>
<thead>
<tr>
<th>input</th>
<th>winner</th>
<th>loser</th>
<th>*SD [2]</th>
<th>F</th>
<th>*SD [2, 3]</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. vr</td>
<td>Ø</td>
<td>vr</td>
<td>W</td>
<td>L</td>
<td>W</td>
</tr>
<tr>
<td>b. gn</td>
<td>gn</td>
<td>Ø</td>
<td>W</td>
<td>L</td>
<td>L</td>
</tr>
</tbody>
</table>

The unfaithful mapping /vr/ → Ø can win over its faithful /vr/ → [vr] competitor under one of two rankings: either if the faithfulness constraint F is dominated by
the markedness constraint *SD {2} banning clusters of SD = 2, such as [vr], or if it is dominated by *SD {2, 3}, which bans clusters of SD = 2 as well as clusters of type SD = 3. We learn that the crucial dominator of F is *SD {2} as soon as we examine ERC b., which tells us that in order for /gn/ to be mapped faithfully, F has to dominate *SD {2, 3}, suppressing thus any action against the cluster that has a sonority distance of 3. If F >> *SD {2, 3}, as required by ERC b., domination of F in ERC b. must be achieved by *SD {2}. The result is a grammar with the ranking *SD {2} >> F >> *SD {2, 3}, as illustrated for lg.2 in the Hasse diagram above.

Lg.3 (‘core’ standard varieties) is represented by tableau (25):

(25) Comparative tableau – lg.3

<table>
<thead>
<tr>
<th>input</th>
<th>winner</th>
<th>loser</th>
<th>*SD {2}</th>
<th>*SD {2, 3}</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. vr</td>
<td>Ø</td>
<td>vr</td>
<td>W</td>
<td>W</td>
<td>L</td>
</tr>
<tr>
<td>b. gn</td>
<td>Ø</td>
<td>gn</td>
<td>W</td>
<td>L</td>
<td></td>
</tr>
</tbody>
</table>

In tableau (25) ERC b. entails ERC a.: if *SD {2, 3} dominates F, thus favoring the unfaithful mapping /gn/ → Ø over the faithful one, this ranking will also guarantee that the input /vr/ is mapped unfaithfully in the comparison in ERC a. The result is a grammar with the ranking *SD {2, 3} >> F, where the ranking of *SD {2} with respect to the other constraints is irrelevant.

From this typological system of three languages, generated by the evaluation of our candidate set by the constraints defined above we can extract the typological properties determining it. We define typological properties, following work by Alber & Prince (in preparation) as in (26):

(26) Property of a typological system

The intensional properties of a typological system are the ranking conditions that are both sufficient and necessary in order to generate every language of the system (Alber & Prince, in preparation)

Properties have two values, one the logical opposite of the other. We will call them here “A” and “B”, for any property P.

For a typological system as the one described here we can extract the properties in (27) from the ERC-sets determining the single languages:

(27) SD-typology – properties

a. Property 1 – SON: no vs. some clusters of low sonority

<table>
<thead>
<tr>
<th></th>
<th>*SD {2, 3}</th>
<th>F</th>
<th>*SD {2}</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1-A</td>
<td>W</td>
<td>L</td>
<td></td>
</tr>
<tr>
<td></td>
<td>no clusters with low SD (SD = 2 or 3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P1-B</td>
<td>L</td>
<td>W</td>
<td></td>
</tr>
<tr>
<td></td>
<td>some clusters with low SD (SD = 2 or 3)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
b. Property 2 – FAITH: full faithfulness vs. some unfaithfulness

<table>
<thead>
<tr>
<th></th>
<th>F</th>
<th>*SD{2}</th>
<th>*SD{2, 3}</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>P2-A</td>
<td>W</td>
<td>L</td>
<td>L</td>
<td>full faithfulness</td>
</tr>
<tr>
<td>P2-B</td>
<td>L</td>
<td>W</td>
<td>W</td>
<td>some unfaithfulness</td>
</tr>
</tbody>
</table>

Property 1, (SON) classifies the languages of the typological system into languages that do not allow any clusters with low sonority distance values SD = 2, 3 and languages that do allow for such clusters. Languages of the former type instantiate value A of property SON, while languages of the latter type realize value B of SON. This means that languages that do not allow for clusters with low SD will have among the ERCs of their grammar the ERC P1-A, stating that *SD{2, 3} must dominate F, while languages allowing for clusters of low sonority contain its logical opposite ERC P1-B, where F dominates *SD{2, 3}. Thus SON classifies lg.3 (‘core’ standard varieties), where clusters with low SD are not allowed against lg.1 (Germanic and Romance dialects) and lg.2 (standard varieties), where we do find clusters of this type. The former has an ERC P1-A in its grammar while the latter two contain ERC P1-B.

Property 2 (FAITH) classifies languages displaying full faithfulness (value P2-A) against languages which are unfaithful, to some extent. Thus, this property classifies lg.1 (Germanic and Romance dialects), which faithfully realizes clusters with a low sonority distance, against lg.2 (standard varieties) and lg.3 (‘core’ standard), which choose the unfaithful candidate Ø either for some inputs (lg.2) or for all inputs (lg.3). The fully faithful language lg.1 contains in its grammar ERC P2-A, i.e. F >> *SD{2}, *SD{2, 3} while the unfaithful language lg.2 contains one part of the disjunct of P2-B (*SD{2} >> F) and lg.3 contains the other part (*SD{2, 3} >> F).

The proposed properties are both sufficient and necessary to generate all languages of the system. The combination of the four values of the two properties generate the three attested languages while a fourth possible combination (P1-A, P2-A) creates a contradiction, since if a language is fully faithful (P2-A) it will realize clusters with low SD and not suppress them, as required by P1-A. Table (28) gives an overview on how different languages result from different combinations of property values.

<table>
<thead>
<tr>
<th></th>
<th>SON: P1-A no clusters with low SD</th>
<th>SON: P1-B some clusters with low SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>FAITH: P2-A</td>
<td>excluded by contradiction</td>
<td>Germanic &amp; Romance dialects (lg.1)</td>
</tr>
<tr>
<td>full faithfulness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FAITH: P2-B</td>
<td>‘core’ standard varieties (lg.3)</td>
<td>standard varieties (lg.2)</td>
</tr>
<tr>
<td>some unfaithfulness</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
We can check whether the proposed properties are indeed correct by reassembling our typological system through combination of the different property values. This procedure is illustrated in table (29):

(29) SD-typology – languages reassembled through combination of property values

<table>
<thead>
<tr>
<th>lg.1</th>
<th>F</th>
<th>*SD{2, 3}</th>
<th>*SD{2}</th>
<th>comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. P1-B</td>
<td>W</td>
<td>L</td>
<td>some clusters with low SD</td>
<td>b. =&gt; a.</td>
</tr>
<tr>
<td>b. P2-A</td>
<td>W</td>
<td>L</td>
<td>L</td>
<td>full faithfulness</td>
</tr>
<tr>
<td>c. P1-B</td>
<td>W</td>
<td>L</td>
<td>some clusters with low SD</td>
<td>W in d. eliminated via contradiction with c.</td>
</tr>
<tr>
<td>d. P2-B</td>
<td>L</td>
<td>L</td>
<td>W</td>
<td>some unfaithfulness</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>lg.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>g. P1-A</td>
</tr>
<tr>
<td>h. P2-B</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>lg.3</th>
</tr>
</thead>
<tbody>
<tr>
<td>e. P1-A</td>
</tr>
<tr>
<td>f. P2-A</td>
</tr>
</tbody>
</table>

We see that the combination of P1-B with P2-A creates the grammar of lg.1. In this case, P2-A would be enough to define the grammar of lg.1, since its ERC entails the ERC representing P1-B (domination of *SD{2, 3} and *SD{2} by F entails domination of *SD{2, 3} by F). The combination of P1-B with P2-B results in the grammar of lg.2. For P2-B to hold, either one or the other of the markedness constraints must dominate F. Since P1-B states that F must dominate *SD{2, 3}, the crucial dominator of F, as by P2-B will be *SD{2}. Lg.3 is generated by the combination of P1-A and P2-B, where P2-B is entailed by P1-A, thus resulting in the grammar *SD{2, 3} >> F. Finally, if we try to combine P1-A with P2-A we will end up with two ERCs making contradicting demands: P1-A requires that *SD{2, 3} dominate F, while P2-A requires the opposite (shaded). For this reason a fourth language combining P1-A and P2-A cannot exist.

If we now turn back to our quest for a measure of minimal grammatical variation between the languages of the typology, we will find it in the minimal switch of property values from one language to its immediate typological neighbor:

(30) SD-typology – minimal property switches

<table>
<thead>
<tr>
<th>lg.1</th>
<th>lg.2</th>
<th>lg.3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germanic and Romance dialects</td>
<td>standard varieties</td>
<td>‘core’ standard</td>
</tr>
<tr>
<td>P1</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>some clusters with low SD</td>
<td>some clusters with low SD</td>
<td>no clusters with low SD</td>
</tr>
<tr>
<td>P2</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>full faithfulness</td>
<td>some unfaithfulness</td>
<td>some unfaithfulness</td>
</tr>
</tbody>
</table>
In terms of switches of property values, the difference between lg.1 and lg.2 is minimal – there is a single switch from P2-A to P2-B. The same is true for the difference between lg.2 and lg.3, where the relevant switch occurs from P1-B to P1-A. The difference between lg.1 and lg.3, on the other hand, involves value switches both of P1 and P2. Hence the relation between lg.1 and lg.3 is not one of microvariation.

We have thus found a measure which can account for minimal differences between grammars: two grammars are minimally different, if the sets of typological property values which define them are minimally different.

In the following section we will briefly discuss two alternative accounts for grammatical microvariation, one involving fixed constraint rankings, the other defining minimality in terms of minimal constraint re-ranking. We will argue that an analysis building on fixed constraint rankings is possible but costly, while an approach in terms of minimal re-ranking is not a viable alternative.

5.2 Alternative analyses of minimal grammatical difference

An alternative analysis of minimally different grammars used in the literature involves constraints penalizing specific values of sonority distance, arranged in a fixed ranking. An analysis of Italian onsets making use of a fixed ranking is proposed for instance in Wiltshire and Maranzana 1999 and Krämer 2009. Since these authors use constraints similar to those we have proposed in our analysis, the assumption of a fixed hierarchy is actually redundant in their case. An analysis relying on fixed rankings would rather assume constraints penalizing specific sonority distances, as in (31):

(31) Analysis with fixed constraint rankings

a. constraints:
   *SD {2} = assign one violation mark to onset clusters of sonority distance 2
   *SD {3} = assign one violation mark to onset clusters of sonority distance 3

b. fixed ranking:
   *SD {2} >> *SD {3}

The position of the faithfulness constraint F then determines whether a language realizes clusters with a low SD, only some clusters with a low SD or no clusters with low SD at all (see (32)):

(32) Minimal difference as minimal promotion/demotion of F

(F) >> *SD {2} >> (F) >> *SD {3} >> (F)

lg.1     lg.2     lg.3

10. We thank an anonymous reviewer for this observation.
When F occupies a position in the ranking where it dominates both markedness constraints, we will obtain a language with the features described for Germanic and Romance dialects, where sonority distances of value 2 are allowed. If F is demoted one step further down the hierarchy, the result will be a language as the standard varieties described above, where clusters with a SD = 2 are disallowed, but clusters of SD = 3 are (marginally) allowed. Finally, when F is dominated by both markedness constraints, no clusters of low sonority will be generated, as in the variety we called ‘core’ standard.

Under this approach, minimal grammatical difference is seen as minimal re-ranking of a faithfulness constraint F on a fixed hierarchy of markedness constraints. An analysis in these terms is certainly possible, and it can give a precise account of how minimal grammatical differences can be understood. However, the analysis comes at the cost of introducing an additional component into the theory, in the form of fixed constraint rankings. This is not a necessary move, since a set of subset inclusion constraints in a stringency relation can generate the same typologically attested languages and an analysis in terms of property values can account for minimal grammatical difference between them.

A second alternative might attempt to account for minimal grammatical variation in terms of minimal re-ranking between constraints (Alber 2001, 2014; van Oostendorp, in preparation). Such an approach could claim that languages differ minimally if they differ by a single constraint ranking. However, it is not clear when minimal constraint re-ranking results in minimal differences between languages. If we return to the grammars of our three languages, as represented by the Hasse diagrams in (22), we see that the change in rankings from lg.1 to lg.2 involves re-ranking of *SD {2} over F. However, it also involves a change in the relationship between *SD {2} and *SD {2, 3}. While lg.1 can be generated by a ranking where *SD {2} dominates *SD {2, 3} as well as by a ranking where the opposite domination order holds, in lg.2 *SD {2} necessarily dominates *SD {2, 3} by transitivity. Should we ignore changes of this type or compute them somehow when calculating minimal grammatical difference? Similarly, the change from lg.2 to lg.3 involves re-ranking of *SD {2, 3} and F, but at the same time the constraint *SD {2}, from constraint crucially dominating F acquires a status by which it can be ranked anywhere in the grammar of lg.3.

An additional problem for an approach in terms of simple re-ranking is that it cannot be predicted which constraint can, by re-ranking, cause minimal variation and which cannot. Thus, re-ranking of *SD {2} over F in lg.1 will create the minimally different grammar of lg.2. But re-ranking of *SD {2, 3} over F in lg.1 will lead to the grammar of lg.3, which is not minimally different from that of lg.1.

In conclusion, while an analysis involving fixed rankings works but introduces a new component into the theory that is not really required, an analysis accounting for minimal grammatical variation in terms of minimal constraint re-ranking runs into serious problems, not being able to predict the correct minimal neighbor of a grammar x.
6. Conclusions

Our study of the sonority distance in onset clusters in standard varieties of German and Italian as well as in the German and Italian substandard dialects of Trentino-Alto Adige/Südtirol reveals a pattern of microvariation where the ‘core’ lexicon of the standard varieties is characterized by the relatively strong restriction that onset clusters must display a sonority distance of at least 4 intervals on Parker’s (2011) sonority scale, margins of the lexicon of the standard varieties allow for a sonority distance of 3 and the German and Italian dialects examined are more tolerant in allowing also clusters such as [kf, ps, gv] or [vr], of sonority distance 2. The reason for the greater tolerance for marked clusters in the dialects, with respect to the standard varieties, might be due to the fact that the latter underwent certain sound changes that were blocked or not applied in the standard varieties. Since the dialects under investigation are in contact among each other, it can furthermore not be excluded that they have influenced each other in accepting clusters of relatively low sonority.

The pattern of microvariation that we have observed leads to the question of whether minimal differences of this type can also be accounted for as minimal difference in the grammars of the languages involved. We have proposed that a minimal difference in terms of allowed sonority distance in clusters can indeed be interpreted as minimal grammatical difference once we perform an analysis of the typological system under discussion and extract its properties. The properties of a typological system are the sufficient and necessary ranking conditions generating all the languages of the system. We have shown that a typological system involving the languages under discussion is characterized by two properties: no vs. some clusters with low SD and full faithfulness vs. some unfaithfulness. A comparison between the sets of property values characterizing each language in the system gives us a measure of the minimal grammatical difference between varieties in terms of differences in property values. Under an analysis of this type it is not necessary to resort to fixed constraint rankings determining minimality, a welcome result, since it allows us to let constraints interact freely and to dispense with the assumption that constraints may come in universally fixed rankings.

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The use of gerunds and infinitives in perceptive constructions

The effects of a threefold parametric variation in some Romance varieties*

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In this article I compare the use of gerunds with perceptive verbs in Spanish and in Gardenese, a Rhaeto-Romance variety spoken in Northern Italy: perceptive gerunds are used as secondary predicates in Spanish but as defective TP-complements in Gardenese. Following Rizzi’s (2014) account of parametric variation, I propose that the differences are due to the interplay of three parameters: (i) a [+progressive] feature on Gardenese perception verbs, (ii) the pure lexical status of perception verbs in Gardenese, and (iii) a [+Agreement] feature on Spanish gerunds. The discussion of the parameters involved leads to more general considerations, such as a new proposal for the structure of perceptive Exceptional case-marking (ECM) constructions in Romance, the confirmation of Folli and Harley’s (2007) analysis of Romance causative constructions, and the necessity of both the [+Agreement] and the [+Tense] feature in order to allow nominative non-finite subjects. The comparison with other Romance varieties confirms the role played by this parametric variation in perceptive constructions.

Keywords: secondary predication; ECM constructions; overt non-finite subjects

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1. Introduction

In this chapter I discuss a case study on a variation found within the Romance language family, analysing it in the light of the most recent approaches on parameters (see the debate in Picallo 2014, and in particular Rizzi’s and Holmberg & Roberts’ paper). I propose that a superficially single difference is caused by the interplay of various parameters; this interplay is revealed through a detailed analysis which takes into account the nuanced differences existing in genetically related varieties.

Since the initial stages of the Minimalist program (Chomsky 1995), the debate about variation has experienced an important shift, abandoning the ‘parameters within principles’ view of the GB era. The current debate, in fact, concerns the very existence of parameters, and how – if they do exist – they be adapted to minimalist requirements. The approach that I pursue in this paper is based on the Chomsky-Borer conjecture, according to which the locus of parameters is the functional lexicon (cf. Borer 1984; Chomsky 2001). Regarding the content of parameters, I follow Rizzi’s (2014) proposal that parameters can be reduced to this minimal format (see also the proposals put forward by the members of the ReCoS project of the University of Cambridge):

(1) H has F {yes, no} (Rizzi 2014: 22)

Where H is an item of the functional lexicon, and F is a morphosyntactic feature.

Moreover, Rizzi (2014) shows that the fact that parameters do not always have ‘cascade effects’, as had been expected in the GB-era, follows from the fact that more than one parameter can be at play in a single structure, thus conditioning its grammaticality. The pro-drop parameter, for example, was originally held to correlate straightforwardly with other syntactic properties (like the absence of that-trace effects or the possibility of having a VS order with intransitives), but recent research has shown that in a system with numerous parameters there may be other microparametric properties which affect the general pattern. Thus, each property is conditioned by a complex interplay of a number of parameters.

The case study analysed here is on the use of gerunds in perceptive constructions in Spanish and in the Rhaeto-romance variety of Gardenese; it reveals new elements in the debate about the causes and limits of variation by permitting comparison between two genetically related varieties, which share the use of this verb form in perceptive constructions, as (2) shows:¹

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¹ For reasons that will become clear later in this paper, I use in the translations gerunds for the Spanish gerunds, infinitives for the Gardenese gerunds.
The use of gerunds and infinitives in perceptive constructions

(2) a. Veo a María cantando (Spanish)
b. Vëije Maria ciantan (Gardenese)
   I see (to) Maria singing
   ‘I see Maria singing/sing.’

However, despite this apparent correspondence, a closer look at the use of gerunds reveals that there is unforeseen but systematic variation between the syntax of Spanish and Gardenese perceptive constructions. As a first example, consider (3)–(4):

(3) a. *Veo lloviendo (Spanish)
b. Vëije pluan (Gardenese)
   I see raining
   ‘I see it rain’

(4) a. Se lo veo comer (Spanish)
b. *Ti l vëije maië (Gardenese)
   him.dat it.acc I see eat.INF
   ‘I see him eat it’

In this chapter I propose that the overall variation in the use of perceptive gerunds is the result of the interplay of three different Merge parameters (which affect the merging of syntactic and lexical items, Rizzi 2014). This means that Spanish and Gardenese do not instantiate the only two possible patterns: the interaction of these three parameters can have more numerous outcomes, as the comparison with other Romance languages will show in the last section. In addition, this discussion of new data about the perceptive constructions of a lesser-used language allows us to reconsider some of the claims that have been put forward for the main Romance languages in the literature to date.²

In this chapter I focus mainly on Spanish and Gardenese, with some references to other Romance and non-Romance languages. There is a large body of research on perceptive infinitives in Italian (Belletti 1990; Rizzi 1992; Guasti 1993, a.o.), and so I discuss several data from this language. I also refer to some Italo-romance dialects and French, when doing so helps to interpret the structure of the Spanish and Gardenese data.

². The Gardenese data come from my own fieldwork, carried out over the last few years, mostly among fifteen speakers from different age groups and villages in the Gardena valley (Casalicchio 2011). In order to clarify some residual questions, I had follow-up interviews with some informants: each Gardenese example cited here has therefore been judged by at least four informants (who all agreed on the judgements). The examples taken from Italian and Spanish rely on my own judgements (Northern Regional Italian) and those of other native speakers.
The chapter is organised as follows: Section 2 introduces the reader to the existence of two different perceptive constructions in Romance, the first of which describes the perception of an event as a whole, while the second focuses on the individual(s) involved in an event. Section 3 presents the Gardenese data. The subsequent sections discuss my proposal: analyses of biclausal ECM constructions (§ 4.), of the so-called faire-par construction (§ 5.) and of gerunds used as secondary predicates of perceptive constructions (§ 6.). Section 7 contains the conclusions and some cross-linguistic considerations.

2. Romance perceptive constructions

Perception is a complex physical phenomenon involving different senses and organs and focussing on different types of object, which we usually distinguish as individuals (I see Peter) or events (I see it rain). In many languages, including the Romance group, this distinction is reflected in the syntax: the two types of perception object are encoded in different syntactic structures, which I describe in detail in Section 2.1 and 2.2.3

2.1 The ‘Event Perception Construction’

When the perception is of an event, most Romance languages, like Italian, Spanish and French, use an infinitival clause. Since the focus is on the event, its logical subject need not be phonologically expressed. In fact, ‘Event Perception Constructions’ (EPCs) are also compatible with null subjects, which may be arbitrary (5b) or quasi-argumental (5c):

(5) a. Sento i bambini urlare in giardino (Italian)  
I hear the children cry in garden  
‘I hear the children cry in the garden’

3. In this paper I do not consider the ‘epistemic’ see (i), since it displays no significant variation in Romance:

   (i) I saw that John had left.

4. I use the term ‘logical subject’ for expository reasons, to refer to the element that is semantically the subject of the non-finite verb, independently of its syntactic role (which I will discuss later, see § 4.-6.).

5. In this section I focus on Italian data since from a descriptive point of view they allow us to distinguish more clearly between the three different EPC constructions and because they are more readily comparable with the Gardenese data (e.g., both Italian and Gardenese lack the Direct Object Marking and both have no restrictions on the use of the Faire-par construction).
b. Sento e urlare in giardino  
   I.hear e cry in garden  
   ‘I hear someone cry in the garden’

c. Sento e piovere  
   I.hear e rain  
   ‘I hear it rain’

Another important property of EPCs is the position of the logical subject of the infinitive: when the embedded verb is intransitive, the logical subject may precede or follow it.

   (6) a. Vedo Maria arrivare / Vedo arrivare Maria  
       I.see Maria arrive / I.see arrive Maria  
       ‘I see Maria arrive’

   b. Sento Luca telefonare / Sento telefonare Luca  
       I.hear Luca phone / I.hear phone Luca  
       ‘I hear Luca phone’

The examples in (6) show that both orders with intransitive verbs are possible. The unmarked order of the embedded constituents is VS for unaccusative verbs (6a), SV for unergative verbs (6b).

Finally, the term ‘EPC’ is not associated with a single syntactic structure; rather, it is an umbrella term which encompasses three different structures, all of which share the property of ‘event perception’. The first construction is biclausal, i.e. the perception verb and the embedded verb are located in different clauses. Evidence for this analysis comes from the fact that they both have their own case-marking domain:

   (7) a. Vedo Marco mangiare la torta  (Biclausal EPC)  
       I.see Marco eat the cake  
       ‘I see Marco eat the cake’

   b. Lo vedo mangiarla  
      him.acc I.see eat-her.acc  
      ‘I see him eat it’

In (7) there are two direct objects, as the presence of two accusative clitics in (7b) reveals: the logical subject of the EPC (‘Marco’ in (7a)), which checks accusative case with the perception verb via Exceptional Case Marking, and the object of the embedded verb (‘la torta’). I will refer to this construction as ‘ECM’.6

6. This type of ECM differs in various respects from the English ECMs with verbs like want and believe (e.g., it always has anaphoric tense and it involves a bare, prepositionless infinitive). For previous analyses of biclausal EPCs in Romance see the overview and bibliography listed in Sheehan (2016), and especially Radford (1977), Burzio (1986), Rizzi (1992), Guasti (1993), Labelle (1996), Rafel (2002), Ciutescu (2013) a.o.
The two remaining constructions are traditionally analysed as monoclausal, and they correspond almost completely to the causative constructions (see Cinque 2006 for slight differences between causative and perceptive functional verbs). In these cases, the perception verb is held to form a single complex predicate with the embedded verb, as the absence of clausal boundaries between the two verbs shows.

The first construction is usually referred to by the term *faire-inf* ('FI'), following the definition used by Kayne (1975) for the corresponding causative construction. The logical subject of the infinitive is realised as:

i. the direct object (bearing accusative), if the embedded verb has no direct objects (8a);

ii. an indirect object introduced by the preposition *a/à* (8b):

(8)  

(a) Ho fatto/visto cantare Maria  
I. have made/seen sing Maria  
‘I made/saw Maria sing’

(b) Ho fatto/visto mangiare la torta a Maria  
I. have made/seen eat the cake to Maria  
‘I made/saw Maria eat the cake’

In the last construction the logical subject of the embedded verb is suppressed from the argument structure but can be recovered via an optional agentive phrase headed by the preposition *da*. It is called *faire-par* ('FP', Kayne 1975):

(9) Ho fatto/visto mangiare la torta (da Maria)  
I. have made/seen eat the cake (by Maria)  
‘I got/saw the cake eaten by Maria’

2.2 The ‘Individual Perception Construction’

The second type of perceptive construction is the ‘Individual Perception Construction’ (‘IPC’), which is used to describe the perception of an individual involved in an event. The event is expressed in a secondary predication, i.e. as an optional predicate describing an event that is simultaneous to the main perceptive event and whose

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7. The literature on FIs and FPs is abundant (although mainly focused on causative verbs); see Folli & Harley (2007), Ciutescu (2013), Sheehan (2016), and the literature cited there.

8. In Spanish, FPs are grammatical only with causative verbs, but not with perceptive verbs, cf. Hernanz (1999: 2256).

9. For expository reasons, I will use the term ‘predicative’ (e.g., ‘predicative gerund’) to refer only to a syntactic element that expresses a secondary predication and not a predication in general.
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The logical subject is coindexed with the direct object of the matrix verb. The secondary predicate can be formed by Adjectival Phrases (10a), Prepositional Phrases (10b), or some constructions formed by a verb form (10c–f):

(10) Vi a María     a. cansada  (Spanish; AP)
    I.saw to María     tired
    "I saw María…  …tired’
    b. con lágrimas en los ojos  (PP)
    with tears in the eyes
    …with tears in her eyes’
    c. sentada en un banco (past participle)
    sat on a bench
    …sat on a bench’
    d. que estaba cantando (Pseudo-relative clause)
    that was singing
    …she was singing’
    e. cantando  (gerundive clause)
    singing
    …singing’
    f. a cantar (Europ. Port.; prepositional infinitive)
    to sing

Notwithstanding their different realisations, all the constructions in (10) instantiate secondary predications. While the first four (10a–d) are used in all Romance languages (except for Rumanian, which does not use Pseudo-relative clauses), the gerundive clauses (10e) are only used in some varieties, like Spanish and Catalan. Other varieties, like European Portuguese and several Italo-romance varieties, use prepositional infinitives (10f), see Raposo (1989), Guasti (1992), Rafel (2000), Casalicchio (2013 and 2015).


12. For an overall analysis of the various verbal predicative complements (10d–f), see Rafel (2000), Casalicchio (2013), and the bibliography cited there. In this chapter I do not consider French present participles (although they are diachronically related to gerunds), because they differ in some respects from the gerundial constructions (e.g., they encode stative aspect, while gerunds express a progressive/continuous aspect, see Granville-Hatcher (1944), Halmøy (2003) for French.
Although some scholars have considered that EPCs and IPCs have the same syntactic structure (Burzio 1986, Di Tullio 1998),\textsuperscript{13} these approaches fail to capture important differences between the two constructions. Firstly, infinitival clauses (i.e. EPCs) are limited to perceptive and causative verbs, and cannot be used as a secondary predicate:

(11) a. María está en la iglesia hablando con el cura (Spanish; gerundive clause)
    María is in the church speaking with the priest
    ‘María is in the church and speaks with the priest’

b. *María está en la iglesia hablar con el cura (infinitival clause)
    María is in the church speak-INF with the priest

(12) a. Encontré al ladrón entrando por el techo (gerundive clause)
    I.caught to-the thief entering by the roof
    ‘I caught the thief entering through the roof’

b. *Encontré al ladrón entrar por el techo (infinitival clause)

The examples in (11) are instances of a secondary predicate of the subject: the embedded verb describes an event which is simultaneous with the matrix verb and whose silent subject is coindexed with the matrix subject.\textsuperscript{14} The verb \textit{encontrar} in (12) selects a secondary predicative construction of the object when it means ‘to catch someone doing something’. In both examples the infinitival construction is ruled out because it is incompatible with a secondary predication.

Secondly, in perceptive constructions the secondary predicate can never precede its logical subject. Thus, the embedded VS order is ruled out, unlike in EPCs (cf. (13) with (6)):

\textsuperscript{13} To be more precise, Di Tullio (1998) proposes that in Spanish gerundial IPCs have three different structures, sharing one of them with infinitival EPCs.

\textsuperscript{14} Fernández-Lagunilla (1999) does not consider examples like (11) to be instances of predicative gerunds. However, on the basis of my cross-linguistic comparison with other types of secondary predication (Casalicchio 2013), I propose that they are.
The use of gerunds and infinitives in perceptive constructions

![Image](image_url)

(13) a. *Veo llegando (a) Ana
   I.see arriving (to) Ana

   b. *Veo telefoneando (a) Ana
      I.see phoning (to) Ana

Thirdly, the logical subject of the embedded verb must always be phonologically realised. As a consequence, arbitrary and quasi-argumental null subjects are excluded (cf. (14) with (5)):

(14) a. *Oigo e gritando en el jardín
      I.hear e crying in the garden

   b. *Oigo e lloviendo
      I.hear e raining

These syntactic differences\(^\text{15}\) are related to a clear semantic difference between EPCs and IPCs, involving the distinction between categorical and thetic predication (a distinction which goes back to Brentano and Marty, see Kuroda 1972, Graffi 1997, Basilico 2003). In fact, I suggest considering IPCs as categorical predications, where "the subject is 'singled out' from the event itself, and the predicate ascribes a property of this subject" (Basilico 2003: 3). EPCs, on the other hand, are thetic: "[…] the subject is not singled out, but instead is introduced as one of the event participants. The thetic predication form can therefore be seen as an ‘event reporting’ sentence that involves introducing an event into the discourse" (ibid.).\(^\text{16}\)

Table 1 summarises the main differences between EPCs and IPCs:

<table>
<thead>
<tr>
<th>Syntactic property</th>
<th>Event perception</th>
<th>Individual perception</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be used in other secondary predications</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Permit VS order with intransitive verbs</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Permit null subjects</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Semantic type of predication</td>
<td>Thetic</td>
<td>Categorical</td>
</tr>
</tbody>
</table>

\(^\text{15}\) For a more detailed survey of the differences between EPCs and IPCs, see Rafel (2002) and Fernández-Lagunilla (2011) for Spanish and Casalicchio (2013) for Italian, a.o.

\(^\text{16}\) Basilico (2003), building on the work of a number of scholars, proposes linking categorical predications to individual-level predicates and thetic predications to stage-level predicates. I do not adopt this view here, since perceptive verbs always select stage-level predicates when they describe a direct perception.
As the discussion demonstrates, the difference between EPCs and IPCs is clear-cut and grounded on both syntactic and semantic considerations. Moreover, we have seen that in most Romance languages EPCs are linked to infinitival clauses and IPCs to gerunds or other verbal and non-verbal complements. However, this neat picture changes when we consider lesser-used languages like the Rhaeto-romance varieties, which will be the topic of the next section.

3. Perceptive constructions in the Rhaeto-romance variety of Gardenese

The Rhaeto-romance variety I consider in this chapter is Gardenese (Gherdëina in the local languages), one of the five main varieties of the Ladin group (central Rhaeto-romance), spoken by about 10,000 people in the Gardena valley (Italian Dolomites).17 Gardenese displays the SVO word order, combined with the Verb Second rule in main declarative and wh-interrogative clauses (similar to that found in German and Old Romance, see Benincà 1994; Poletto 2002; Kaiser 2002; Casalicchio & Cognola 2015 a.o.).18 Like all Romance varieties except Rumanian, it has Pseudo-relative clauses which can be used in all secondary (stage-level) predications. Moreover, a gerundial clause can be used with perception verbs. Infinitival clauses, on the other hand, are excluded:19

(15) a. Vëije Maria che maia n mëil  (Gardenese: Pseudo-relative)
   ‘I see Maria eating an apple’


18. Note that in Gardenese referential null pronouns can be used for the persons which lack a clitic pronoun, namely the 1st, 4th and 5th person (Salvi 2000). On the other hand, the quasi-argumental and expletive pronoun l (homophonous with the 3rd person masculine singular pronoun) is mandatorily expressed. Cf. (i–ii) with (16) and (18):

   (i) *(L) vën Anna
      *it comes Anna
      ‘There comes Anna’

   (ii) *(L) pluef
      *it rains
      ‘It is raining’

19. In the younger generation (under 30s) there is a tendency to use infinitival clauses with perception verbs as well (Casalicchio 2011). This could be due to the influence of Italian or German; in any case, it does not affect the structural properties of the gerundial clauses. The topic of internal variation in Gardenese is an issue for future research.
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b. Vëije Maria maian n mëil (Gerund)
   I see Maria eating an apple
   ‘I see Maria eat an apple’

c. * Vëije Maria maië n mëil (Infinitive)
   I see Maria eat an apple

If we look at the syntactic and semantic properties of Gardenese gerunds, we observe that they pattern with the infinitives of Spanish and Italian rather than with Spanish gerunds (see Table 1, and compare the examples in (5)–(6) and (13)–(14) with the following):

(16) Vëije unian Anna (VS order)
   I see coming Anna
   ‘I see Anna come’

(17) Luca aud e svaian te verzon (null arbitrary subjects)
   Luca hears e crying in garden
   ‘Luca hears someone cry in the garden’

(18) Aude e pluan (semi-argumental null subjects)
   I hear e raining
   ‘I hear it rain’

In (16), the unmarked position of the logical subject of the gerund is postverbal, as in Spanish infinitival EPCs. The examples (17) and (18) also show that the subject can be silent, be it arbitrary or semi-argumental. All these properties indicate that Gardenese gerunds enter EPCs, unlike in Spanish. We may therefore ask if gerunds can enter all three types of EPC listed in Section 2:

(19) É udù Marco maian la tëurta (ECM)
    I have seen Marco eating the cake
    ‘I saw Marco eat the cake’

(20) * Ti lë udù maian (FI)
    him.dat her.acc-I have seen eating
    ‘I saw him eat it’

(21) L é audi ciantan dal cor (FP)
    it.acc I have heard singing by-the chorus
    ‘I heard it sung by the chorus’

In (19), the gerund is used in a biclausal ECM, since both the perception verb and the gerund have their own direct object. The example in (20), instead, shows that the FI is incompatible with perception verbs. Finally, (21) is an example of FP, because the logical subject is expressed by an agentive phrase.
We have seen that gerundial clauses can be used in Gardenese EPCs. But can they also be used in secondary predications (and thus in IPCs)? The following examples show that they cannot:

(22) *Maria ie te dlieja
    Maria is in church
rujnan cun l preve (Secondary predicate of the subject)
speaking with the priest

(23) *E’ abinà l lere jan
    I have caught the thief going
ite dal têt (Secondary predicate of the object)
in by-the roof

Unlike Spanish, Gardenese gerunds are ruled out from all predicative constructions (cf. (22)–(23) with (11)–(12)), hence we have to conclude that when a gerund is used with perception verbs in Gardenese, the structure involved is always an EPC.

Table 2 shows the ways in which EPCs and IPCs are realised in Spanish and Gardenese.

Table 2. The clause types used with EPCs and IPCs

<table>
<thead>
<tr>
<th>Language</th>
<th>Event perception construction</th>
<th>Individual perception construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spanish</td>
<td>Infinitives</td>
<td>Gerunds</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pseudo-relative clauses</td>
</tr>
<tr>
<td>Gardenese</td>
<td>Gerunds (no FIs)</td>
<td>Pseudo-relative clauses</td>
</tr>
</tbody>
</table>

The data clearly show that the resemblance between the gerundial constructions of Spanish and Gardenese is just superficial and masks a clear structural variation. In the next section I will propose an analysis which accounts for these differences.

4. Analysis of Romance ECMs

In this section, I briefly discuss the structure of ECMs in Romance in general. Then, I focus on two aspects regarding the Gardenese data that are particularly interesting: the choice of the verb form (infinitives vs. gerunds) and the nature of the null subject within ECMs.

4.1 Overall properties of Romance ECMs

As already noted by Belletti (1990) and Guasti (1993), ECMs are ‘truncated’ structures which are bigger than vPs/VPs and smaller than full TPs. Evidence for this claim
comes from the fact that ECMs can host negation (24) and lower adverbs like *sempre* (always) and *spesso* (*often*), (24)–(25), which are held to be merged in the lower TP field (Cinque 1999). This observation leads both authors to postulate that biclausal EPCs are AGRPs (26):

(24) **Ho visto i bambini non ubbidire alla mamma** (Italian)
I have seen the children not obey to-the mum
‘I saw that the children were not obeying their mum’

(25) **Vedo [TP Luca mangiare sempre [VP Luca mangiare le salsicce]]**
I see [Luca eat always [Luca eat the sausages]]
‘I see Luca always eat sausages’

(26) **Ho visto [AGRSP Paolo rubare]**
I have seen [Paolo steal]

[TP ti [VP ti una macchina]] (Guasti 1993: 120)
[ti [ti a car]]
‘I saw Paolo steal a car’

The tests give the same results for Gardenese EPCs:

(27) **Vëije [TP Luca maian for [VP Luca maian lianies]]** (Gardenese)
I see [Luca eating always [Luca eating sausages]]
‘I see Luca always eat sausages’

The structure of EPCs cannot be a full TP either (nor can it be a CP-Small Clause, as claimed in Rafel (2002)), since it cannot host elements of the higher functional field like modals (28) or high adverbs (Cinque 1999) (28)–(29):

(28) a. *Ho visto Maria poter mangiare* (Italian)
I have seen Maria can eat it

b. *É udù Maria pudan maië* (Gardenese)
I have seen Maria can eat it

(29) *Ho sentito Giulio francamente stonare la tua canzone preferita* (Italian)
I have heard Giulio frankly sing-out-of-tune the your song favorite

Chomsky (2000, 2001) claims that ECM structures always involve a defective T, which has an incomplete set of φ-features and lacks temporal specification. In fact, the tense within ECMs is anaphoric and no independent tense specification is possible:

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20. In my analysis, I avoid to refer to AGRPs for conceptual reasons.

21. It is not possible to test the position of the gerund w.r.t. negation in Gardenese because it has postverbal negation.
The analysis I want to propose first considers the \( \theta \)-marking domain of the two verbs involved: the perception verb \( s \)-selects and thus \( \theta \)-marks the whole non-finite clause as Theme. On the other hand, the logical subject of the embedded verb is merged in its vP, where it gets its \( \theta \)-role. This hypothesis is confirmed by the fact that the logical subject must be compatible with the selectional requirements of the embedded verb, but not of the perception verb:

\[
\begin{align*}
(32) \quad & \text{'I saw the wind rustle the leaves'} \\
& \text{Ho visto il vento muovere le foglie (Italian; Radford 1977: 180)} \\
& \text{I have seen the wind move the leaves}
\end{align*}
\]

\[
\begin{align*}
(33) \quad & \text{'I hear the apples fall in the water'} \\
& \text{Le aude i mëiles tuman tl'ega (Gardenese; Siller-Runggaldier 1997: 315)} \\
& \text{I hear the apples falling in the water}
\end{align*}
\]

\[
\begin{align*}
(34) \quad & \text{Both (32) and (33) show that the logical subject can be an imperceptible object: it is impossible to see the wind or to hear apples. On the other hand, the wind may move leaves, and apples do fall. Conversely, (34) is ungrammatical because the logical subject is incompatible with the \( s \)-selectional requirements of the verb \( \text{ridere} \) ('smile'), although a star can be the object of perception. This confirms that in EPCs we perceive the event as a whole.}
\end{align*}
\]

\[
\begin{align*}
& \text{However, since the embedded T is defective, it is unable to assign nominative and to check the features of the logical subject. Thus, the latter moves to a non-\( \theta \)-marked position of the matrix clause, as proposed in Ciutescu (2013):}
\end{align*}
\]

---

22. In this section I only briefly discuss the overall structure of ECMs, since there is no significant variation between the Rhaeto-romance group and other Romance languages. The considerations presented here are based on Radford’s (1977) insightful data, a fraction of which is reported here.

23. See also Gallego (2009). However, in my opinion in order to explain embedded VS orders (6) we should consider this movement to be optional. Note also that the exact landing site of
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(35) \[ TP_{Luca} \text{ vP}_{Luca} [vP_{Anna} [TP_{Anna} \text{ vP}_{Anna} [vP_{Anna} [TP_{Anna} \text{ vP}_{Anna} [VP_{Luca} vede] [VP_{Anna} vede [TP_{Anna} mangiare] [TP_{Anna} mangiare la mela]]]]]]

The movement of the logical subject is shown in examples like the following:

(36) Paolo i vide Maria, PRO_{i/J} attraversando la strada, inciampare su un grosso sasso (adapted from Radford 1977: 187)

'Paolo saw Maria trip up on a big stone while he/she was crossing the road'

Here, it may be either Paolo or Maria who crosses the street during the matrix event of the perception. If Maria were in the embedded clause, the gerundial clause would be too, and the main subject ‘Paolo’ could not control the PRO subject of the gerund.

4.2 Aspectual differences in the selection of gerunds and infinitives

Having discussed the overall structural properties of perceptive ECMs, I now turn to two cases of variation between Gardenese and the main Romance languages. The first is the verb form used: infinitives in Italian and Spanish, gerunds in Gardenese.

I suggest that this difference is related to aspect. Consider the following contrast in Spanish:

(i) I bambini hanno visto (tutti) Anna (*tutti) mangiare la torta
    'The children have all seen Anna eat the cake'

Moreover, if ‘Anna’ headed a position higher than the external argument position, it would be unclear how the latter could move to Spec,TP and avoid Relativised Minimality effects. Nor is it possible to explain why inanimate and unspecific subjects can move to the matrix clause, since they cannot head the position for animate/specific objects.

24. In my analysis, I maintain the use of PRO, essentially following Landau (2004 and successive work).

25. Note that infinitives are not incompatible with Gardenese ECM structures in general, since they are possible (although with some restrictions) with the causative verb lascé (‘let’):

(i) Lasce-la maië l gelato!
    'Let her eat the ice cream!'
(37) a. Vi el barco atracar en el puerto (#pero, como estalló un huracán, quedó a la deriva)  
I saw the ship dock at the port (but, since blew up a hurricane, it went adrift)

b. Vi el barco atracando en el puerto (pero, como estalló un huracán, quedó a la deriva)  
I saw the ship docking at the port (but, since blew up a hurricane, it went adrift)

‘I saw the ship dock/docking at the port (but it went adrift because a hurricane blew up)’ (Di Tullio 1998: 200 f.)

According to Di Tullio (1998), the infinitival EPC (37a) describes the event as a whole, i.e. from the beginning to the end. Hence, the ship must have completed the docking process, and the second part is incompatible with this utterance. The gerund, on the other hand, points to a single moment during the event (37b). Therefore, it is possible that the ship began the docking process, but then the hurricane blew up before its completion. This contrast entails an aspectual difference between gerunds and infinitives: gerunds carry an imperfective (continuous/progressive), infinitives a perfective aspect.

In Gardenese, as far as the aspectual value is concerned, gerundial ECMs pattern with the Spanish gerundial clauses, although they are structurally different (recall that gerundial clauses are EPCs in Gardenese, but IPCs in Spanish):

(38) É udù Maria passan via la streda.  
I have seen Maria crossing the street.

(Ma la ne ie nia ruveda dal’autra pert ajache la ie (But she neg is not arrived to-the other side because she is ciumpeded a tamez)  
tripped up halfway)

‘I saw Maria cross the street. (But she didn’t reach the other side because she tripped up halfway).’

By comparing (37) and (38) we see that the progressive reading is not intrinsically related to the IPC structure – it is borne by the gerundial verb form itself. Thus, in Gardenese we do not find an aspectual opposition between IPCs and EPCs, because they both express progressive aspect.26 For Spanish, on the other hand, I propose that

26. The aspectual contrast between EPCs and IPCs (ia–b) noted in Fernández Lagunilla (2011: 38, ex. 23) for Spanish is thus absent in Gardenese (iia–b):

(i) a. La vi leer el periódico en cinco minutos (Spanish: EPC)  
her. ACC I saw read the newspaper in five minutes  
‘I saw her read the newspaper in five minutes’

b. *La vi leyendo el periódico en cinco minutos (Spanish: IPC)  
her. ACC I saw reading the newspaper in five minutes
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the aspectual difference is a by-product of the use of infinitives in EPCs, and that the perfective aspect is independent of this construction.

Hence, Gardenese perceptive verbs always and only select progressive complements (gerunds and Pseudo-relatives). For this reason, I propose that they have a [+progressive] feature which they have to check with the defective T of EPCs. In the case of gerunds, the defective gerundial T has a [+progressive] feature, while infinitival Ts do not. In Spanish and Italian, on the other hand, the perceptive verb requires no particular aspectual values of the complement. As a consequence, infinitival clauses are grammatical in these languages, although not in Gardenese. The hypothesis of an aspectual feature on perceptive verbs is compatible with the Borer-Chomsky conjecture, if we follow Rizzi’s (2014) proposal for epistemic verbs in Romance and English: perception verbs can be thought of as a class with a functional v_{perc}, whose featural specification [+progressive] in Gardenese is responsible for their c-selectional properties. Hence, the selection of gerunds is not done by single lexical items, but by an entire verb class.

4.3 The null subject of EPCs

As already mentioned before, the analysis of perception verbs in Gardenese also gives us some useful hints for the analysis of perceptive constructions in Romance generally. In the case of EPCs, Gardenese helps us to shed light on the nature of null subjects in EPCs. According to Guasti (1993), in Italian and Spanish the infinitival AGRS can formally license an arbitrary pro in subject position, as its finite counterpart:

\[
(39) \text{Ho visto [pro}_{arb} \text{ rubare dei libri] PRO nascondendoli sotto} \\
\text{I have seen [pro}_{arb} \text{ steal some books] PRO hiding-them under} \\
\text{il cappotto} \\
\text{the coat} \\
\text{‘I saw that some books were stolen by hiding them under the coat’} \\
\text{(Guasti 1993: 126, ex. 53)}
\]

(ii) a. \text{L é udú maian ora la jopa} \\
\text{him.acc I have seen eating up the soup} \\
\text{te cin menuc} \\
\text{in five minutes} \\
\text{(Gardenese: EPC)}

b. \text{L é udú che l maiova ora la jopa te} \\
\text{him.acc I have seen that ate up the soup in} \\
\text{cin menuc} \\
\text{five minutes} \\
\text{‘I saw him eat up the soup in five minutes’} \\
\text{(Gardenese: IPC)}

27. In fact, the aspectual readings of EPCs and IPCs appear to vary from language to language. In Italian, for example, there is an aspectual contrast even within EPCs: biclausal ECMs carry an imperfective value, monoclausal FIs a perfective value (although both constructions are formed with an infinitive), see Lepschy (1976).
In (39), Guasti posits that the null subject is an arbitrary pro, since it is in an argument position. One piece of evidence for Guasti's hypothesis that null subjects in ECMs are pros comes from the fact that sentences of this type are only grammatical in null subject languages, like Italian and Spanish, while they are ruled out in French, where silent subject pronouns do not generally occur. This proposal predicts that even in other languages which require the phonological realisation of arbitrary subjects, examples like (39) are ungrammatical. However, Gardenese constitutes a counter-argument to this: 28

(40) Chësc instà é-i audi PROarb se lamentan truep
    this summer have-I heard PROarb himself complaining much
    per via del burt tèmp
    because of-the bad weather

    'This summer I have heard many people complain about the bad weather'

In the variety of Gardenese analysed here, expletive and arbitrary subjects always have to be expressed in finite clauses (see Footnote 18). Its inventory therefore contains no PROarb. Nevertheless, sentences like (40) are perfectly grammatical – an unexpected fact, if we accept Guasti’s claim that the null subject is pro. On the other hand, if we posit that ECM null subjects are arbitrary PROs in all three languages, we can also account for the Gardenese data. 29 This claim is further confirmed by a test used in Rigau (1995) for determining the nature of the null subjects of personal infinitives. As she notes, reflexive pronouns bound by uncontrolled PROs are always third person, while they can also be first or second person in the case of pro:

(41) [penedir-se/*-mei PROi dels pecats] és difícil (Catalan)
    [repent-self3rd.sg/pl/*1st sg. PRO of-the sins] is difficult
    'Repenting of one's sins is difficult'
    (adapted from Rigau 1995: 175, ex. 11c-d)

(42) Al desmayar-se/*-mei proi, empezaron a chillar (Spanish)
    at-the wake.up-self3rd.sg/pl/1st.sg. pro, they.started to scream
    'When he/I waked up, they started screaming'
    (adapted from Rigau 1995: 176, ex. 13a)

If we apply this test to ECMs, we observe that the null subject behaves like the PRO in (41), i.e. it only permits third person reflexive clitics, in all three languages:

28. Note that the example (40) cannot be an instance of FP with the optional by-phrase missing, because reflexive se can never be expressed in FPs (Salvi & Skytte 1991).

29. The alternative claim that even in Gardenese EPCs (40) the null subject is pro would be highly unconvincing, because we would have to explain why Gardenese only uses these null subjects in ECMs and never in finite clauses.
(43) a. Non ho mai visto difendere se/*te stesso/*voi stessi
cosi abilmente
I have never seen someone defend himself so skilfully’
(adapted from Guasti 1993: 123)

b. En ciertos países, Juan ha visto afeitar-se/*-me/*-te
con cristales
‘In some countries, Juan saw people shave with glass sheets’
(Fernández Lagunilla & de Dios López 1991: 230 ex. 32b)

c. Chësc instà é-i audi se/*te/*ve lamentan
truep per via del burt temp
‘This summer I have heard many people complain about the bad weather’

In conclusion, this comparison with Gardenese offers us important evidence for the need to revise the current hypotheses on null subjects in ECM, proposing a unitary account for Italian, Spanish and Rhaeto-romance.

30. The use of expletive vs. quasi-argumental null subjects is different – the former, in fact, are only grammatical in null subject languages, since the majority of my Gardenese informants do not accept this kind of sentence:

(i) a. Ho visto venir distrutte
‘I saw many cars be destroyed’

b. *Me vëije l cërf unian ciacià dal iagher (Gardenese)
‘I see the deer being hunted by-the hunter’

On the other hand, quasi-argumental null subjects are also possible in a complete non-NSL like French (unlike in English):

(ii) Je vois pleuvoir
‘I see it rain’
5. **An analysis of faire-inf and faire-par constructions**

As we have seen, Spanish and Italian allow the use of FIs and FPs with perception verbs, while in Gardenese only perceptive FPs are grammatical.\(^{31}\) Both constructions have traditionally been considered monoclausal (i.e., there are no clausal boundaries between the two verbal domains), as first proposed in Kayne (1975). This interpretation presupposes that there are two verbs *fare* (‘do/make’), a semi-functional one (see Cinque 2006 a.o.),\(^{32}\) and a lexical one (an ‘ordinary’ transitive verb). This analysis of causative verbs has usually been extended to Romance perception verbs: they are considered lexical when selecting a nominal or clausal direct object (DPs or pronouns, ECMs, IPCs), semi-functional when they are used in FIs and FPs.

One crucial question about FPs concerns the use of agentive PPs, which are subject to some idiosyncratic restriction. Both Guasti (1993) and Folli and Harley (2007) show that traditional accounts, which considered the infinitive of FPs to be a passivised form, failed to predict the contexts in which the agentive PP was, or was not, grammatical, as the following examples show:

(44) *La verità è stata detta solo da Ugo* (Italian; Guasti 1993: 106)

> The truth has been told only by Ugo

> ‘Only Ugo has told the truth’

(45) *Maria ha fatto dire la verità da Ugo* (Guasti 1993: 104)

> Maria has made tell the truth by Ugo

The verb *dire* (‘say’) can be passivised in Italian (44). However, in (45) it is impossible to insert it into an FP, contrary to expectations. For these reasons, both papers argue that in FPs infinitives are nominalised rather than passivised. Thus, the structure of FPs resembles that of ordinary clauses, where *fare* selects a nominal object (47):

---

\(^{31}\) Note that the structure of FIs is not *per se* ungrammatical in Gardenese, because FIs are used with causative verbs. In causative constructions (both FIs and FPs), Gardenese, too, uses infinitives rather than gerunds:

(i) *Paul ti l fej cianté*  
Paul him.DAT it.ACC makes sing  
‘Paul makes him sing it’

\(^{32}\) Causative verbs are analysed as ‘semi-functional’ because they share some properties with functional verbs: they give rise to monoclausal restructuring and are merged in the functional layer (Cinque 2006). However, unlike functional verbs – though like lexical verbs – they add an argument (the matrix subject) to the argumental structure of the embedded verb.
(46) Gianni ha fatto \[_{VPNom} \; \text{riparare} \; \text{la macchina} \; \text{da Mario} \]
    Gianni has made repair the car by Mario
    ‘Gianni got the car repaired by Mario’

(adapted from Folli & Harley 2007: 224)

(47) Mario ha fatto \[_{DP} \; \text{la pasta} \]
    Mario has made the pasta
    ‘Mario made pasta’

Folli & Harley conclude that causative verbs are semi-functional only when they are
used in FIs, while in FPs they are an instance of the lexical *fare*.33

This approach allows us to shed light on the Gardenese data, since it enables us
to explain the split between ungrammatical FIs and grammatical FPs. This split is, in
fact, rather unexpected, if we consider both constructions to be monoclausal. On the
other hand, if we hold that FPs are only formed with lexical – not semi-functional –
perceptive verbs, like ECMs, this split becomes no more than a simple inventory differ-
ence: Italian and Spanish have both lexical and semi-functional perceptive verbs, while
Gardenese lacks the latter. Since perceptive verbs in Gardenese are always lexical, they
can be used in ECMs and FPs, but not in FIs. Further evidence for this claim comes
from the selection of gerunds in FPs: since the perceptive verb has the same nature as
in ECMs, it also has the same c-selectional requirements: i.e., it has to check a \[+\text{pro-
gressive}\] feature.34

6. The analysis of IPCs in Spanish and Gardenese

In the previous sections I dealt with EPCs, accounting for the differences between
Italian/Spanish vs. Gardenese using two parameters: the presence or absence of a
\[+\text{progressive}\] feature on perception verbs, and the lack of semi-functional percep-
tion verbs in the Gardenese inventory. In this section I tackle the second main issue
concerning the ungrammaticality of gerunds in Gardenese IPCs. In order to approach
this topic, however, it is first necessary to discuss the overall status of non-finite clauses
with overt subjects in Romance.

33. In this respect, they differ from Guasti (1993), who nevertheless considers FPs to be
incorporations.

34. However, Folli & Harley’s analysis faces a problem when we extend it to Gardenese: in
this variety gerunds can never be nominalised (unlike in languages like English). Thus, the
presence of a gerund in a nominalised VP is unexpected and requires further investigation.
6.1 Non-finite Ts with nominative subjects in Romance

In Romance, adverbial gerundial clauses usually have a PRO subject, which is coindexed either with the syntactic or with the “thematic” (i.e., logical) subject of the matrix clause (48)–(49); in other cases the null subject may be arbitrary (50), see Lonzi (1988), Fernández Lagunilla (1999):

(48) María llegó cojeando   (Spanish)
    María arrived limping
    ‘Maria arrived, limping’

(49) A Luis le sobrevino el infarto estando cenando
    to Luis him.dat overcame the infarction being having-dinner
    en casa
    at home
    ‘Luis had a heart attack while he was having dinner at home’
    (Fernández Lagunilla 1999: 3465 f.)

(50) Aun cantándoles una nana, los niños
    even singing-them.dat a lullaby, the children
    no se durmieron
    not fell-asleep
    ‘Even if I/you/he/she… sang them a lullaby, the children did not fell asleep’

However, there are two cases where the subject of the gerund occurs overtly: the first is that of predicative gerunds, which I will discuss later. The second case, on which I will focus first, involves the so-called absolute gerund: an adverbial gerundial clause preceding the matrix sentence and working as a sentence modifier. In this case, the subject has nominative case and is not coindexed with any element of the matrix clause:

(51) Estando María regando las plantas, sucedió el accidente
    being María pouring the plants, happened the accident
    ‘While Maria was pouring the plants, there happened the accident’
    (Fernández Lagunilla 1999: 3466)

(52) Estando yo/*mi regando las plantas, sucedió el accidente
    being I/me pouring the plants, happened the accident
    ‘While I was pouring the plants, there happened the accident’

As noted in Rizzi (1982), in this case the gerund has to precede its subject. Rizzi’s original hypothesis was that in non-finite clauses nominative could only be assigned if the gerund (and thus the gerundial INFL) moved to CP, since the gerundial INFL is non-finite (and therefore does not itself assign case).
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Since then, various proposals have attempted to account for this nominative case assignment. Sitaridou (2002 and successive work) claims that in Modern Greek the nominative subject of the gerund checks its case due to a weak [+Tense] feature of the gerundial T, as shown by the presence of time adverbials within the gerundial clause. The following examples show that gerundial Ts have tense in Spanish as well:

(53) Llegando Pablo mañana, este fin de semana podríamos salir juntos
going Pablo tomorrow, this weekend we could go.out together

‘Since/if Pablo arrives tomorrow, this weekend we could go out together’

(54) Luis vivió en Sevilla dos años, marchándose después a Granada

‘Luis lived in Sevilla two years, moving then to Granada’

In (53), the presence of a [+Tense] feature is confirmed by the temporal adverb ayer (‘yesterday’). On the other hand, (54) is an example of a so-called gerundio de posterioridad (‘posteriority gerund’), which is considered normatively incorrect, where the gerundial clause expresses an event that happens after the matrix event.

Unlike Sitaridou, I propose that the [+Tense] feature alone is not able to assign nominative and that gerunds also have an abstract [+Agr] feature, which plays a fundamental role in this respect. A comparison with Romance personal infinitives (Fernández Lagunilla 1987; Rigau 1995; Ledgeway 2000; Mensching 2000; Sitaridou 2002 a.o.) provides evidence for my proposal: personal infinitives and absolute gerunds both have an overt subject in the nominative, their use is attested in Spanish and various Northern and Southern Italian varieties (55a–c), but not in Standard Italian or French (55d), and personal infinitives are used as adjuncts and subjects, but not as complements (i.e. in NOC contexts, Ledgeway 2000: 125):

35. The fact that non-inflected verb forms can have abstract Agreement or weak Tense is not surprising, when we consider the cases of inflected infinitives, gerunds and past participles in Old Neapolitan discussed in Vincent (1998). In fact, he shows that finiteness should be kept separate from Agreement, Tense and nominative assignment. Thus, finiteness can be conceived of as a gradient, as shown in Ledgeway (1998).

36. Note that Standard Italian only has Aux-to-Comp structures: unlike personal infinitives, they are heavily restricted: only auxiliaries, copular and a few modal verbs can enter these structures. Furthermore Aux-to-Comps have a different syntactic role, since they can only be used as complements (see Rizzi 1982).

37. The Calabrian example comes from the village of San Fili (province of Cosenza), Cuneo’s (1997) Ligurian example from Cicagna (province of Genoa) and is taken from Ledgeway (2000: 119).
(55) a. [Antes de actuar \text{inf} \text{Caballé}, el público \text{estaba}\text{\:}\text{expectante} (Spanish; Rigau 1995: 173)

‘Before Caballé started performing, the audience was expectant’

b. ‘U purcile avia ri sciﬁ vasci [\text{pi ci mangià i gallini e ri puorci}] (Calabrian)

‘The troughs in the pigsty were low enough for the hens and the pigs to eat from them’ (Ledgeway 2000: 118)

c. L’à \text{fatu} \text{tútu} [\text{sènsa sailu e -it the sò’ gènte}] (Ligurian; Cuneo 1997: 106)

‘he did everything without his parents knowing’

d. *\text{Ha fatto tutto he.has done everything [senza saperlo i suoi genitori]} \text{\:}\text{without know.inf-it his parents} (Standard Italian)

As in the case of absolute gerunds, attempts to account for the occurrence of a nominative subject in this context refer either to the presence of an abstract [+Agr] feature (Rigau 1995) or to the presence of a weak [+Tense] feature (Ledgeway 2000; Sitaridou 2002). However, since Standard Italian infinitives share the same Tense properties with Spanish and with the dialects included in (55b–c), the latter hypotheses incorrectly predict that nominative subjects will also be grammatical in this language.

The Tense feature alone cannot therefore allow for nominative case checking. Considering the evidence discussed in Ledgeway and Sitaridou, I propose that the checking depends on the interplay of both the abstract [+Agr] and the weak [+Tense] feature. Standard Italian infinitives have the features [+Tense] and [\text{\:-}\text{Agr}], and thus nominative

38. Sentences with personal infinitives have been attested in some substandard Italian varieties (Cuneo 1997, Vincent 1998), although they are undoubtedly ungrammatical in Standard Italian. As far as my regional variety is concerned (Trentino-Alto Adige), both I and other speakers I have consulted judge this sentence to be completely ungrammatical.

39. A similar claim is made in Bianchi (2000) for gerundial and infinitival Aux-to-Comp constructions, where it is proposed that non-finite clauses can only assign nominative if their [\text{\:-}\text{Fin}] encodes the Speech time.
subjects are ruled out. While case checking depends on the positive value of both features, the weak [+Tense] feature seems to be responsible for V-to-C movement, since the verb either needs to determine its tense through an operator (Rigau 1995) or to form a T-chain with an operator or with the matrix verb, as proposed in Ledgeway (2000).

6.2 Predicative gerunds

Romance gerunds can also occur with an overt subject. However, they differ from absolute gerunds in two respects: first, predicative gerunds are used as predicates of Small Clauses (‘SCs’). Second, their logical subject has a different status and does not check nominative. Let’s discuss them in more detail.

It has been stated in the literature that predicative gerundial clauses enter two or three structures (Di Tullio 1998; Rafel 2000; Casalicchio 2013). Simplifying these accounts, the instances can be divided between those in which the logical subject of the gerund is part of the SC (56) and those in which it is merged in the matrix clause, controlling a PRO in the SC (57):  

(56) Veo [SC a Juan comiendo]   I.see to Juan eating  ‘I see Juan eating’

(57) Veo a Juan [SC PRO_i comiendo]  I.see to Juan eating

40. There is more evidence against the nominative case checking of the [+Tense] feature in the Gardenese data, which I will discuss infra (§ 6.3.).

41. I refer the interested reader to the papers cited for a deeper analysis of the properties of predicative gerunds.

42. Some contexts are compatible with both structures (e.g. perceptive constructions), while in others only one of the two is possible, as the tests in (i–ii) show: in the (a) examples the cliticisation is a diagnostic for the position of the logical subject in the matrix clause (57), while in the (b) examples the pseudo-cleft tests whether the logical subject is within the gerundial clause (56):

(i) a. Lo_i veo t_i [jugando]  (Perceptive verbs)
   him.cl I.see playing  ‘I see him playing’
   b. Lo_i que veo es [a Pablo jugando]_i
      it that I.see is [to Pablo playing]
      ‘What I see is Pablo playing’

(ii) a. *No lo_i soporto t_i [fumando en casa]  (Verbs of the soportar-class)
     not him.cl I.stand smoking at home
     b. Lo_i que no soporto es [a Pablo fumando en casa]_i
        it that not I.stand is [to Pablo smoking at home]
        ‘What I can’t stand is Pablo smoking at home’
In (56), the logical subject is s-selected and θ-marked by the gerundial verb, and the entire SC is the complement of the perception verb (in a similar fashion to ECMs). In (57), in contrast, the logical subject is θ-marked by the matrix verb, but it must meet the selectional requirements of both the matrix and the embedded verb, since it is coindexed with a null subject in the Small Clause (unlike in ECM constructions, § 4.).

This discussion focuses mainly on the structure (56).

The second difference with absolute gerunds concerns the status of the subject. We have already seen that in IPCs it is always in the preverbal position (cf. (13), repeated here, with (6)):

(13) a. *Veo llegando (a) Ana
   I.see coming (to) Ana

   b. *Veo telefoneando (a) Ana
      I.see phoning (to) Ana

This means that in the case of predicative gerunds, there is no V-to-C movement (provided that the IPCs have a CP). I propose that this fact correlates with a [-Tense] feature of predicative gerunds, since their tense is always anaphoric (i.e., simultaneous to the matrix event):\(^{43}\)

(58) a. *Ayer vi a Juan comiendo ahora/mañana/después
   yesterday I.saw to Juan eating now/tomorrow/later

   b. *Mañana veré a Juan comiendo ayer/ahora/antes
      tomorrow I.will.see to Juan eating yesterday/now/before

Moreover, logical subjects of predicative gerunds do not check nominative case with the embedded T; in fact, their case always appears to be determined by the matrix clause:

(59) Pablo me vio a mí comiendo / *Pablo (me) vio (a)
    Pablo me saw to me.acc eating Pablo (me) saw (to)
    yo comiendo
    I.nom eating

   'Pablo saw me eating'

On the other hand, I suggest that predicative gerunds have an abstract [+Agr] feature too, which is crucial for the overt realisation of the embedded subject. This proposal is supported by an analysis of the diachronic evolution of predicative gerunds in Romance:

\(^{43}\) An alternative view would be to say that predicative gerunds move to a head C\(^0\), while their subject moves to the corresponding Spec position. This configuration would be a welcome parallel to the analyses which I have proposed for Pseudo-relative clauses in Casalicchio (in press). However, more research is needed to fully answer this question.
they have replaced the present participle, which was used in secondary predication in Classical Latin and was inflected for case, gender and number (Škerlj 1926):

(60) Video Marcum canentem
I.see Marcus.ACC sing.PRT.ACC.M.SG
‘I see Marcus singing’

Furthermore, gerunds alternate with Pseudo-relative clauses, a similar predicative construction formed with a finite verb, which is fully inflected:

(61) Veo a María que come/está comiendo
I.see to María that eats/is eating
‘I see Maria eating’

A further piece of evidence comes from participial and adjectival SCs, which also show agreement:

(62) Vi a Elena sentada/*sentado en el banco
I.saw to Elena sat.down.PRT.SG.F/*M. on the bench
‘I saw Elena sat on the bench’

(63) Veo a los niños cansados/*cansado
I.see to the children tired.M.PL./*SG.
‘I see the children tired’

In the examples (62)–(63), the secondary predicate is an adjectival element and thus shows nominal agreement with its subject.

In addition, in Spanish gerunds can be used as gerundios adjectivos, which correspond to present participles. The normative grammars (e.g. Bello 1847; Gili Gaya 1951; Sáenz 1953; see also Gutiérrez Araus 1992 on this topic) only permit this use for the three gerunds hirviendo (‘boiling’), colgando (‘hanging’) and ardiendo (‘burning’), although their use is much more widespread in everyday speech:

(64) Se quemó con agua hirviendo
himself he.burned with water boiling
‘He burned himself with boiling water’

44. Moro (1995) has argued that there is no agreement in SCs, citing examples like the following:

(i) Gianni ritiene [sc loro la causa]
Gianni considers [them the cause]
‘Gianni considers them the cause’

In this case, the subject of the SC is a plural pronoun, while the predicate is a singular noun. However, I think that such examples are due to an idiosyncratic property of nominal predicates, since agreement is obligatory with other categories like adjectives and participles.
This use, which resembles that of present participles, confirms that gerunds can have a [+Agr] feature.45

Finally, the most convincing piece of evidence comes probably from some rural dialects of Puerto Rico and Costa Rica, where we find gerunds with morphologically overt gender agreement, as attested by Kany (1970):46

(66) La mujer está muriendase (Puerto Rican Spanish; Kany 1970: 25)
the woman is dying
Fem.-SE
'The woman is dying'

(67) Es que la muy bandida s'está hacienda
it.is that the great rascal is doing
la tonta (Costa Rican Spanish; ibid.)47
the stupid
'It's that this great rascal is acting the fool'

In Romance, gerunds are generally uninflected; however, the existence of examples such as (66) attests that agreement is always present at an abstract level, even though it is morphologically expressed only in a few varieties.

45. The question as to why predicative and adjectival gerunds are ungrammatical in Italian (which also has [+Agr] gerunds) then arises. I think that a number of causes come into play: first, Italian present participles are still productive (although they are stylistically marked). Moreover, in predicative constructions Italian has replaced predicative gerunds with prepositional infinitives, as has European Portuguese (10f). However, their use is more restricted, because in Standard Italian infinitives are [−Agr], unlike gerunds (see supra, §6.1). For this reason, they are usually only possible when the logical subject is merged in the matrix clause (57), like in the sorprendere-class:

(i) Ho sorpreso Paolo a rubare
I. have caught Paolo to steal
'I caught Paolo stealing'

46. It is not clear what the trigger for agreement is here. According to Kany (1970: 25), the gerund can agree with a clitic pronoun. However, all his examples could also be interpreted as instances of agreement with the subject.

47. This quotation is taken by Kany from Carlos Luis Fallas’ novel Gentes y gentecillas (1947).
In conclusion, there are several arguments in favour of a [+Agr] feature in SCs, whereas there are no instances of independent or dependent Tense (in Landau’s 2004 sense).

6.3 The ungrammaticality of gerunds in Gardenese IPCs

Let us now consider Gardenese. Notice that a weak non-finite [+tense] feature is also present on gerunds and infinitives in this language (68)–(69):

(68) PRO\_i Passan via la streda inier, ie PRO crossing the street yesterday, is Maria\_i ciumpededa Maria tripped-up

‘While she was crossing the street yesterday, Maria tripped up’

(69) PRO\_i A passé via la streda inier, ie Maria\_i ciumpededa

PRO to cross.INF the street yesterday, is Maria tripped-up

‘While she was crossing the street yesterday, Maria tripped up (= (68))’

In this respect, Gardenese does not differ from languages like Spanish. However, overt subjects are ruled out with both absolute gerunds (70) and personal infinitives (71):

(70) *Ulan Anna maië n gelato, sons jic a Urtijëi wanting (Anna) eat an ice-cream, are-we gone to Ortisei (locality)

(71) *Dan da rué sun palch i U2, àl sunà na tel before than arrive.INF on.the stage the U2, has played a certain grupa de London band of London

These examples are doubly interesting: first of all, they confirm the fact that a [+Tense] feature alone is not enough to enable nominative case-checking, as I argued in § 6.1. Second, we have to posit that either of these non-finite forms has a [+Agr] feature, which would be necessary to make examples such as (70) and (71) grammatical.

This proposal predicts that predicative gerunds are also ruled out, since they have to be [+Agr] (while the Tense feature is unimportant here), as suggested in § 6.2. And this is exactly what we find, as already seen in (23):

(23) *É abinà l lere jan ite dal têt I.have found the thief going in by-the roof

Thus, in this case the difference between Spanish and Gardenese again concerns the featural make-up of a functional element. While in EPCs it was the [+progressive]
feature on the Gardenese $v_{perc}$ in IPCs it is the abstract [+Agr] feature, which is present in Spanish gerunds (and infinitives) but absent in Gardenese.

Table 3 summarises the status of the Tense and Agreement features in the languages described.48

Table 3. The Agreement and Tense features in gerunds and infinitives of some Romance varieties

<table>
<thead>
<tr>
<th></th>
<th>Spanish</th>
<th>Calabrese and Ligurian</th>
<th>Standard Italian</th>
<th>Gardenese</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gerunds</td>
<td>+Agr/+T</td>
<td>−Agr/−T$^{49}$</td>
<td>+Agr/+T</td>
<td>−Agr/+T</td>
</tr>
<tr>
<td>Infinitives</td>
<td>+Agr/+T</td>
<td>+Agr/+T</td>
<td>−Agr/+T</td>
<td>−Agr/+T</td>
</tr>
</tbody>
</table>

7. Conclusions

An approach in terms of parameters à la Rizzi (2014) allows us to account for the differences found between Spanish and Gardenese gerunds. More precisely, I have suggested that the interplay of three parameters produces the different outcomes found in these two languages: Gardenese is characterised by the presence of a [+progressive] feature on perception verbs, by the unavailability of functional perception verbs and by the absence of abstract Agreement on gerunds. Spanish has the opposite pattern. This approach predicts that some languages will show 'mixed' behaviour, either permitting gerunds in both EPCs and IPCs or ruling them out in both contexts.50

48. Note that in Romance there is an implicational scale in the featural make-up of non-finite forms:

   (i) If non-finite forms have an abstract [+Agr] feature in a variety, they also have a weak [+Tense] feature, while the opposite is not always the case.

If we do not consider inflected infinitives as non-finite forms, this generalisation also seems to hold beyond Romance, as the data presented in Landau (2004:869) show. Moreover, the hierarchy Agr > Tense is mirrored in the ordering of subject-oriented functional projections above tense projections in the TP (Cinque 1999, 2006), and it is also reminiscent of the higher position of the AgrSP w.r.t. the TP in the GB framework.

49. In Calabrese, gerunds cannot be used in absolute or predicative constructions, since they are only used in periphrastic constructions with aspceptual verbs like be and go (Adam Ledgeway, p.c.).

50. I do not consider the third feature (namely the availability of semi-functional perception verbs) here, because further research is needed to find languages that instantiate all six of the patterns that emerge.
Sardinian is an example of a language with both the [+progressive] feature on perception verbs and agreeing gerunds. This is shown by the fact that gerunds are not only grammatical in ECMs (while infinitives are not), but also in secondary predication:

(72) Appu biu a Giorgiu pappendisia/*si pappai
    I have seen to Giorgio eating-self/*self eat.\textsc{in}\textsc{f}
    sa mella
    the apple
    'I saw Giorgio eat/eating the apple'

(73) Su ca(n)i e(sti) innia aspettendi po bessi
    the dog is inside waiting for go.out
    'The dog is inside, waiting to go out'

In contrast, Veneto dialects, which belong to the Northern Italian group, lack both features, and therefore have [−progressive] perception verbs and [−Agr] gerunds:

(74) Go visto Giorgio magnare/*magnando
    I have seen Giorgio eat.\textsc{in}\textsc{f}/*eating
    el pomo
    the apple
    'I saw Giorgio eat the apple'

(75) *A Gina (a) ze in cesa parlando col prete
    the Gina (\textsc{subj.cl}) is in church speaking with-the priest

The prediction that two different parameters are playing a role in the use of perceptive gerunds is thus confirmed. The results are summarised in Table 4:

<table>
<thead>
<tr>
<th></th>
<th>[+progressive] $v_{\text{perc}}$</th>
<th>[−progressive] $v_{\text{perc}}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>[+Agr] gerunds</td>
<td>Sardinian</td>
<td>Spanish</td>
</tr>
<tr>
<td>[−Agr] gerunds</td>
<td>Gardenese</td>
<td>Venetian</td>
</tr>
</tbody>
</table>

As shown by these examples, the presence of gerunds in EPCs and in IPCs is the result of two different parameters. Both parameters, and the third (the availability of semi-functional perception verbs) belong to the merge parameters described in Rizzi's
(2014) typology of parameters: merge parameters are related to c-selection and agreement, as in our case.\textsuperscript{51}

This analysis of the distribution of gerunds in perceptive constructions shows that the notion of parameters is valid, but that the focus should be on their interplay: only closely related varieties and a detailed analysis of micro-variating phenomena allows us to fully recognise the importance of a parametric approach to syntactic analysis.

References


\textsuperscript{51} Within a parameter hierarchy approach, the three parameters can all be conceived of as microparameters, since they are restricted to a lexically definable subclass (\(v\)\textsubscript{perc} in the case of the [± progressive] feature and of the presence of functional perception verbs in the inventory of a language, [+gerunds] in the case of the feature [± Agr]), see Biberauer et al. (2014).
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Adverb and participle agreement
For a parameter hierarchy in Italo-Romance microvariation

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This paper discusses the reality of adverb agreement in Italo-Romance and takes into account newly acquired data from non-standard varieties. In southern Italian dialects manner adverbs are not morphologically distinguished from adjectives and, in certain varieties (Cruschina 2010; Ledgeway 2011), may agree with a referring nominal. In north-western Calabrian dialects the adverbs agree with transitive objects and unaccusative subjects (Patients/Undergoers), therefore revealing a split of ergative type (Ledgeway-Silvestri in press). Moreover, in the same varieties the adverb agreement superficially interacts with the past participle agreement, which normally displays alternative patterns depending on the morpho-lexical makeup of the participle (± metaphonic). These facts can be set in parametric choices and taxonomically ordered in hierarchies.

Keywords: adverbs; participle agreement; Italo-Romance; parameter hierarchies; micro-variation

1. Introduction

In this contribution I will present fresh data from some dialects of northern Calabria which support the reality of adverb agreement and provide direct evidence for the syntactic configurations underlying the specific agreement patterns. In particular, I will show how in/transitive configurations of the verb and the accompanying roles of its arguments offer the interpretive key of the patterns of agreeing adverbs. The evidence provided by the dialects of the so-called ‘Lausberg Area’ (northern Calabria and southern Basilicata) will play a fundamental role in the discussion, with the additional effect of shedding light also on certain morpho-syntactic characteristics which the previous specific literature, mostly centred on phono-morphological issues, did not explore.

After revising the recent findings about the available agreement patterns in Romance (§2), I will descriptively illustrate the crucial empirical evidence (§3); the
descriptive section will be followed by the issue of past participle agreement interacting with the adverb agreement (§4). I will finally provide an outline of a syntactic interpretation of these facts which eventually will result in an attempt to parametrise the existing patterns in a hierarchy (§5).

It is quite intuitive that adjectives and adverbs show a high degree of similarity in terms of morphosyntactic distribution and modification properties, coupled with the affinity in the derivational morphology. Notably, other than the morphological process for which cross-linguistically adverbs are productively derived from adjectives with the insertion of a suffix (e.g. -mente and allomorphs for most Romance, veloce > velocemente (It); -ly for English, bad > badly; -a for Greek, grígoros > grígora), adverbs and adjectives represent two extremely close grammatical categories in some other respects, so that a supposed adjectives-adverbs super-category is the core inquiry of a number of recent specialised studies.

In terms of distribution, adverbs and adjectives display different morphosyntactic behaviour only regarding the category they modify, i.e. verbs and nouns, respectively. Nevertheless, easily accessible evidence proves that the points of similarities between adverbs and adjectives are quantitatively and qualitatively more significant. In particular, both adverbs and predicative adjectives can take complements (Alexiadou 1997). Furthermore, it has been noted that the placement of adverbs in clauses (Jackendoff 1972; Cinque 1999) corresponds to interpretative strategies of adjectives modifying event nominals (Crisma 1996; Cinque 2010).

Two further points of contact between adverbs and adjectives prove quite fundamental for this contribution, i.e. the evidence that in some languages no morphological mark distinguishes the two categories (e.g. Dutch, German, Romanian, southern Italian dialects) and, more crucially, that in Romance, manner adverbs may exhibit agreement with an associated nominal (Zagona 1990; Ledgeway 2000, 2003, 2011; Cruschina 2010; Hummel 2014). This fact and its formal interpretation might play a crucial role in formulating the principles of an alleged adjectives-adverbs super-category. In particular, the evidence discussed here challenges the impossibility for adverbs to agree in number, gender or case with a referring nominal is not to be accounted as a key property to distinguish the verb modifiers from adjectives (Alexiadou 1997: 200).

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1. I use this label to denote the total set of several morpho-syntactic features that manner adjectives and adverbs have in common. This basic idea could be pushed further to say that the adjectival adverbs discussed in this paper actually witness a proper distinct category (a sort of trans-category) that adverbs showing adjectival properties belong to. Some specialised literature (Hummel 2014 and other publications of the 'Interfaces of adjective and adverb in Romance' research group of the University of Graz) refers to an adjective-adverb interface, i.e. a term adopted to generally indicate a context in which two or more independent phenomena interact.
2. **Status quaestionis in Romance**

The assessment of significant evidence from Italian varieties can benefit from the previous discussions on the same adjectival and adverbial properties across Romance. Namely, wide crosslinguistic evidence from standard and non-standard Romance varieties enhances the empirical observations on affinity between adverbial and adjectival categories and their structural correspondences. Romance varieties provide robust evidence suggesting that the morphosyntactic and formal properties exhibited by adverbs involve the nature of adjectives to a large extent, not only in terms of morphological derivation, but also crucially for the possibility for verb modifiers to agree in gender and number with a nominal, functioning as a verb argument.

As for the diachronic perspective, Hummel (2014, in press) broadened the investigation by including several Romance varieties. Based on a close examination of the context of usage between oral and written traditions, he identifies two morphosyntactic types of manner adverbs, both derivationally originated from adjectives and conveying a common attributive (ATT) function, as both express a manner type of adjectives/adverbs: Type A, which uses the unmarked singular form of the adjective corresponding to the masculine singular in Romance, and Type B, formed from the lexical basis of the adjective with the dedicated suffix *-mente* and its Romance allomorphs. Romance examples with masculine singular morphology is shown in (1):

   b. *Les hommes travaillent dur.* [Fr]
   c. *Oamenii lucrează greu* [Rum]
   d. *Sos omine trabagliana folte* [Srd]

   the men work hard
   ‘The men work hard’

In Hummel’s (2014) analysis, the evidence that modern Romanian, Sardinian and the southern Italian dialects use Type A can be explained by the continuance of the spoken Latin tradition and the exclusion from the early implementation of a written norm,\(^2\) as conversely was the case of French, Portuguese, Spanish and (to a lesser extent) Italian.

2.1 Adverbs in southern Italian dialects

In modern dialects of southern Italy (SIDs), in particular south of the isogloss Gaeta-Rieti-Teramo indicated by Rohlfs (1969:243–5), manner adverbs form a syncetic

\(^2\) An anonymous reviewer opportunely pointed out that a written (or at least sovralocal) norm seems to have influenced also the courtly variety in Sicily (i.e. “siciliano illustre”), which displays several instances of adverbs in *-mente* (cf. Cruschina 2010).
class with adjectives, except for a list of lexicalised forms belonging not exclusively to the manner class (e.g. *sulamente*, *veramente*, *appos(i)tamente*...).

Recently it was noted that adverbs of the syncretic type present productive patterns of morphological agreement with a referring nominal. In particular, Ledgeway (2010, 2011, in press) and Cruschina (2010) provided direct evidence of a robust adverbial agreement in several southern Italian varieties and among Sicilian dialects, respectively.

In the next section, fresh relevant data newly collected from a handful of SIDs of north-western Calabria will be discussed and analysed in the light of the generalisations advanced in Ledgeway (2011), i.e. that the agreement patterns found among SIDs undergo specific syntactic constraints, which ultimately manifest structural and semantic configurations correlating with the role undertaken by the verb arguments involved, i.e. active-stative and ergative-absolutive split. Notably, the structural conditions that trigger the adverbial agreement patterns relate with the requirements driving the past participle agreement in Romance. Ledgeway (2011) shows that the adverbial agreement functions as a signal of the phenomenon of split intransitivity, which is otherwise obscured in most of the dialects due to the phonetic erosion in schwa of final unstressed vowels. Especially participial agreement and auxiliary selection (Loporcaro 1998, in press; Bentley 2006), both being the revealing signals of the different behaviour of unergative versus unaccusative across Romance, are blurred.

2.2 Adjectival adverbs, adverbial adjectives

A reflection of the modifiers under analysis raises a question, which at least involves the practical problem of whether the more suitable label is (adverbial) adjectives or (agreeing/adjectival) adverbs. The question might be far from irrelevant, if the adoption of one label rather than another entails a specific perspective for the interpretation of the related linguistic phenomena and the characterisation of the categories they belong to.

For instance, Hummel (in press) terms these cross-categorical modifiers as adverbial adjectives, since this label would suggest that their core adjectival nature is expanded with syntactic functions typical of adverbs. Levinson (2010), in distinguishing between true and pseudo-resultatives within the hyper-class of resultative predicates, claims that they are deeply adjectives due to their morpho-syntactic properties

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3. “Preferimos el término *adjetivos adverbiales* a *adjetivos adverbializados*, porque este sugiere una trasformación categorial a la clase de adverbios, mientras que aquel parece más compatible con la idea de emplear los mismos adjetivos con funciones sintácticas” (Hummel in press).
Adverb and participle agreement
among languages: in Catalan, e.g., pseudo-resultatives show adjectival morphology which is distinct from adverbial marks.

The use of the label ‘adjectival/agreeing adverbs’ we opt for in this contribution (and other related works) is due to the analysis of the empirical evidence and the theoretical account we shall propose, namely that the modifiers at issue represent the adverbial category *tout-court* in the varieties investigated and, therefore, satisfy modification requirements of the event, process or state conveyed by the verb. Anticipating a piece of crucial evidence, if one takes into account the sentences in (2)–(4) from the dialects of S. Maria del Cedro, what emerges is that in the dialects of north-western Calabria a clear-cut semantic difference between the adjectival and the adverbial value of the same lexical item, though surfacing in the same position, is easy to grasp within the unaccusative construction in (2), whereas it might be blurred elsewhere, e.g. in transitive sentences with a non-resultative reading (3). In (3b) *traversa* is clearly an attributive adjective predicating a physical property of the jacket. The adverbial value of this modifier is null as the interplay with the semantics of the verb does not allow a resultative reading upon the object. However, in (3d), with the insertion of a feminine singular noun as a subject of the transitive, *traversa* simultaneously conveys two distinct interpretations, one processing it as a noun modifier like in (3b) and the other taking scope on the subject, not only as a nominal attribute, but also expressing a quality of the manner in which the subject carries on the action. However, the possibility of placing this modifier after the verb (3d-ii), although giving rise to a marked word order to some extent, permits to break the syntactic proximity between the modifier and the object, which represents a structural condition for the agreement to be realised.

\[ (2) \quad \text{A} \quad \text{quatrara cresci} \quad \text{svelta}_{\text{adj/adv}} \]
\[ \quad \text{the-f.sg} \quad \text{girl} \quad \text{grow-up-3SG} \quad \text{quick-F.SG} \]
\[ \quad \text{i. the girl grows up fast/quickly}_{\text{adv}} \]
\[ \quad \text{ii. the girl grows up witty}_{\text{adj}} \]

\[ (3) \]
a. \[ \text{Pietr} \quad \text{tena na giacchetta traversa}_{\text{adv}} \]
\[ \quad \text{Pietr-M} \quad \text{hold-3SG} \quad \text{a-F.SG} \quad \text{jacket-F.SG} \quad \text{oblique-M.SG} \]
\[ \quad \text{‘Pietr holds a jacket haphazardly’} \]
b. \[ \text{Pietr} \quad \text{tena na giacchetta traversa}_{\text{adj}} \]
\[ \quad \text{Pietr holds a jacket \quad oblique-F.SG} \]
\[ \quad \text{‘Pietr holds a crooked jacket’} \]
c. \[ \text{Maria tena na giacchetta traversa}_{\text{adv}} \]
\[ \quad \text{Maria holds a-F.SG} \quad \text{jacket-F.SG} \quad \text{oblique-M.SG} \]
\[ \quad \text{‘Maria holds a jacket haphazardly’} \]
d. i. \[ \text{Maria tena na giacchetta traversa}_{\text{adj/adv}} \]
\[ \quad \text{Maria holds a-F.SG} \quad \text{jacket-F.SG} \quad \text{oblique-F.SG} \]
\[ \quad \text{‘Maria holds a crooked jacket’} \]
\[ \quad \text{‘Maria holds a jacket sitting crookedly’} \]
ii. *Maria* tena *traversa* adv *na* giacchetta

Maria holds oblique-f.sg a-f.sg jacket-f.sg

‘Maria sits crooked holding a jacket’

The picture might turn even more complicated by including a resultative reading triggered by a creation verb⁴ (e.g., ‘to sew’)⁵ and the modifier’s scope on the verb or on a nominal, inasmuch the position of the modifier does not always help disambiguate:

(4) a. *Pietro* cusa na giacchetta *traversa* adv

Pietro sew-3sg a-f.sg jacket-f.sg crooked-m.sg

‘Pietro sews a jacket sitting crookedly’

b. *Pietro* cusa na giacchetta *traversa* adj/O-orAdv

Pietro sew-3sg a-f.sg jacket-f.sg crooked-f.sg

i. Pietro sews a jacket crooked adv

ii. Pietro sews a crooked jacket

c. *Maria* cusa na giacchetta *traversa* adv/ *traversa* adj/S-orAdv/O-orAdv

Maria sew-3sg a-f.sg jacket-f.sg crooked-m.sg

i. Mary sews a jacket crookedly

ii. Maria sews a crooked jacket

iii. Maria sews a jacket while sitting crookedly adv

iv. Maria sews a jacket crooked O-orAdv

d. *Maria* cusa *creat* na giacchetta *traversa* advO-or

Maria sew-3sg a-f.sg jacket-f.sg crooked-f.sg

‘Maria is sewing a jacked crooked’

e. *Maria* cusa *non-creat* na giacchetta *traversa* advS-or

Maria mend-3sg the-f.sg jacket-f.sg crooked-f.sg

‘Maria, standing crookedly, is sewing the jacked crooked’

Taking into account such a complexity of Italo-Romance varieties that exhibit a morphological adverb-adjective syncretic class, the debate about the category status of agreeing modifiers that can take scope on the action conveyed by the verb and, at the same time, on a verbal argument (Agents versus Patients, namely) cannot be reduced

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⁴ Creation verbs (or explicit creation verbs in Levinson 2007) are those where the created individual is realised as a DP argument, such as in Mary built a sand castle. Implicit/root creation verbs entail the creation of an entity which is not expressed by the verb argument Mary grouped the students (by age); explicit creation verbs imply the creation of an entity denoted, usually, by the DO as in Mary baked a cake (Levinson 2007: 17).

⁵ In these dialects ‘to sew’ is both a creation (i) and a non-creation (ii) verb:

a. *Maria* cusa na cammisa

i. ‘Maria is making a shirt’

ii. ‘Maria is darning/altering/repairing a shirt’
to a discussion about terming them as (adjectival/agreeing) adverbs or (adverbial)
adjectives. This point of view would probably only tackle the most superficial issue
and leave out a more profound consideration about their core modification property.
Based on the interplay between the semantico-syntactic value of the verb, the role of
verbal argument involved, and the semantic-syntactic properties of the modifiers, a
more exact characterisation can follow from ±adverbial or ±adjectival features.

Throughout this paper, empirical evidence from the dialects of north-western
Calabria, displaying no morphological distinct markings for adverbs and adjectives,
will support the assumption that the agreeing modifiers at issue disclose an adverbial
semantico-syntactic behaviour confirming the suitability of the label ‘agreeing/adject-
tival adverbs’.

3. Adverb agreement in southern Italian dialects

Cruschina (2010) and Ledgeway (2011) explore the distribution of the adjectival adverbs
among the dialects of southern Italy, wherein manner adverbs are morphologically
expressed by corresponding adjectival forms, as no adverbial suffix is detectable (with a
few exceptions of -mente formations). Under specific syntactic and semantic conditions,
such adverbs may agree with a referring nominal functioning as verbal argument, the
triggering conditions for the agreement being comparable to those causing the past partic-
tipal agreement in Italo-Romance. In particular, Ledgeway (2011) shows that across SIDs
the distribution of agreement in adjectival adverbs proves sensitive to certain syntac-
tic configurations that mirror semantico-syntactic constraints at work on the transitive/
unergative versus unaccusative constructions. More specifically, certain varieties exhibit
agreeing patterns that reveal an ergative/absolutive split, as the modifier agrees with verb arguments playing a Patient/Undergoer role (transitive objects and unaccusative subjects) as well as with the subject of unergatives (Agent/Actor) if the semantics of the predication permits (Ledgeway 2011 for discussion. Cf. also Ledgeway-Silvestri in press):

(5) a. *Iddi sunu. Boni travagghianu* (Catania; Ledgeway 2011: 52)
    they are good-M.PL work-3PL
    ‘It’s them. They are good workers’

    b. *tutto apposto con le radioline? Funzionanu*
    all well with the-F.PL radio-F.PL work-3PL
    *boni, abberu?*
    good-F.PL true
    ‘How are things with the pocket radios? They work well, don’t they?’

3.1 The dialects of the ‘Lausberg Area’

The varieties discussed throughout this contribution include the dialects of Buon-
vicino, Orsomarso, S. Maria del Cedro, and Verbicaro, all located in north-western
Calabria. Geo-linguistically they all belong to the most south-western strip of the so-called ‘Lausberg Area’, whose label is due to Lausberg’s (1939) work of assessment, description, and internal classification of Italo-Romance dialects, based on phonomorphological characteristics, which identified a linguistic zone encompassing, from the Tyrrhenian to the Ionian Sea, the north of Calabria and the south of Basilicata.

Several facts related to the phonological diachronic change from Latin into Romance, such as notably the development of different tonic vowel systems (‘Sardinian’ and ‘Romanian’ types, a.o. Fanciullo 1997) or the retention of original endings in the verbal paradigms, are nowadays still attested among the dialects of this area. On the one hand, the unique phono-morphological characteristics of this group of varieties, for which they are singled out from the rest of Italo-Romance and, in turn, linked to isolated or remote regions of România, have been extensively described (Alessio 1954; Parlengeli 1960, 1971; Rohlf 1966–69, 1972; Rensch 1973; Falcone 1974; Trumper 1980; Fanciullo 1988, 1997; Martino 1991). On the other hand, their morpho-syntactic makeup has barely received specific and systematic attention from scholars.

Similarly to other SIDs, the patterns of adverbial agreement shown in these varieties can be described according to the different syntactico-semantic transitive/non-transitive configurations: transitives (3.2), unaccusatives (3.3), and unergatives (3.4).

Before discussing in detail the agreement types found among these varieties, it is worth pointing out that the morphological exponence on adjectives, agreeing adverbs, and past participles is encoded also by metaphonic outcomes of the original tonic mid-low vowels, which functions as a fundamental morphological mark due to the centralisation of final atonic vowels that these varieties underwent (even though the etymological final -/a/ variously survived; Silvestri 2009). In other words, the morphological marks of agreement may be particularly robust at the articulatory-perceptual level due to the alternation between presence and absence of a metaphonic vowel for Buonvicino, Orsomarso, and S. Maria or metaphonic diphthong for Verbicaro. The morphological function of metaphony is summarised in Tables 1 and 2 in the Appendix. If not stated otherwise, the examples provided from here onwards are taken from the dialect of Verbicaro.

3.2 Transitives

The agreement patterns concerning the transitive configuration display three options. The adverb may

I. agree with the object;
II. exhibit a default masculine singular morphological marking;
III. agree with the subject.

As for pattern I, let us consider the following cases that witness that adverbial agreement with the object in transitive constructions is obligatorily selected when the adverb somehow depicts the status reached by the object when the action is accomplished:
(6) a. *Vito sta pappènna sa parita proprio pulita/*p-
Vito is painting this-F.SG wall very clean-F.SG/*M.SG
‘Vito is painting this wall neatly’
b. *Fratòma non sapa proprio aggiustà (bòna /*buona) a
brother-my not knows fix-INF the-F.SG
mota bòna /*buona
motorcycle good-F.SG /*M.SG
‘My brother does not how to fix the motorcycle well’

In this sense, the agreeing adverb seems to convey a generically defined resultative reading.

As for the pattern in II, the masculine singular (MSG) form of the adjective corresponds to the unmarked or default adverbial form that seems to take scope over the entire event by depicting the manner in which the process is carried out:

(7) a. Maria tagghiava quidda chianta precisò
Maria cut-pst that-F.SG plant-F.SG precise-M.SG
‘Maria was cutting that plant precisely’
b. Nanna stado aggiustenn a stanza
Granma stays fixing the-F.SG room-F.SG
(tutta) mbrugghiatò
all-M.SG confused-M.SG
‘Granma is arranging the room untidily’.
c. Maria guarda sturtò a nputà
Maria looks-at oblique-M.SG the niece
‘Maria looks at the niece threateningly’

The agreement with any nominal in the sentence fails, thus, if the adverb predicates the manner in which the action is carried out by the subject (Agent).

A feminine singular (FSG) form of the modifier in the structures in (7) would give a subject-oriented reading (probably more consistent with a secondary predication on the subject) or take scope on the object with a resultative value.6 The adverbial nature of these modifiers can be grasped through a comparison with standard Italian, wherein the same sentences in (7) have to or may be expressed with adverbial prepositional phrases or canonical adverbial forms:

(7) a. Maria tagliava quella pianta con precisione
Maria cut-pst that-F.SG plant-F.SG with precision

6. Namely, Maria tagghiava (precisaS-orAdv/O-orAdv) quidda chianta precisàS-orAdv/O-orAdv allows the two types of adverbial orientations, so that, if S(subject)-oriented (S-orAdv), the modifier refers to a quality of the subject in cutting plants, whereas if O(bject)-oriented (O-orAdv), it depicts the quality in which the plant appears after the cutting, i.e. precisely or geometrically or sharply shaped.
b. *Nonna riassettava la stanza*
   Grandma tidy-pst the-f.sg room-f.sg
   confusedly/with confusion

3.2.1 A subject-adverb agreement pattern?
As for pattern III of adverbial agreement in transitive constructions, due to the instability of native speakers’ judgments, the rule at work beneath the realisation of agreement with the subject/Agent ($S_A$) is more opaque. The set of relevant examples in (8) includes cases in which the agreement with the subject is ruled out (8a) as opposed to sentences displaying pattern III (8b, 9b–c), which need very peculiar interpretations, also due to the specific semantic features of the individual lexical item. At a first look at the word order, the adverb agrees with the subject only if surfacing in a marked position, i.e. right after the verb and namely before the direct object that conveys the information focus.

(8) a. i. *Rita pittà u murà buòna/*bòna*
   Rita paints the wall well
   ii. *Piotrò guardà a nòputà stòrta/*stuɔrtɔ*
   Pietro looks at the niece crooked-f.sg/*M
   ‘Pietro looks at his niece menacingly’

b. *Rita pitta bòna/buòna u murà*
   Rita paints good-f.sg the wall-m.sg
   ‘Rita paints well the wall’

(9) a. *Maria guardà u nòputà stuɔrtɔ/*stòrta*
   Maria looks at the-nephef crooked-m.sg/*M
   ‘Maria watches her nephew threateningly/darkly/*cross-eyed’

b. i. *Maria guardà stòrta/stuɔrtɔ (all)u’7 nòputà*
   Maria looks at crooked-f.sg to(f.) nephew
   ‘Maria watches her nephew cross-eyed/threateningly’

7. If the agreeing adverb surfaces after the verb, it might realise a marked position due to a focalised interpretation of the direct object (DO), which in turn is prepositionally marked. The phenomenon of the prepositional accusative, which is widespread among central and southern Italian varieties (Ledgeway 2000; Guardiano 2010; Iemmolo 2010), seems to have been reinterpreted as a focalisation strategy in the present-day dialect of Verbicaro. Namely, this variety exhibits an only apparent option between a prepositional and a non-prepositional marking of direct objects denoting human or humanised beings (as elements of maximum degree of agentivity). Preliminary surveys about this issue revealed that the prepositional mark is only used if the DO represents, roughly, the new information Focus within the information structure (Silvestri in prep.):
ii. Maria guarda stòrta (all)u nəpuṭə

Maria looks at cross-eyed to.the-M.SG nephew

‘Maria, who’s cross-eyed is watching the nephew’

c. Piatrə guarda stuərtə (all)a nəputa

Piatrə looks at crooked-M.SG to.the-F.SG niece

‘Piatrə is watching the niece menacingly/cross-eyed’

In (8a-i) the interpretation of the MSG adverb is apparently ambiguous between a resultative and a non-resultative reading, the former licensed by the adverb agreeing with the (MSG) object and depicting the result of the process of painting, the latter expressed with the default MSG of the adverb which takes scope on the manner in which the action is carried out. The ambiguity might disappear if (8a-i) is compared with (8a-ii), where a default MSG form is ruled out and the adverb, in agreement with the object, displays a FSG. In a marked word order (8b), wherein the object is focalised, the agreeing adverb surfaces in post-verbal position and bears an alternative morphological mark, i.e. MSG as an expression of the wider scope on the event and FSG as an effect of concord with the only feminine noun in the structure, i.e. the subject. A thorough examination of the data with native speakers reveals that no difference in the semantics of the adverb is detectable for the alternative pattern MSG/FSG in (8b), as both FSG and MSG forms equally express the manner in which the action is conveyed with no extra value for the FSG to possibly predicate a quality of the subject.

As for (9a), a mirror example of (8a-i), the agreeing adverb sets on MSG, which is ambiguous between the default adverb morphology and the agreement output with the object. However, in (9b) the adverb surfaces in a marked post-verbal position and closer, at least in the linear order, to the FSG subject. In such a placement, the adverb is able to realise agreement with subject. Moreover, for this specific lexical item, an extra adjectival reading is available (9b-ii). Thus, the FSG of the adverb in (9b) is driven by two different forces: the concord force that changes what would be a default MSG into FSG and a semantic force due to the available meaning of stòrta, which can modify the subject as an adjective. For the sake of exhaustiveness, it is worth mentioning that native speakers allow a sentence in which the modifier, surfacing after the object, only takes scope on the subject and matches its gender and number features, yet only to depict some property as an adjectival predicative attributive of the subject:

(10) Maria guardədə u nəpuṭə stòrtə/travərsə

Maria watches the nephew crooked-F.SG/oblique-F.SG

‘Sitting askew/crookedly, Maria watches the nephew’

a. Vitə had ammazzat u swinnəkə [trigger question: what has Vito done?]

Vitə has killed the-M.SG mayor-M.SG

b. Vitə had ammazzat allu swinnəkə [trigger question: whom has Vito killed?]

Vito has killed to.the-M.SG mayor-M.SG
Rebus sic stantibus, the adverbial agreement with transitive Agents (S_A) turns out to be quite interpretatively controversial, since it is triggered by marked configurations of the sentence altogether with peculiar values of the lexical items that function not exclusively as agreeing adverbs.

The overt agreement displayed by adjectival adverbs with the direct object expresses the manner in which the latter is affected by the activity carried out upon it. Thus, the agreeing modifier conveys a resultative reading. If the adverb does not take scope on the object, it exhibits default MSG exponence. On this ground, it emerges that adverb agreement affects the Patients. In this sense, the dialects of the ‘Lausberg Area’ seem to go along with the evidence collected in Ledgeway (2011) and, furthermore, provide peculiar cases of morphological match between adverb and subject (S_A).

3.3 Unaccusatives

In intransitive clauses of unaccusative type, the evidence collected from the dialects of north-western Calabria witnesses that the adjectival adverbs systematically agree with the subject/Patient of unaccusatives (examples in 11) with no exception, including reflexives (12) and passives (13).

(11) a. Quidda monə ca campədə affrirtə/*ə
    that-f.sg nun live-3sg poor-f.sg/*m.sg
    ‘That nun lives wretchedly’

b. Zijəta no sta bona/ *bunə
    Aunt.your not stay-3sg good-f.sg/*m.sg
    ‘Your aunt is not well’

(12) a. jidda so vesta sempə spugghiatə/*ə
    she self=dress-3sg always naked-f.sg/*m-sg
    ‘She always dresses succinctly’

b. Maria so piattoa brutta/*ə
    Maria self=comb-3sg ugly-f.sg/*m.sg
    ‘Maria combs (her hair) ugly’

(13) dd'acina non ha stata cota bona/*buənə
    the grapes not has been-f.sg harvest-ptcp.pst.f.sg good-f.sg/*m.sg
    ‘Grapes have not been harvested accurately’

In some cases the value of the adverb can be interpreted by means of a predicative reading on the subject, presumably of the same type occurring at a deep level with the object/Patient.8

8. As pointed out by Ledgeway (2011:41): “In intransitive clauses of the unaccusative kind (…), the adjectival adverb (…) conveys a resultative reading of the surface subject, ultimately
As for predication within unaccusative constructions, according to Mateu (2000), unaccusative resultative predicates with anticausative verbs, of the type in (14), prove perfectly productive in English, whereas they would be not available in Romance (e.g. Catalan, d):


b. The toast burned black.

c. The gate swung shut.

d. The river froze solid.

Nevertheless, in the dialects of north-western Calabria the same unaccusative predicates are possible and realised with agreement of the modifier with the subject (S_O):

(15) a. a forita ruppa brutta

b. a sajima quagghia tosta u viñrno

For a more extended discussion of the semantic entailments of these constructions see Silvestri (in press).

3.4 Unergatives

As for unergatives, the same adjectival adverb may either agree with the subject (16) or exhibit a default MSG exponence (17), providing different semantic interpretations:

(16) a. sa quatraredda canta citta

b. Maria parla segreta

functioning as a predicative complement of the same and specifying at the same time the manner in which the situation, accomplishment or achievement comes about.” As an anonymous review pointed out, this generalisation can be adopted only partly for the dialects of the ‘Lausberg area’ where the agreement between the adverb and the unaccusative subject is obligatory.
The data witness that the optionality shown in (16) and (17) can be interpreted with a couple of generalisations. First of all, the instances in (17) provide a straightforward interpretation due to the mere adverbial value of the non-agreeing modifier: the subject initiates, controls or determines the action, to some extent, and the modifier's function is a predication on the verb.

What is more controversial is the interpretation of the sentences in (16) which allow for two different readings. The first is tied up with a predication upon the subject, rather than upon the process conveyed by the verb. In this case, agreeing adverb denotes permanent qualities or skills of the subject, who is directly involved in the realisation of action. As a matter of fact, the semantic scope of the sentence, expressed by means of the adverb agreement, is on the condition of the subject in being quiet, enigmatic or cross-eyed. The resulting reading thus corresponds to a stative predicate, where the agreeing modifier has a [+adjectival] connotation, as shown in the translations. To capture the semantic interpretation of the adverb agreement in unergatives drawing from the speakers’ intuitions, it is very likely that sentences in (16) denote instantiable situations in the real world (Kratzer 1989), i.e. a set of token situations interpreted as actual individualised circumstances of the reality. Adverb agreement would signal a more robust referentiality which is proper of this semantic denotation (Sheehan-Hinzen 2011). Conversely, the corresponding sentences showing no agreement are not compatible with this denotation.

Yet, the intuitions of the native speakers allow another interpretation of the sentences in (16) which is fundamentally identical to the only reading available for (17), i.e. the modifier denotes the manner of carrying on the action (therefore, it’s value is [+adverbial]).

In our opinion, the often-suggested parallel with the ambivalent verbs in standard Italian, which exhibit unaccusative or unergative value (e.g. correre ‘to run’, volare ‘to fly’… Cf. Napoli 1975; Antrim 1994), does not exactly fit the picture described here for SIDs. As mentioned, the agreeing adverbs in unergative structures do not necessarily express an adjectival predication on the subject, allegedly corresponding to the secondary predication in standard Italian. In this aspect lies the sense of the internal variation within the Italo-Romance group: while allegre in standard Italian le ragazze corrono allegre (lit.: ‘the girls run cheerful’) only predicates the condition/status of the girls while running, citta in (16a) is crucially able to disclose two values, one adjectival,
and thus comparable with the value of *allegre* of the standard Italian sentence, and another value, i.e. an adverbial interpretation which is distinguishable from *cittΘ* in (17a) only by means of subtle semantic readings.

### 3.5 Interim summary

Given the empirical evidence above, the distribution of adverb agreement patterns in the SIDs under analysis reveals a split between Undergoers (unaccusative subjects (S\textsubscript{O}) and transitive objects (O)) and Actors (transitive and unergative subjects (S\textsubscript{A})), i.e. the adverbs agree with Undergoers but exhibit no agreement with Actors, unless restricted interpretations are conveyed.

Namely, the modifiers may also show agreement with transitive subjects, yet only if occurring in an informationally marked configuration or predicating a condition/status of the subject while the action is carried out. As for unergatives, the adverb agreement with the S\textsubscript{A} is not obligatorily triggered by a predicative reading on the subject. It is rather due to specific interpretive and structural reasons which will be examined in (§5).

### 4. Effects on past participle agreement

In order to provide a more exhaustive picture of the agreement patterns available in SIDs, other morpho-syntactic implications are to be described, in particular the cases in which the verb is a compound form. The participle agreement patterns in the dialects of north-western Calabria display a peculiar property, due to the morphological makeup of the past participle itself. Namely, the different configurations of agreement depend on the participle being metaphonic or (strong and weak) non-metaphonic (Loporcaro-Silvestri 2011).

#### 4.1 The general picture

It has been described that as for the dialects of north-western Calabria non-metaphonic participles (Prt) display agreement patterns responding to an active/stative split, like in standard Italian (Ledgeway-Silvestri in press). The non-metaphonic Prt systematically agrees with unaccusative subjects (S\textsubscript{O}, Patients) (18) and, conversely, never shows agreement with the transitive subject (S\textsubscript{A}) (19), regardless of its morpho-lexical nature:

(18) a. *A niva s’ha squagghiata/*-Ď

> the snow,f-sg self=has melt-PTCP.PST.F.SG/*M.SG

> ‘The snow melted’
b. *Maria ha bənuta/*ə
   Maria has come-PTCP.PST.F.SG/*M.SG
   ‘Maria has come’

c. *A pasta ha cəttə/ə
   the-F.SG pasta-F.SG has cook-PTCP.PST.F.SG/*M.SG
   ‘the pasta’s cooked’

(19) a. *A gatta ha bistə/*ə na gaddina
      the-F.SG cat-F.SG has see-PTCP.PST.M.SG/*F.SG a-F.SG chicken-F.SG
      ‘The cat has seen a chicken’

b. Mamma ha puləzzato sa stanza
   Mom has clean-PTCP.PST.M.SG/*F.SG this-F.SG room-F.SG
   ‘Mom has cleaned this room’

The participial agreement never occurs with transitive objects9 (Patients) (20a), except when Prt displays metaphonic tonic vowels (20b):

(20) a. Fratəma ha cuciutə/*-a na cassarola i pasta
      brother.my has cook-PTCP.PST.M.SG/*F.SG a-F.SG pot-F.SG of pasta

b. Fratəma ha cuəttə/cəttə na cassarola i pasta
   brother.my has cook-PTCP.PST.M.SG/F.SG a pot-F.SG of pasta
   ‘My brother has cooked a pot of pasta’

The same divide between metaphonic and non-metaphonic Prt occurs within the agreement with unergative subjects (S̄A), where the agreement is realised only with a metaphonic Prt (21a):

(21) a. Rita non ha rəspunnutə/*-a
      Rita not has answer-PTCP.PTS.M.SG/*F.SG

b. Rita non ha rəspuəsə/rəspòsa
   Rita not has answer-PTCP.PTS.M.SG/E.SG
   ‘Rita has not replied’

The participial agreement in the dialects of north-western Calabria is, thus, subject to a syntactic and morpho-lexical rule, which states that

(22) ‘In the dialects of north-western Calabria the agreement of non-metaphonic Prt is ruled out with transitive objects and unergative subjects’.

9. Active Prt always agree with raised clitic objects. This pattern is not taken into account here.
4.2 Insertion of the adjectival adverbs

The syntactic and morpho-lexical rule in (22) turns out to be no longer valid if an agreeing adverb is inserted within the structure:

\[ (23) \]

a. \( \text{Vit}_\text{a} \text{ has } \text{stritt}_t \text{/a quidda} \)
   \( \text{Vit}_\text{a} \text{ has } \text{tighten-PTCP.PST.M.SG/F.SG that-F.SG} \)
   \( \text{corda ferma*/-}\theta \)
   \( \text{rope firm-F.SG/*M.SG} \)

b. \( \text{Rita non ha r}_\text{e spunnut}_t \text{a cunent}\text{a*/-}\theta \)
   \( \text{Rita not has answer-PTCP.PST.M.SG/F.SG happy-F.SG/*M.SG} \)
   ‘Rita has not replied cheerfully’

The agreement patterns in (23) are possible only because of the presence of adjectival adverbs which may exhibit overt agreement with the semantically and syntactically selected verb argument. Given these conditions, the rule as formulated in (22) and exemplified in (23) needs further specification as follows:

\[ (24) \]

‘In the dialects of north-western Calabria the agreement of non-metaphonic Prt is possible, yet not obligatory, with transitive objects and unergative subject if these arguments are overtly modified by adjectival adverbs’.

The optionality of the past participle agreement in these specific morpho-syntactic configurations proves revealing for the structural interpretation as sketched in the next section.

5. Towards a structural interpretation

A structural account for the agreement of manner adverbs as shown in the dialects of the ‘Lausberg Area’ and the rest of the SIDs enhances the assumptions that distinct semantic interpretations of modifiers correspond to as many different positions in the architecture of the sentence (Jackendoff 1972; Cinque 1999 for adverbs; Crisma 1996; Cinque 2010 for adjectives).

Based on recent analyses proposed in Ledgeway (2011, in press), who follows Jackendoff (1972), Ramat and Ricca (1998) and Cinque (1999:19–28), arguably manner adverbs may occur in one of three positions within the clause: (i) a high position associated with the T domain licensing subject-oriented adverbs which may occur before or after auxiliaries (position 1); (ii) a mid-clause adverb placement related to the pre-\( \nu/\text{VP} \) area licensing event-oriented adverbs that occur after the lexical verb (position 2); and (iii) a low VP-final position allowing resultative process-oriented adverbs (Result(ative)\( P \)), normally occurring in clause-final position.
Under these assumptions, the three adverb positions just identified above can be integrated in the following simplified structure of the clause:

(25) \[ TP \ Aux \ Adv1 \ [ v_1 \ Agent/Actor \ Adv2 \ v-V \ [ v_2 \ V \ Theme/Undergoer \ Adv3-ResultP ] ] ]

Ledgeway (2011, in press), based on instances of adverb agreement from Cosentino that exhibit an active/stative split as the adverb agrees exclusively with Undergoers, argues that the adjectival adverb is generated in position Adv3 from where it agrees with the object within the VP, thus licensing the observed resultative interpretation. Evidence from the dialects of the ‘Lausberg Area’ supports this piece of structural interpretation:

(26) Maria pattava quidda stanza pulita

Maria paint-pst.3sg that-f.sg room-f.sg nice-f.sg

…[VP [EA quidda stanza] pattava [pulita]- ] >

…[VP [EA quidda stanza] pattava [ /pulit/- ] ]

Nevertheless, given the superficial linear order, the adjectival adverb might occur in the mid-clause Adv2 position, whereby it comes to precede the object, and allows a resultative-eventive reading of the adverb.

Cases of northern Calabrese such as (27) would fail in revealing the strict correlation between a functional position of Adv3 and its semantic fulfilment through a resultative value. We could argue that what triggers agreement between the manner adverb and the object when the predicate takes scope on the way the Agent carries out the action is only the syntactic proximity. Therefore, according to the evidence discussed in the previous section, Adv3 position hosts mostly, however not exclusively, ResultPs. Namely, the adverb, generated in the same position in the structure (Adv3), might not bear a resultative value, also due to a mismatch with the semantic of the verb. In this position, the adverb, which does not take scope on the object, is adjacent to the DP and the agreement is realised:

(27) Patruzzë guardava a naputa storta

Patruzzë look-at-pst.3sg the niece crooked-f.sg

…[VP [DP a naputa] guardava [ /storta/- ] ] >

…[VP [DP a naputa] guardava [storta] ]

Adverbs exhibiting a default MSG morphology (i.e. mark of no agreement) usually surface between the verb and the object (28). The base position of this adverb must be definitely higher than the Manner position licensing the patterns in (26) and (27). The lack of agreement could be due to the possibility for the adverb to be base-generated in the mid-clause position (Adv2). A secondary resultative reading of the adverb can still be grasped but no local agreement configuration with the object in the VP is possible during the derivation.
Finally, instances such as (29) suggest that a third higher position of the adverb is to be assumed, which is correlated with a subject-oriented interpretation. In (29) the modifier normally functions as a secondary predication on the subject (cf. §3.2.1).

According to Ledgeway’s account (2011, in press), this position (called ModP-volitional in Cinque 1999 and identified as Adv1 in 25) is to be defined outside the vP, thus higher than the position associated with verb’s voice and transitivity:

(29) Rita storta pittava i parița bona
    Rita oblique-f.sg paint-pst.3sg the wall-f.pl good-f.pl
    …[TP, Rita storta_{Adv1} [vP [DP Rita] pittava [vP [DP i parița] bona_{Adv3} ] ]]

‘Rita, standing crookedly, painted the walls accurately’
‘Rita, who’s hunched, painted the walls accurately’

In (29) the two positions produce an unmarked linear order. Therefore, the structural hypothesis in (25) makes correct predictions.

5.1 Agreement of non-metaphonic participles

As shown in §4, the agreement of non-metaphonic participles, i.e. the major part of participial formations, behaves idiosyncratically when an agreeing adverbal modifier enters the structure, either at vP or VP level.

In the light of the account proposed in D’Alessandro-Roberts (2008) for participial agreement in standard Italian, a transitive/unergative structure as in (30) is assumed, wherein the external argument is merged in Spec,vPrt. The head vPrt assigns the theta-role to the external argument (EA) and enters an Agree relation with it, thereby checking its case features. Due to independent reasons, i.e. crossing over some manner adverbs in standard Italian (cf. Cinque 1999), the past participle obligatorily raises to vPrt:


Agreement in phi-features of the internal argument and the participle does not occur, as at the point of spell-out, the participle occupies vPrt which crucially heads a non-defective phase. Namely, its complement VP is sent to PF on a distinct cycle and it is no longer accessible to syntactic operations due to the Phase Impenetrability Condition (PIC; Chomsky 2000, 2001). The varieties of the ‘Lausberg Area’ confirm this derivation, as normally the (non-metaphonetic) past participle only agrees with Patients in unaccusative configurations wherein vPrt heads a defective phase, so that VP is sent to PF in the same cycle as the participle and an Agree operation is possible.
In order to structurally explain the patterns of participial agreement in structures hosting an agreeing adverb, we assume that the adverbs are adjoined to the \( vP \) (more specifically \( vP_{\text{rt}} \)) or \( VP \).

As for transitives, we can suppose that, before the \( \text{Prt} \) moves higher to Spec-\( vP_{\text{rt}}' \), assuming that the base position of \( \text{Adv} \) is within the \( VP \), the agreement of the adverb with the internal argument (IA) fulfills the semantic requirements of a resultative reading upon the object. However, as showed in (23), the Agree relation may apparently affect not only the adverb but also the \( \text{Prt} \). As it is, this matter of fact would not meet the PIC, unless we argue that the morphological exponence on the participle is due not to an Agree operation but to a morphological ‘contamination’. A superficial mechanism of gender and number feature matching would be interpreted in turn as a result of a structural closeness between the \( \text{Prt} \) and the entitled participants of Agree, i.e. the IA and the adverb.

In unergative structures, the agreeing adverb is arguably originated in a higher position as an adjunct to the \( vP \) where it may agree with the EA in order to respond to the semantic interpretation of a predication upon the subject. This occurs before the obligatory raising of the participle that, once landed in their area, may match in phi-features.

This interpretation explains the optionality of the participle agreement with unergative subjects and transitive objects, co-occurring with agreeing adverbs, as produced by native speakers. The availability of a superficial spread of phi-features within the unergative configurations is confirmed by the evidence shown in § 3.4 where the agreement of the modifier with the subject is not always licensed by semantic requirement such as a predication on the subject/Actor.

5.2 Notes on the roots \( \text{bon-} \) and \( \text{mal-} \)

It is definitively worth outlining briefly the behaviour of the lexical roots \( \text{bon-} \) and \( \text{mal-} \) that form both adjectival adverbs and mere adjectives, the former occurring on the left of the past participle both in active and passive constructions and always exhibiting agreement with the related nominal:

\[
\begin{align*}
\text{a. } & \text{Han}=\text{3pl}\text{ }\text{bon}\text{-}\text{mparata}\text{ }\text{a }\text{Maria} \\
& \text{have-3pl good-F.SG teach-PTCP.PST.F.SG to Maria} \\
& \text{‘They have taught Mary well’} \\
\text{b. } & \text{Maria ha stata }\text{ mala }\text{cunzoghjata} \\
& \text{Maria has be-PTCP.PST.F.SG bad-F.SG advise-PTCP.PST.F.SG} \\
& \text{‘Maria has been advised badly/wrongly’}
\end{align*}
\]

The corresponding adverb ‘bene’ in standard Italian behaves accordingly, as far as the distribution is concerned, though assuming a form phonetically restricted by truncation and strictly adjacent to the participle (‘ben’).
Arguably, such an occurrence of the agreement adverbs *bon-/mal-* in the SIDs is comparable to standard Italian ‘ben’ that in Cinque’s (1999) analysis is kept distinct from the phonetically full form ‘bene,’ which is able to occur on the left of the participle only in passive formations:  

(32)  
a. *Hanno bene accolto il suo spettacolo solo loro  
only they  
‘Only they have accepted his show positively’

b. *Hanno bene accolto il suo spettacolo solo loro  
have well welcomed the his show only they  
‘Only they have accepted his show positively’

c. Questo genere di spettacoli è sempre stato bene accolto  
this kind of show is always been well welcomed  
by everybody  
‘This kind of show has always been accepted positively by everybody’

The adverb ‘kala’ in Modern Greek shows an analogous distribution as it surfaces on the left of the passive participle, while the pre-participial position is ruled out within an active construction:

(33)  
a. I Anagenisi ehi  
the-f.sg Renaissance-nom have-3pl  
kala meletithi  
well study-ptcp.pst.pass.fsg  
‘The Renaissance has been well studied’

b. *I Maria ehi kala meletetisi to  
the-f.sg Maria-nom have-3pl well study-ptcp.pst the  
mathima tis  
lesson-acc hers  
‘Maria has studied her lesson well’

The agreement shown by ‘bon-’ attached to a past participle in the dialect of Verbicaro is found in the Greek dialect of Bova.

---

10. As mentioned in 5.1, Cinque (1999:102–3, 146ff.) as well as Belletti (2001:30) observe that in standard Italian active transitive participles raise over a certain class of manner adverbs, including ‘bene’.
The configuration involving ‘ben’ in standard Italian is assumed to be a case of incorporation of the adverb on the verb in Cinque (1999) as well as in D’Alessandro-Robert’s (2008) analysis of the past participle agreement in Italian. In light of the empirical evidence from SIDs, the syntactic derivation of the pre-participial position of an agreeing adverb proves intriguing, even more since a parallel with the corresponding noun modifiers is detectable. Namely, two of the very few adjectives occurring prenominally in the dialects under examination and among the rest of SIDs are those deriving from the roots bon-/mal-:

(35) a. na mala fiūmməna
   ‘a bad woman’

b. quiddə məla quatrərə
   ‘those bad boys’

c. na bona pənzəta
   ‘a good idea’

The exceptional pre-nominal placement of these adjectives12 mirrors the pre-participial position of the corresponding agreeing adverbs within the v-VP, a fact that makes the assumption that adjectives and adverbs belong to the same syntactic super-category even more striking and enhances, if necessary, the empirical solidity of a formal unifying analysis for adjectives and adverbs.

5.3 Adverb and participle agreement in Parameter Hierarchies

Building on the foundation of Government and Binding Theory, modern typological and formal theories account for syntactic differences as forming a universal list of discrete options, called parameters. Since the Borer-Chomsky Conjecture (Baker 2008), the centrality of features was brought up, as the parametric linguistic variation is attributable to differences of elements of the grammar (e.g., functional heads). In accordance with this assumption, it became crucial to define the manifestation of the features setting either a universally given inventory of independently
and locally defined values of individual functional heads (cf. Chomsky 2001: 10) or a taxonomic ordering from a micro- to a macro-dimension of parametric variation. The latter approach to parameters, which is being developed by the Rethinking Comparative Syntax (ReCoS) research group based at Cambridge University, builds on the idea of hierarchies and the hypothesis that parameters, altogether with the hierarchies they construe, are acquisitionally emergent inasmuch as the features employed by different grammars may be emergent (Biberauer 2011, 2013, 2014. Cf. also Gianollo, Guardiano & Longobardi 2008). Seeing from this perspective, parametric variation is to be interpreted in a taxonomic architecture according to the following format:

(36) **Acquisition version of ReCoS hierarchies**

```
F present?
  NO
  YES
All heads?
  YES
  NO
Which subset of heads?
  Postulate a new [F]
```

(Biberauer & Roberts 2013)

Macroparameters, which apply to all functional heads, sit at the top of the hierarchy. The comprehensiveness of parameters progressively reduces (meso>micro>nano) as one moves successively down so that the systems become more marked and complex, with choices becoming progressively more restricted to smaller subsets of features.

Functional heads might display divergent settings of particular feature values which may characterise, for example: a naturally definable class of functional heads, as a case of mesoparametric variation; a lexically definable subset of functional heads (e.g. auxiliaries) as an instance of microparametric variation; one or more individually defined lexical items as a case of nanoparametric variation.

On the strength of these assumptions, Ledgeway (in press) interpreted the distribution of Romance adverb agreement in terms of a parametric hierarchy (37), related to a more comprehensive, larger hierarchy for clausal alignment (Sheehan 2014).

---

13. Cf. ReCoS project webpage for the list of relevant publications (http://recosdtal.mml.cam.ac.uk/).
Adverb agreement

Are Agr features of Adv controlled by DP arguments?

No. Yes

Pattern 1 By all arguments?

Yes. No.

Or, SM, Ve Only by S and O?

Yes. No.

Pattern 4 By all instances of So/O?

Yes. No.

Pattern 2 Only if raised?

Yes. No.

Pattern 3a Only if 3rd person?

Yes. ...

Pattern 3b

(Ledgeway in press)

It emerges that the parametric choices of agreement between an argument and the adverb define four major patterns, witnessed among Romance varieties and, in particular, Italian dialects. The dialects investigated in this contribution display a further pattern of agreement which turns to be somehow unmarked as the adverb agrees with any DP, be it transitive, unergative or unaccusative subject as well as transitive object (a less restricted version of the ergative split pattern as detected in Ledgeway in press and Ledgeway & Silvestri in press).

A hierarchical ordering of the parametric choices concerning verb arguments with the past participle is drawn below in two different representations: one includes the insertion of the adjectival adverbs within the agreement process (38A), the other shows at the very bottom the parametric choice occurring with metaphonic participles (38B). As the selection onto the class of participles is of a morpho-lexical type, one can suppose that the agreement features realised on the metaphonic participle prove that setting as nanoparametric, whereas the agreement of Objects controlling adverbs is arguably a parameter setting of a higher level in the hierarchy.

14. Or, SM, Ve = Orsomarso, Santa Maria (del Cedro), Verbicaro, respectively.
6. Conclusive remarks and remaining questions

The dialects of the ‘Lausberg Area’, in particular the ones placed in the north-western part of Calabria, provide straightforward empirical evidence supporting the reality of the phenomenon of adverbial agreement. From the scrutiny of the data it emerges that adverbs exhibit agreement with a referring nominal in order to satisfy specific semantic and syntactic requirements. In particular, the adverbs normally agree with arguments playing the role of Undergoer. Within unergative clauses, the adverb agrees with the subject DP giving rise to peculiar interpretations, potentially revealing a split between active and stative value which cannot
be otherwise marked by auxiliary selection, inasmuch as ‘have’ is the only auxiliary selected in compound forms among the dialects under examination. Furthermore, the possibility for the adverb to agree with transitive subjects reveals a unique pattern among SIDs (ergative/absolutive in Ledgeway in press and Ledgeway-Silvestri in press) and provides the typological picture with a new term of microvariation within Italo-Romance. Moreover, the adverbial agreement affects the past participial agreement in a unique way, providing patterns which are ruled out under normal conditions and licensed only when the agreeing adverbs intervene in the structure or when the participle displays a metaphonic morpho-phonological makeup. The structural dependence conditions for a proper mechanism of Agree to be detected are not always met and, coincidentally, not supported by semantic needs. Therefore, it has been proposed that a more superficial spreading of features occurs within these structures, affecting the morphological exponence of adverbs and participles, arguably functioning as a type of concord (Norris 2011. Cf. Baker 2008). Since the criteria selecting the agreement patterns include the morpho-lexical component, the parametric choice exhibited in the dialects of the ‘Lausberg Area’ arguably corresponds to a nano-parametric setting.

The questions that these final remarks leave are possibly more than the answers provided throughout the proposal of analysis. Among the issues still unsolved, there are a few main puzzles which project the investigation towards further necessary steps. One of them concerns the syntactic mechanism that selects participle agreement with metaphonic participles and does not activate it with non-metaphonic ones. Adverb agreement reacts with this apparently unstable morpho-syntactic behaviour and produces participle agreement patterns otherwise unattested. The structure licenses participle and adverb agreement under steady conditions (i.e. the interplay with verb arguments), yet at the same time it proves permeable to superficial feature spreading. The coexistence of these two mechanisms in the same grammar urges us to consider this contribution as a starting point for deeper and wider inquiries into Italo-Romance varieties and their minute and wealthy internal variation.

Appendix

Table 1. Metaphonic adjectives and participles in the dialects of Verbicaro

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<td>kɔtɔtɔ</td>
<td>kɔtɔtɔ</td>
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<tr>
<td>PL</td>
<td>apiɛrtɔ</td>
<td>apɛrtɔ</td>
<td>kɔtɔtɔ</td>
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</table>

‘opened’ ‘cooked’
Table 2. Metaphonic adjectives and participles in the dialects of Buonvicino, Orsomarso, and S. Maria del Cedro

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Why a bed can be slept in but not under
Variation in V+P constructions

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In English the verbs that collocate with prepositions are called prepositional verbs (V+P) and are often subsumed under the class of phrasal verbs (V+ particle) although they should be kept distinct: in fact, it is easy to show that prepositions and particles have different syntactic behaviors. One of the most striking characteristics of these verbs is that they can passivize, i.e. the prepositional object can be extracted from inside the PP and become the subject of the corresponding passive sentence. Not all prepositional verbs have a passive counterpart, though. Why? This paper addresses this question by regarding the prepositions entering (V+P) as functional elements, especially in view of their relationship with (“prepositional”) objects.

Keywords: prepositional verbs; passive; stranding; English; applicative constructions

Introduction: The class of English prepositional verbs*

Prepositional verbs in English (henceforth PVs) are a particular class of verbs which take a prepositional complement, i.e. a PP + DP, laugh at someone, believe in someone, tamper with something, talk about something/someone etc. Most of them, though crucially not all, allow for a passive construction – the so-called Prepositional Passive (PPass) or pseudo-passive – which differs from the canonical passive with regard to the position from which the subject DP is extracted:

* I would like to thank Josef Bayer, Paola Benincà, Denis Delfitto and Alessandra Tomaselli for valuable discussion. I am also grateful to two anonymous reviewers and to both the audience at the University of Padova where this paper was first given as a seminar talk and the audience at the 40th Incontro di Grammatica Generativa held in Trento in 2014, for comments and criticism. Heartfelt thanks to my excellent English-speaking consultants Fiona Dalziel, Gregory Dowling, Megan Rae, Sam Steddy and Christina Tortora who put up with long questionnaires and follow-up questions. Any weaknesses in the analyses and errors are my own.
(1)  a. $[\text{TP John}_i \text{ was } [\text{vP/VP laughed } [\text{PP at } [\text{DP t}_j ] ] ] ]$
   b. $[\text{TP John}_i \text{ was } [\text{vP/VP hit } [\text{DP t}_j ] ] ]$

In both (1a) and (1b) the DP John is promoted as the subject of the passive sentence but in the first case it is extracted from inside a PP whereas in the second it is the internal argument of the transitive verb hit.\footnote{From a taxonomic viewpoint, PVs are often subsumed under the class of phrasal verbs: dictionaries of phrasal verbs usually list both together. Similar though they may look, very basic diagnostics promptly allow us to tell them apart: PVs are modified by a P that behaves like a “real” preposition, i.e. it takes a DP object, while phrasal verbs select a particle (PRT) which is semantically independent from the DP, cf. (2) and (3):

\begin{align*}
(2) & \quad \text{a. John looked up the word in the dictionary} \\
    & \quad \text{b. John looked the word up in the dictionary} \\
    & \quad \text{c. John looked it up in the dictionary} \\
    & \quad \text{d. *John looked up it in the dictionary} \\
(3) & \quad \text{a. John looked up the roof} \\
    & \quad \text{b. *John looked the roof up} \\
    & \quad \text{c. *John looked it up} \\
    & \quad \text{d. John looked (carelessly) up it}^{2}
\end{align*}

Examples under (2) feature a transitive phrasal verb, look up$_{PRT}$ whose object can show up in two different positions $[\text{V PRT Obj}]$ (2a) and $[\text{V Obj PRT}]$ (2b); pronominal objects must occur in the in-between position (2c). Conversely, the PV look up$_{P}$ in (3) only allows for a unique object position, whether it is a DP (3a) or a pronominal object (3d) $[\text{V P Obj}]$.

The phenomenon of prepositional passives is far from being homogeneous: in fact, a great deal of variation occurs in the passivizing of PVs: the varieties of English vary as to the classes of PVs that allow a passive form and some speakers of a variety may be more inclined to accept prepositional passives than others. I therefore decided to administer grammaticality judgment tasks containing 87 sentences to 5 native speakers of different varieties of English: 3 British consultants (London and

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\footnote{Other collocations display a further element between V and P: (i) a DP object, ‘take advantage of’; ‘make sense of’; ‘set fire to’;… (ii) an adverbial particle, ‘put up with’; ‘get along with’;…; I discuss the former in Section 4.5.

\footnote{In colloquial registers some PVs can be forced to behave like phrasal verbs, usually in a playful sense, e.g. \textit{What can I do you for?} instead of \textit{What can I do for you?} In fact, the comic effect derives from the ambiguity between the PV ‘do something for’ someone and the phrasal verb ‘do for’$_{PRT}$, i.e. ‘rip someone off’}.}
Why a bed can be slept in but not under

Bristol), 1 American consultant (New York) and 1 from New Zealand. I asked the consultants to rank the sentences according to a scale from 1 (=bad/unnatural sentence) to 3 (=perfect/natural sentence).

1. Extracting from inside the PP: Wh- vs DP-extraction

In this section we examine different types of extraction in turn, since one of the basic syntactic properties of PVs that distinguishes them from phrasal verbs lies in DP-extraction. First of all, there is a well-known difference between wh-extraction and DP-extraction from inside a PP: P-stranding as a result of Ā-movement (see 4-ab) generally occurs more freely than it does as a result of A-movement (see 4c–d)

(4) a. Which city does John come from $t_{wh}^c$?  
    b. Who did Sam talk to Harry about $t_{wh}^c$? (Hornstein & Weinberg 1981)  
    c. *This city is come from $t_{DP}$ (by John)  
    d. *John was talked to Harry about $t_{DP}$

Examples (5) to (8) show that DP-extraction is further restricted. Here is a list of restrictions which have been recognized since Couper-Kuhlen’s (1979) seminal work on this topic:

i. unaccusative verbs are generally excluded in prepositional passive constructions:

(5) a. John comes from Chicago  
    b. *Chicago is come from (by John)  
    c. The garden swarms with bees  
    d. *Bees are swarmed with (by the garden)

ii. if a P does not allow stranding with wh-movement then there cannot be any A-movement a fortiori:

(6) a. Mary lived across the street  
    b. *Which street did Mary live across?  
    c. *The street was lived across (by Mary)

iii. no stranding with “high PP adjuncts” (like the temporal PP ‘for years’ in 7b):

(7) a. This house has been saved for (i.e. money has been put by to purchase this house)  
    b. *Years have been saved for

iv. “object of the P must be construed as attaining a relevant/salient ‘resultant’ state” (Ramchand & Svenonius 2004).
(8)  a. This bed was slept in
    b. *This bed was slept near (by John)
    c. *New York was slept in
    d. {This/*A} cup was drunk out of by Napoleon (Davison 1980:44)

v. the subject of a PPass must be its prepositional object, no expletive subject being
   allowed (unlike German or Swedish impersonal passives, for example):
   (9)  a. *There/*it was slept in this bed
        b. Det har sovits i den sängen (Swedish)
           There has slept-pass in this bed.the
           “People has slept in this bed”
        c. Es wurde im Fernsehen berichtet, dass…
           it was in-the television reported that

Although Scandinavian languages display constructions comparable – though not
identical – to those found in English, this is a uniquely English phenomenon. Consider
more Swedish examples:
   (10) a. Henne skrattades (det) åt (Swedish)
        her was-laughed it-expl at
        b. Ham blev (der) leet ad (Danish)
           him was it-expl smiled at
           Maling & Zaenen (1990:162)

Although it has been claimed that expletives are often optional (see a.o. Klingvall
2012), the judgment of Swedish native speakers3 reveals the examples under (9) to be
marginal (if not ungrammatical) without expletives. The reason why these preposi-
tional constructions are similar but not identical to English ones lies in the obligatory
presence of the expletive itself (which is evident in a V2 construction with post-verbal
subject); this hints at the fact that the PO is topicalized. Maling and Zaenen (1990) first
demonstrated that Mainland Scandinavian and English differ in this respect: (9a-b)
are considered degraded without expletives.
   (11) a. *Hon skrattades åt
          she was.laughed at
   b. *Han blev leet ad
      he was smiled at

3. I am grateful to Giovanni Fort who gave me access to the judgments of his informants
   (Umeå University and Göteborg).
Maling and Zaenen claim that the “dummy subject’s” presence is obligatory, thus the grammatical versions of (11) can only be (12):

(12) a. [Henne] superscript top skrattades det åt her was.laughed it at ‘People laughed at her’
    b. [Ham] superscript top blev der leet ad him was it smiled at

2. **Tackling (V+P): Reanalysis**

This non-canonical passive construction in the English language has been studied for some time since the early days of Generative Grammar, in fact Chomsky (1965; 1974), Riemsdijk (1978) and Hornstein and Weinberg (1981) among many others, have analyzed it.

The concept of Reanalysis was first proposed by Chomsky in his 1974 Amherst lectures in terms of different bracketing: a construction like ‘advantage was taken of John’ would be derived from ‘was [taken advantage of John]’, whereas in the case of double passive, ‘John was taken advantage of’ would be derived from ‘was [[taken advantage of] John].’

Hornstein and Weinberg (henceforth H&W) implemented the formal definition of Reanalysis, focussing in particular on P entering into constituency with V yielding a complex verbal head.

First of all, they assumed that some instances of preposition stranding are impossible since they would cross bounding nodes, namely PP and S. Therefore, examples like (13) are ruled out by Subjacency effects as what moves past both PP and S on its way towards COMP:

(13) a. *What time did John arrive at?
    b. *What inning did the Yankees lose the ball game in?

However, if there is pied piping of the preposition, just one bounding node is crossed, i.e. S, and the Subjacency condition is respected:

(14) [S’ in what inning [S did the Yankees lose the ball game]?]

However, the Subjacency condition eventually becomes too restrictive, ruling even good sentences to be ungrammatical:

(15) Who did you write about?

I thank an anonymous reviewer for pointing this reference out to me.
H&W therefore proposed a solution based on three assumptions:

i. A universal filter of the form *[NP \_e_{oblique}]* which states that silent NPs cannot be marked oblique (i.e. traces have to be marked objective).

ii. A general syntactic rule of Reanalysis V → V* (where V c-commands all elements in V*).

iii. Case-marking rules occur after all transformation rules have applied

According to the filter in (i), (13a), repeated here as (16), is ruled out, because the trace is marked oblique.

(16) *What time did John arrive at t.*

Moreover, Reanalysis V → V* cannot apply since the PP is immediately dominated by S and not by VP (cf. 17). The only way to save the sentence is to pied-pipe the preposition *at.*

(17) S
    \[ NP \_John \]
    \[ VP \_arrived \]
    \[ PP \_P \_at \_NP \_what \_time \]

In contrast, the sentence under (18) is grammatical, because PP is the daughter of VP and Reanalysis can occur: in this way, the wh-trace is assigned objective case by the complex V rather than the oblique by P:

(18) Who did John talk to Harry about?
    \[ S' \_C \_who \_S \_John \_VP \_V \_talk \_to \_Harry \_about \_t_{WH} \_] ]

(19) S
    \[ NP \_John \]
    \[ VP \_V \_PP \_to \_HHarry \_about \_who \]

To sum up, “[t]he only way to allow movement of a wh-element directly governed by a preposition is to prevent its trace from being marked oblique. […] the preposition can strand only if the Reanalysis rule can apply to “absorb” the preposition into the verb, i.e. if the PP is immediately dominated by VP” (H&W 1981:63).

(20) **Reanalysis**: V + PP → (V+P) + DP
The object DP ends up being a sister to V (at S-Structure), with P no longer heading a PP: this configuration makes the extraction of the DP viable. The same holds for DP promotion to subject of the passive sentence.

In a different vein, Kayne (1981) assumed that the presence of P-stranding in English and its absence in French were not connected with the presence or absence of a Reanalysis rule: in fact, in French V-NP (Je veux que soit mis fin à la guerre) and V–V (in causatives) exist, but there is no V–P Reanalysis. Kayne claimed the presence of language-specific Reanalysis: he held that since P cannot be a proper governor of a PO (according to the ECP), Reanalysis applies to allow the POS to be governed by V (the other proper governors being N and A). In this analysis, Reanalysis is responsible for P-stranding, both in wh-movement and in passivization.

2.1 The problems with Reanalysis

Dealing with extraction from inside a PP – be it via A- or Ā-movement – in terms of Reanalysis does not capture all cases, since not all “adjuncts” PPs behave the same: in other words, the distinction between ‘dominance by VP’ and ‘dominance by S’ is not enough to account for all cases. It does not, for example, capture the sort of semantic restriction that rules out (21b–c) but not (21a).

(21) a. This bed was slept in
   b. *This bed was slept near
   c. *New York was slept in

In (21b) it is not clear why it is impossible to extract the DP inside the adjunct PP ‘near this bed’ if we compare it with another adjunct such as ‘in this bed’; while in (21c) it is the particular kind of object (New York vs this bed) that degrades the passive sentence. In neither case can Reanalysis be of help here.

Moreover, there is a morphological issue in play: since the reanalyzed bunch is expected to form a possible semantic word, as claimed by H&W, (i) no element is expected to turn up between V and P in a PPass configuration (this, however, is not always the case, see 22a), and (ii) there is no way to account for the “semantic wordness” of make sense of, play sonatas on (a violin), the adjectival use of talk to in (22e) and the non-wordness of put the mouse on since both are V + DP_{OBJ} + P (cf. 22b–c vs 22d):

(22) a. John was spoken critically to
   b. These questions were made sense of

5. However, in some contexts (and in different grammars) the presence of adverbs is ruled out very sharply:

i) a. *This bed was slept repeatedly in
   b. *These proposals should be gone very carefully into
c. *This violin can be played \textit{any sonatas} on\textsuperscript{6}

d. *The table was put the mouse on (H&W: 65)

e. A difficult to talk to person\textsuperscript{7}

Finally, as Baltin and Postal (1996) point out, PP complements cannot undergo heavy DP shift, like (transitive) verb complements.

(23) a. I discussed \textit{t}_i with Lorenzo – [the problem he was having with deliveries]_i

b. *I argued with \textit{t}_j about such problems – [the drivers' union leader]_j

(Baltin & Postal 1996: 129).

It, thus, seems that the concept of Reanalysis itself is open to question: in the rest of the paper I try to show why the whole story of PPass should be observed from a different perspective.

3. Incorporation “without” incorporation

In this section I propose a different way of looking at the nature of the Ps that occur in the collocations we have seen so far. In particular, I take this class of Ps to have followed a grammaticalization path which has led them to behave more like functional than lexical elements. Pursuing Baker's line (1988),\textsuperscript{8} I retain the idea of preposition incorporation to account for English PVs; however, the kind of incorporation we are examining here is more abstract: it does not, paradoxically, entail the incorporation of Ps. In what follows, I present Baker's machinery of preposition incorporation, rejigging the structure he proposed in order to implement my idea of incorporation “without” incorporation (the distinction between which and Baker's covert incorporation

\begin{itemize}
  \item [c.] (cf. These proposals should be gone into \textit{very carefully})
  \item [d.] *?Mary delved \textit{completely} into this issue
      (The judgments under (i) are taken from my questionnaires).
\end{itemize}

6. This example is problematic since it is very bad for the most speakers. However, there seems to be a difference between (22c) and (22d). I will go back to this in §4.4.

7. I thank an anonymous reviewer for pointing this construction out to me.

8. There is no room here even to touch on the other frameworks which have dealt with the issue of English PPass: i.e. the Case Grammar Framework such as (the already mentioned seminal work by) Couper-Kuhlen (1979), who assumes that “deep case configurations” are crucial in determining whether a PV can undergo passivization. More recently Castillo (2008), following the lead of Couper-Kuhlen, has emphasized on the features of arguments according to scales of animacy. I refer the reader to these works directly.
must be preserved). It will be shown that this idea can only be maintained in English, there being languages where “prepositions” actually incorporate onto the verb instantiating prefixes or internal verb morphology.

3.1 Baker (1988) on PPass

According to Baker, English PVs can be accounted for in terms of abstract incorporation of P onto V via covert movement at LF. Preposition incorporation is believed to occur (covertly) since there could not be passivization without it. To prove it, Baker compares English and Chichewe, a Bantu language. As in this language no P-stranding is allowed, if a verb takes a prepositional complement no NP can be extracted from that PP (either via NP- or wh-movement):

(24) Msangalatsi a-ku-yend-a ndi ndodo
Entertainer SP\textsuperscript{p}-pres-walk-ASP with stick
‘The entertainer is walking with a stick’

(25) *Ndodo i-ku-yend-edw-a ndi
Stick sp-pres-walk-pass-ASP with
‘the stick is being walked with’ (Baker 1988: 260)

In (24) the preposition ndi heads a PP taking the DP object ndodo as complement; (25) is the passive counterpart of (24) and is ungrammatical. Things change, however, if the verb displays a specific morphological mark, i.e. the so-called applicative suffix: in this case the object of the preposition ends up being directly governed by the complex verb (which usually acts as a transitive verb) and is thus liable to become the subject of the corresponding passive sentence.

Before going into detailed analysis, it may be useful to explain the label ‘applicative’. ‘Applicative’ is widely used in the description of many African languages, especially but not exclusively those of the Bantu family: simply put, an applicative construction features a verb bearing a specific morpheme licensing an oblique (non-core) argument that would not otherwise be considered part of the verb’s arguments.

Applicatives are typically represented by double object constructions (cf. 26b) but can also involve monoargumental Vs taking benefactive, locative or instrumental arguments (all examples taken from Baker 1988):

Chichewe:

(26) a. Ndi-na-tumiz-a chipanda cha mowa kwa mfumu (V+P)
1sS-past-send-ASP calabash of beer to chief
‘I sent a calabash of beer to the chief’

9. SP = Subject agreement prefix.
b. Ndi-na-tumiz-ir-a mfumu chipanda cha mowa (Applicative)
   1sS-past-send-to-ASP chief calabash of beer
   ‘I sent the chief a calabash of beer’

Kinyarwanda:

c. Abaana b-iiaca-ye ku meeza
   children SP-sit-ASP on table

d. Abaana b-iiaca-ye-ho ameeza (Appl./Loc.)
   children SP-sit-ASP-on table
   ‘The children are sitting on the table’

Going back to the Chichewa example given in (24), we find its applicative counterpart in (27), which can passivize (see 28) unlike (25):

(27) Msangalatsi a-ku-yend-er-a ndodo (Appl.)
   Entertainer sp-pres-walk-with Appl-ASP stick
   ‘The entertainer is walking with a stick’

(28) Ndodo i-ku-yend-er-edw-a (Appl. pass.)
   Stick sp-pres-walk-with-pass-ASP
   ‘the stick is being walked with’

The verbal form a-ku-yend-er-a differs from a-ku-yend-a in displaying a specific object-licensing morpheme -er-: therefore, a-ku-yend-er-a can be considered a V–P complex. According to Baker, this bunch governs what the P governed before movement (-er- is taken to be the spell-out of the preposition ndi ‘with’, although it is morphophonologically different from it) after the bunch has incorporated onto the verb: in other words, the object is properly governed by the applicative (i.e. transitivized) verb.

Baker further hypothesizes that this analysis can also be applied to English, the only difference being the covert type of incorporation which is argued to occur at LF. Note that even the analysis of English double object constructions is conventionally analyzed as an applicative construction with a silent applicative marker (cf. Marantz 1993 and more recently Bruening 2010 *inter alia*). The prepositional dative (see 29a) and double object constructions (see 29b) in particular are not taken to be derivationally linked, since they actually have a slightly different semantics.

(29) a. Mike gave the pencil to John
   b. Mike gave John the pencil

Bruening 2010 takes the underlying structures of (29a–b) to be (30) and (31) respectively:

(30) \[\text{VoiceP [NP Mike]} \text{Voice [VP [NP the pencil] give [PP to [NP John]]]}\]

(31) \[\text{VoiceP [NP Mike]} \text{Voice [ApplP [NP John] Appl [VP give [NP the pencil]]]}\]
The fact that English rules out the passive counterpart of (29a), i.e. the one featuring the prepositional dative (see 32a), is in sync with the Chichewa data; in other words, the passive form seems to be derivationally linked to the applicative construction (32b):

(32) a. Mike gave the pencil to John $\rightarrow$ *John was given the pencil to
b. Mike gave John the pencil $\rightarrow$ John was given the pencil

This is possibly due to the special status of the object in this particular syntactic configuration. We will take POs and their properties into account in §4.1–2.

3.2 A little diatopic variation: P-Stranding in Northern German and Dutch

In the Continental West-Germanic scenario the situation of P-stranding is very different: for instance, Northern varieties of German display optional P-stranding only with prepositional adverbs like *dabei, dazu* etc. cf. (33b).

(33) a. Er hat keine Zeit *dazu
he has no time *it-for
b. *Da hat er keine Zeit zu

c. *Er sagte, da habe er nichts von gehört
he said, *it- has he not -of heard (Fleischer 2002)

In Dutch even more variation is found: preposition stranding is far more widespread than in German, occurring with a particular class of clitic elements, namely *er* and *waar* (the so-called *r*-pronouns), which are moved via the well-known *r*-Movement responsible for extracting the PO from its P-internal position to a clitic-like position between the subject and the VP:

(34) a. Zij heft vaak [pp *er* over *e*] gesproken
she has often it about spoken
b. Zij heft *er* vaak [pp *e* over *e*] gesproken

   b. Waar heft zij vaak [pp *e* over *e*] gesproken?
what has she often about spoken?
   (adapted from van Riemsdijk & Williams 1986)

In van Riemsdijk (1997) other stranded constructions are taken into account to compare the position where stranded Ps are merged with that in which the corresponding full PPs are located. Van Riemsdijk argues that stranded Ps occupy a position that appears to be to the right of the corresponding (full) PPs (cf. 35b with 35d):

(35) a. Heb jij die trui met Omo schoon gekregen?
   have you this sweater with O. clean got?

---

10. See §4.1 for a discussion of the passive constructions possible in certain varieties of English.
b. *Heb jij die trui schoon met Omo gekregen?

c. Waar heb je die trui [e₁ mee] schoon gekregen?

d. Waar heb je die trui schoon [e₁ mee] gekregen?

what have you this sweater clean with got?

In order to prove this, van Riemsdijk focuses on complex predicates made of P(redicate) E(xtensions) – i.e. predicative nouns, predicative adjectives, prepositional predicatives etc. – and a V: nothing can intervene between the PE and the V except stranded Ps (xd is an example of the so-called complex predicate split). Van Riemsdijk proposes that the superficial order [PE P V] is derived from leftward movement of the PE across the stranded P [PE₁ P e₁ V].

These constructions in Dutch are important for the present discussion:\(^{11}\) in fact this data seems to suggest that, in order for stranding to obtain (i.e. in an applicative construction), it is not necessary that Ps incorporate onto the verb. This is in line with the proposal I put forward in the next section (and is also reminiscent of Baker’s 1988 proposal *modulo* the incorporation at LF): ‘incorporation’ (or the absence thereof, as we will soon see) just functions as an evocative label, there being no incorporation at all.

4. **Breaking down vP**

This section is devoted to the fine structure of vP that has recently been propounded: in fact, a profound exploration of this structure is crucial to a better understanding of how (non-core) arguments and inner aspect (*Aktionsart*) are encoded and licensed.

Much recent work – see Pylkkänen (2002), Ramchand (2013), Harley (2013), among many others – has pointed to the fact that vP should be split into an array of functional projections. This array has proven to be richer than previously thought. Following this line, I take vP to encode, at its most basic, the following functional sequence:

\[
(36) \quad [\text{VoiceP} \ [\text{ApplP} \ [\text{FP/(Inner)AspP} \ [V]]]]
\]

Importantly, as proposed by Harley (2013), VoiceP is assumed to be distinct from vP. Moreover, Sigurðsson (2012) takes the label ‘applicative’ to be, in itself, a Voice category because it alters argument structure: arguments are assumed to be event-licensed by specialized heads, Voice licenses the external argument, v the direct object and the Applicative head introduces the indirect object. Thus, one might reasonably expect Spec,ApplP to be the position where a further argument would be hosted (as e.g. in Sigurðsson’s argument).

\(^{11}\) Again, I thank an anonymous reviewer for pointing this out to me.
My view of ApplP is slightly different, though. In fact, I consider it to be a layer made of two distinct projections: ApplP *per se* and a second projection directly responsible for object-licensing. In other words, Spec,AapplP does not host the applied argument, as assumed in a number of theories. The second projection I take to be aspectual: AspP encoding “inner aspect” (*Aktionsart*) and possibly reminiscent of Ramchand's (2008) *resP*.

I assume that the combination ApplP-AspP takes care of the applied object (AO) – instead of assuming just one FP, namely ApplP – because of the peculiar way AOs behave in comparison with direct objects: first of all, they have a “closer” relationship with the verb (in a way that will soon be clear); secondly they seem to be endowed with a particular kind of affectedness – in the sense of Tenny (1987), Fagan (1992), Borer (1993) and Egerland (1998) *inter alia*: *a slept-in bed, a laughed-at guy or a dealt-with problem* are not affected in the same way as *an eaten apple* (i.e a purely affected object). 'Sleep in the bed' is an activity in the same way as 'sleep' is. Moreover, *in the bed* is an adjunct in the same way *in New York* is: yet, the PP-internal AO attains a “salient resultant state” (in Svenonius & Ramchand's 2004 sense; see above) as the object of the applicative event, without being a telos: that is why an inner aspectual projection is required in order to take care of the object, whose presence qualifies the particular way that the event occurs.

The structure of an English PV such as *laugh at the guy* can be captured in the following representation:
At first glance, this derivation seems to pose problems for the HMC. However, I assume that neither Asp nor Appl are featural interveners for V movement: \( V^0 \) can thus skip them both on its way to Voice.

In the next paragraph I will enlarge on the properties of objects which have been found to be crucial in this analysis.

4.1 Are applied objects “more object-like” than canonical objects?

That a special relationship between the verb and an AO in applicative constructions exists has been generally accepted since the publication of Baker’s and Marantz’s work, or even before. Baker (1988) pointed this out in what he dubbed “Marantz’s Generalization” which can be summed up as the proposition that if a verb bears extra morphology and an additional DP object endowed with an oblique thematic role, “that additional NP argument will behave like the surface direct object of the complex verb” (Baker 1988: 246).

Taking Chichewa as an example, it is easy to see that AOs “may optionally trigger object agreement, they may ‘pro-drop’ and they may become the subject of a passive verb” (Baker 1988: 246) i.e. they display features typical of proper objects. This paradoxical behavior of applicative verbs reaches its “climax” in the impossibility of promoting a direct object as the subject of a passive sentence, the only available possibility being the AO (the examples under 38 are adapted from Baker 1988).

(38) a. Kalulu a-na-gul-ir-a mbidzi nsapato hare sp-PAST-buy-for-ASP zebras shoes ‘The hare bought shoes for the zebras’

b. Mbidzi zi-na-gul-ir-idw-a nsapato (AO \( \rightarrow \) Pass. Subj. OK) zebras sp-PAST-buy-for-PASS-ASP shoes ‘The zebras were bought shoes’

c. *Nsapato zi-na-gul-ir-idw-a mbidzi (DO \( \rightarrow \) Pass. Subj. *)\(^12\) shoes sp-PAST-buy-for-PASS-ASP zebras ‘Shoes were bought for the zebras’

\(^{12}\) Standard English does not permit comparable constructions either, cf (i):

(i) *The pencil was given John

However, an anonymous reviewer pointed out to me that (i) is actually possible in North-Western varieties of English. As a matter of fact, Haddican and Holmberg (2012) observe that theme passivization is possible in those varieties in which \( \text{theme-goal} \) ditransitives (i.e. the mirror image of the \( \text{goal-theme} \) constructions in the Standard) are also available cf. (ii):

(ii) %She gave it me

(iii) %She gave the ball my sister \( \rightarrow \) %The ball was given my sister

Haddican & Holmberg assume that these constructions are derived via the merger of an accusative case-assigning probe on top of Appl. Although I realize that this data may present problems for my proposal I am just touching on it here, leaving further investigation for the future.
To account for this weird property of AOs, Baker assumes that once the P has moved and incorporated onto the V it can no longer assign case to its object, but “[t]he stranded NP must get case from some other category which governs it. […] the complex verb is the only potential case assigner which governs it; therefore, the derived verb may and must assign case to this NP at S-structure” (Baker 1988: 250). The V ‘buy-for’ in (36) assigns ‘zebras’ the accusative case inherited from ‘buy’ but no oblique case inherited from ‘for’. This guarantees that the AO has all the surface properties of direct objects. The other object, however, is left with no case. Moreover, Baker points out that there are many other Bantu languages which can assign structural case to more than one NP, Kinyarwanda, for example.

Bresnan and Moshi (1990) extend Baker’s hypothesis to a larger group of Bantu languages and show that, although they all allow more than one postverbal NP object, they differ in being either asymmetrical or symmetrical object type languages, the former having just one postverbal NP exhibiting the syntactic properties of the “primary object”, the latter allowing all postverbal NPs to behave in the same way. Baker concludes that in asymmetrical object type languages “[…] Case Filter can be satisfied if and only if the inherent case is assigned to the basic object under government at D-structure, and the structural accusative is assigned to the applied object at S-structure” (Baker 1988: 267, italic mine). I will follow Baker’s view on the assignment of inherent case in the English counterparts of examples like (36), as I show in §4.5.

4.2 The level of affectedness

Let us now turn to the “level of affectedness” mentioned in the previous section. First of all, positing an aspectual projection inside vP (which ensures that the applied object enters the event and gives its contribution to the pertinent inner aspectual reading) is tantamount to assuming that affectedness simply goes hand in hand with inner aspect/aktionsart. This is not necessarily true, as has been pointed out in recent work, see e.g. Beavers (2011): in fact, even though there is undoubtedly a connection between the two categories, affectedness should not be reduced to aktionsart, especially since effects can be graded: an argument is not simply either affected or unaffected; what is more, the way in which an event is changed may affect the object very abstractly. The question of whether or not affected objects always imply a change in the aspectual properties of the verb should be restated thus: do different degrees of affectedness have to do with different aspectual readings? One might intuitively think they do, but this is not necessarily the case. In other words, the presence of an AO can sometimes turn an activity into an accomplishment (providing thus the event with a telos), but what can we say about those activities that remain activities even after the merger of an AO? In Table 1 I give a rough sketch of different degrees of affectedness, from total affectedness to very weak involvement of the argument.
Table 1. Degree of affectedness

<table>
<thead>
<tr>
<th>Affected objects</th>
<th>Delimited objects</th>
<th>Low degree of affectedness</th>
</tr>
</thead>
<tbody>
<tr>
<td>'dispose of the garbage'</td>
<td>'tamper with a device'</td>
<td>'sleep in Napoleon’s bed'</td>
</tr>
<tr>
<td>accomplishments</td>
<td></td>
<td>activities</td>
</tr>
</tbody>
</table>

Beavers formalizes this scenario by delving into the so-called mereological properties of events, i.e. a way to map “subevent structure to subpart structure of event participants” (Beavers 2011: 350). The incremental themes, i.e. privileged event participants, of a given predicate represent all that is needed to predict the telicity of the event. By developing a scalar model of the change undergone by an incremental theme (along a scale whose degrees belong to a given set), Beavers arrives at a formal model for the degrees of affectedness that encompasses the following types of change:

(i) a quantized change, like in accomplishments/achievements (eat, break, …);
(ii) a non-quantized change involving degree achievements (cut, cool, …); (iii) situations where there is potential for a change implying surface contact or impact instantiated by activities (hit, rub, …); (iv) activities where change is unspecified (laugh at, smell, …).

Very many of the PVs taken into account here belong to the last class of change, i.e. they are activities with an unspecified change of theme. Verbs such as attend to, agree with, beat at, believe in, delve into, hammer (pound) at, jump on, listen to, look at, lie on, pick on, sit in, sleep in, sleep on, talk about, and many others are included in this class; a change in their object is not specified and/or not pertinent.

More specifically, the change involved here is non-specified in the sense that ‘a bed that has been slept in’, ‘a symphony that has been listened to’, ‘a couch that has been jumped on’, ‘a child that has been picked on’ etc. attain a certain degree of affectedness even though this process is not (directly) quantifiable. Nevertheless, AspP ensures that a proper checking of the object obtains and thus determines a specific aspectual reading. A derivation is particularly likely to crash if an object enters it without complying with specific requirements, the first of which seems to be that the object is definite: as we have seen, indefinite NPs are generally non felicitous in PPass, cf. (8c) repeated here as (37a):

(39) a. [This/*A] cup was drunk out of by Napoleon (Davison 1980: 44)
b. *Beds were jumped on in the whole hotel
c. *People were laughed at

Verbs belonging to classes (iii) and (iv) may be activities or semelfactives: this difference is not crucial here.
Quoting Davison (1980:46), “[i]n all the well-formed cases, the object which is made subject is an NP referring to a concrete entity, particularly a definite NP or proper name.”

Moreover, as pointed out by Kageyama (2006), English pseudopassives share several properties with individual level predicates, as both are property-denoting stative sentences.

Thus, it is reasonable to assume that there is a checking of a [definite] feature on the AO, see (40):

\[
\text{ApplP} \quad \text{AspP} \quad [\text{u/de/finite}]
\]

Therefore, an indefinite object like a cup in (39a) cannot enter an applicative construction as it does not possess an interpretable definite feature, nor can bare NPs (people, apartments, …),\(^{14}\) for the same reason.

As far as non-alternating Ps are concerned, such as in vs near/under in ‘sleep in’/sleep near’, Culicover & Jackendoff (2005) have assumed that “[p]repositional passives seem generally possible when the verb and the preposition together denote the (surface) subject’s proper function.” This is why examples similar to (41) are ruled out:

\[
\begin{align*}
\text{(41) a. This bed has been slept in/*under} \\
\text{b. The sofa has been sat on/*beside} \\
\text{c. The telescope is being look through/*inside}
\end{align*}
\]

(Culicover & Jackendoff 2005:208)

Let us briefly recap the verbs that allow for a passive counterpart and those which do not. Table 2, column A contains verbs that, for various reasons, cannot have a passive counterpart (column A) or for which there cannot be an alternation between base verb and prefixed verb, as with the German verbs wohnen/bewohnen and similar pairs. The verbs in column B, in contrast, allow for a passive counterpart: the difference between the constructions in the two columns lies in the type of object involved.

4.3 The basic structure of PVs

The various Vs that enter into collocations with Ps can be either transitive e.g. attend to, bear with, beat at, break into, call on, deal with, draw with, drink to/at, hear from,

\(^{14}\) As long as a specific context is provided, informants tend to accept PPass with bare NP subject, although they are perceived as odd (at any rate not ungrammatical), i.e. ?People were constantly laughed at in that faculty; ?Apparently, apartments have been broken into in the slums of this city, etc.
learn from, peck at, pick on/at, read to, save for, smell at,\textsuperscript{15} etc. or unergative, e.g. cope with, delve into, pander to, peep at, etc…). Crucially, PVs consisting of an unaccusative V and a P seem to be excluded or very marginal: they are rarely accepted in passive forms by native speakers. I examine the phenomenon in the next section.

From a structural viewpoint, I argue that the difference between PVs made up of transitive or unergative Vs comes down to the merging position of the ("prepositional") object: transitive Vs have an object slot in which the DP is first merged; it is subsequently attracted into Spec,AspP for checking reasons. With unergatives, DP objects are directly merged in Spec,AspP.

(42)

From a structural viewpoint, I argue that the difference between PVs made up of transitive or unergative Vs comes down to the merging position of the ("prepositional") object: transitive Vs have an object slot in which the DP is first merged; it is subsequently attracted into Spec,AspP for checking reasons. With unergatives, DP objects are directly merged in Spec,AspP.

\begin{table}[h]
\centering
\caption{All the contexts in which passivization is impossible}
\begin{tabular}{ll}
\hline
A. Passive impossible & B. Passive OK \\
\hline
Prepositional dative: & Double object construction: \\
Mike gave the pencil to the kid & Mike gave the kid the pencil \\
*The kid was given the pencil to & The kid was given the pencil \\
John drank out of a cup & John drank out of this cup \\
*A cup was drunk out of & This cup was drunk out of \\
Non-prototypical object: & Prototypical object: \\
John slept in New York & John slept in this bed \\
*New York was slept in & This bed was slept in \\
Alternation simple vs prefixed (Continental West-Germanic): & \\
John wohnt in New York (German) & John wohnt in diesem Haus \\
*John bewohnt New York & John bewohnt dieses Haus \\
\hline
\end{tabular}
\end{table}

\textsuperscript{15} Only ‘smell at’ as in This lamp post is smelled at by all dogs in the neighborhood; ‘smell of’ is unaccusative and does not allow passivization *Whisky was smelled of by John, see §3.4.
4.4 The odd men out: Non-passivizing PVs

The non-passivizing PVs that we have met so far do not have a passive counterpart for two different reasons: either (i) the particular P that they collocate with (e.g. sleep in vs sleep near) or (ii) the PO is incompatible with their semantics. However, there is a subclass of Vs that consistently fail to passivize, namely the unaccusative Vs + P:

\[(43)\] a. *come from: Chicago is come from (by John)
    b. *come to: This river is seldom come to
    c. *swarm with: Bees are swarmed with (by the garden)
    d. *go into: This room must not be gone into

Why is this the case? It is reasonable to assume that no applicative projection is merged inside an unaccusative vP. The explanation may be twofold: first, it seems that in the case of PPass the generalization that only verbs with a true external argument can passivize also holds (cf. Baker, Johnson & Roberts 1989). Secondly, unlike most of the Ps that collocate with the other two subclasses of Vs, the semantics of these Ps is locative, whose characteristics may play a major role here. If this is indeed the case, these Ps are “real” Ps heading a PP with a PO as complement. Given its PP-internal position it is reasonable to assume that the PO does not represent a suitable goal for higher probes like T in passives: this is why A-movement is blocked in this class of Vs. However, no such restriction holds for Ā-movement and wh-items are free to move to C. I argue that the reason for this may be found in a proposal first made by van Riemsdijk (1978) and recently revived in Abels (2003): prepositions have an escape hatch – Spec,PP – that allows Ā-moved items to move past it on their way to C leading to preposition stranding. This non-argumental position is not, however, available for A-movement; as a consequence, the PO cannot get out of the PP and cannot be a suitable goal for higher probes (as in passives constructions):

\[(44)\]

\[
\begin{array}{c}
V \\
\text{come} \\
P \\
\text{from} \\
\text{New York}
\end{array}
\]

16. I am indebted to an anonymous reviewer for this item of literature.
Finally, I take the structure of PVs which fail to passivize due to their unaffected objects to resemble that of the unaccusative class:

(46) *New York was slept in

Phrases like “Sleep in the open air” or “sleep in New York” differ from “sleep in this bed” in that the POs are non-affected. I propose that these PVs be subsumed under the “intransitive” class:\(^{17}\)

(47)

17. However, in my questionnaires a clear-cut difference in the acceptability of (i) and (ii) appeared:

(i) *Color was blazed with (by the garden) [even **for one informant]
(ii) *?The river was finally come to

The presence of a goal may be responsible for the different behaviors of the two unaccusative verbs. Other verbs of this class investigated in my questionnaires were awake from, blaze with, burn with, circulate through, clash with, come from, come to/at, die for, draw with, go at, glisten/glare with, go up, grow into/from, return from, smell of, swarm with, pass for, run between. The reason why a goal can become subject whereas a source cannot remains to be investigated.
4.5 On the \([V+\text{DP}_{\text{obj}}+\text{PP}]]-\text{type}

As I mentioned at the beginning, there is a subset of PVs which take a direct object along with a PP, e.g. make sense of, take advantage of, set fire to and so on, which can also have passive counterparts. Now, the problem arises as to how DOs can be assigned objective case by passive Vs, cf. “this theory was made sense of”, “my friends have been taken advantage of”, etc.

Although the above construction might lead one to suppose that all these cases are idioms or idiom-like, even more complex constructions actually exist in which the DO can be modified (see 48):

\begin{align*}
(48) & \text{a. } \% \text{This violin can be played any sonatas on} \\
& \text{b. } \% \text{This hall has been signed peace treaties in}
\end{align*}

(adapted from Kageyama & Ura 2002)

Such cases are problematic for Burzio’s Generalization; in fact, the passive Vs ‘has been played’ and ‘was drunk’ apparently assign case to their DOs, thus contradicting standard assumptions about passive verbs.

If we do not want to resort to noun incorporation we have to find another explanation for why passive Vs maintain the possibility of assigning accusative to their DOs.

It is possible that a solution could be found along Sigurðsson’s (2012) lines: let us first assume that \(v^*\), in Chomsky’s (2001) sense, comes in different flavors according to the inherent cases that have to be licensed. The different v-heads are referred to as ‘case star augmented’ (Sigurðsson 2012: 195): thus, “simple” \(v_{(\phi)}^*\) licenses an accusative argument, \(v_{(\phi)}^{**}\) a dative argument, \(v_{(\phi)}^{***}\) a genitive argument and so on.\(^{18}\)

As for passives, \(\text{Voice}_{\text{Pass}}\) is taken to be involved in the so-called process of case star deletion: for instance, \(v^*\) becomes \(v\) and cannot assign accusative case (more precisely it gives no instructions to PF as to how the internal argument is to be case-marked; the A-licensing \(\phi\) is not affected by the deletion); however, when it comes to \(v_{(\phi)}^{**}\), dative case is not affected by passive morphology, i.e. there is no case star deletion. This is why a dative object preserves its case-marking even after \(\text{Voice}_{\text{Pass}}\) has been merged, cf. (49a) and (49b):

\begin{align*}
(49) & \text{a. Peir breyttu henni (Icelandic)} \\
& \text{they changed her/it-DAT} \\
& \text{b. Henni var breytt} \\
& \text{her/it-DAT was changed (Sigurðsson 2012: 201)}
\end{align*}

\(^{18}\). Here I use the same notation as Sigurðsson, although I abstract away from details: \(v_{(\phi)}^*\) indicates that the A-licensing property (subscript \(\phi\)) is to be kept distinct from the case-triggering property ‘*’ which is taken to be morphological in nature. In other words, object-licensing is basically a syntactic operation which is externalized via language-specific PF operations.
c. Sie halfen uns (German)
   they helped us-DAT

d. Uns wurde geholfen
   us-DAT was helped

The same holds for $v_*(\phi)^{+++}$ (genitive) and other oblique cases: $v^{+++}$ is not affected by passive morphology.

With this in mind I assume an applicative verb to have a case star augmented $v$ licensing two different objects in an asymmetrical object construction: the direct object is licensed “for free” and the AO is licensed by ApplP/AspP and becomes the “primary object”, as we have seen above. Case star deletion affects the case-marking of AOs but not that of direct objects, just like datives in $v^{++}$ where there is no $^{++}$ deletion:

$$(50) \text{ Voice}_\text{Pass} \ldots [ \ldots v^{++} \text{NP} \ldots ] > \ldots v^{++} \ldots \text{NP}_{\text{DO-Acc}}$$

An important proviso is necessary here: not all English speaking informants are entirely comfortable with this subclass of PVs. In fact, some consultants ranked the sentences under (51) 1 or 2 out of 3 (recall that 3 stands for ‘grammatical sentence’ and 1 ungrammatical):

$$(51) \begin{align*}
  a. & \quad ^*\text{These documents have been made \textit{effective use} of by the attorney} \\
  b. & \quad ^*\text{Don't worry about your children: they'll be taken \textit{good care of}}
\end{align*}$$

Informants speaking non-British varieties of English rank both (51a) and (51b) as acceptable.

4.6 Variation in applicative constructions

To conclude, I would like to sum up the properties of applicatives by focusing on the variation across the languages I have discussed in this paper.

First of all, in Bantu languages Applicative shows up as a bound morpheme merged in Appl and incorporated onto the V via head movement. In contrast, in English it appears as a free morpheme, i.e. a P which does not incorporate onto the V although it also heads ApplP. In continental West-Germanic there is alternation between simplex Vs which select prepositional complements and prefixed Vs which can select both objects and non-core arguments due to the presence of inseparable prefixes that affect the thematic properties of the V.

$$(52) \begin{align*}
  a. & \quad \text{Ik woon *(in) dit huis} \quad \text{ (Dutch)} \\
     & \quad \text{I live in this house} \\
  b. & \quad \text{Ik *(be)woon dit huis} \\
     & \quad \text{I \textit{pref-live this house}} \\
  c. & \quad \text{Ik bewoon *(in) dit huis}
\end{align*}$$
Why a bed can be slept in but not under

To make sense of what I propose here for these languages, it is worth recalling Hoekstra’s (1992) hypothesis in which German and Dutch inseparable prefixes are treated as abstract Ps, base-generated in a Small Clause and then incorporated onto the V:

\[(53) \quad [\ldots \ P^*_i\text{-}\text{woon} [\text{SC}] \text{ik} [t_i \text{ dit huis}]]\]

Incorporating Ps alternate with full PPs (\textit{woon in} vs \textit{bewoon}).

Damonte and Padovan (2011) slightly modified Hoekstra’s (1992) hypothesis: they assumed abstract Ps not to be merged in a Small Clause along with subjects but to be XPs merged in the Spec of a FP encoding some adverbial modification of the verb. What does this derivation look like? The syntactic mechanism which allows an adverbial P to incorporate onto the verb as a prefix (respecting antisymmetry) is head-incorporation from a specifier (see also den Dikken 1995):

\[(54) \quad [\text{Voice} P_j\text{-}V_t [\text{Appl} t_j \text{ Appl}^0 [\text{Asp} \ldots [\text{VP} \ldots t_i]]]]\]

Continental West-Germanic appears to differ from both English and Bantu languages: on the one hand, it has preserved a prepositional modification of the base verb resembling English, on the other hand these (abstract) Ps are no free morphemes but part of the verbal morphology. The prefixes may either resemble an actual P (\textit{door/durch}, \textit{over/über}, etc.) or be the spell-out of the abstract P (\textit{be-}, \textit{ver-},\textsuperscript{19} etc.). In Table 3 these observations are summarized:

<table>
<thead>
<tr>
<th>Bantu (Chichewa)</th>
<th>Continental West Germanic</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>verbal morphology</td>
<td>prefixation</td>
<td>free morpheme = P</td>
</tr>
<tr>
<td>&quot;...-V-Appl...&quot;-a-ku-yend-er-a</td>
<td>Pref\text{Appl}\text{-}V- \text{be-woon-}</td>
<td>V P\text{Appl} \text{sleep in}</td>
</tr>
<tr>
<td>Incorporation of verbal morphology via V-movement</td>
<td>Incorporation from Spec</td>
<td>Free morpheme (P) heading ApplP – no incorporation</td>
</tr>
</tbody>
</table>

**Table 3. Typological variation in Applicative constructions**

Conclusions

In this paper I have proposed that the collocations V + P cannot all be subsumed under a unique verb class of PVs as they behave differently with regard to passivization, i.e.

\[\text{Incidentally, modern prefixes are old prepositions from a diachronic point of view: be- is derived from bei, ver- from vor, etc.}\]
not all PVs have a passive counterpart, the so-called prepositional passive. The core of my proposal is an analysis of the class of passivizable PVs as applicative constructions: in other words, the Ps that enter the collocations behave like functional elements heading a dedicated v-projection, the Applicative Phrase: the complement of ApplP is an inner aspect (Aktionsart) projection which hosts the “prepositional” object DP in its specifier. There is a clear link between the particular degree of affectedness of the (prepositional) objects of a passivizable PV and whether or not the latter can be treated as an applicative verb. PVs that fail to passivize are either constructions in which the objects are not affected or are, for other reasons, unaccusative verbs. This analysis allows us to capture more directly all those cases that are problematic in other approaches to PPass, particularly Reanalysis and generalized incorporation.

As I observed in fn. 13, two less investigated issues remain: (i) among the unaccusative Vs there is a subclass of motion verbs which allows a passive form in some cases (cf. come to, arrive at, etc.): can this simply be explained by the presence of a Goal? Recall that PVs selecting a Source strongly reject a passive form (cf. 40a); (ii) it is not clear how data from Northwestern varieties of English (which are more liberal about the passivization of direct objects instead of AOs, cf. %The pen was given John) can be integrated into the account given here. Further investigation of these open issues is necessary, ideally including more varieties and new consultants.

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Why a bed can be slept in but not under


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Deriving idiolectal variation

English \textit{wh}-raising

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The focus of this paper is on apparent cases of subject-to-subject raising out of finite clauses in English, which are accepted as (fully) grammatical by a minority of native speakers. The basic pattern involves a bi-clausal structure in which a displaced subject triggers agreement in both the embedded and the matrix clause. Crucially, this ‘double agreement’ pattern is only acceptable when a subject is \textit{wh}-moved. Our analysis builds on the criterial approach to subject extraction developed in Rizzi (2006) and Rizzi & Shlonsky (2006, 2007). We propose that the main ingredient of the \textit{wh}-raising pattern is incorporation of a functional head in the embedded left periphery into the matrix \textit{V}.

\textbf{Keywords:} raising; \textit{wh}-movement; Subject Criterion; incorporation; criterial freezing; idiolectal variation

1. Introduction

Standard English has a contrast between subject-to-subject raising out of a non-finite clause (1a), which is fully acceptable, and raising out of a finite clause (1b), which is considered to be strongly unacceptable, with or without the \textit{that}-complementizer:

\begin{align*}
(1) & \quad \text{a. John seems to } \text{\textit{t}_i \ read a book.} \\
& \quad \text{b. } \text{*John seems (that) } \text{\textit{t}_i \ reads a book.}
\end{align*}

* An earlier version of this work was presented at IGG 40, Trento (February 2014), at the Masters programme of the University of the Basque Country (UPV-EHU, March 2014), at CGG 24, Madrid (May 2014), and at a research seminar of the SynCart project at the University of Geneva (February 2015). The authors would like to thank the FWO for its financial support (postdoctoral grant FWO13/PDO/024 (Danckaert) and FWO project 3G0A4912 (D’Hulster and Haegeman)). We thank Elizabeth Bogal-Allbritten, Timothy Gupton and Eric Lander for comments and judgements, and Adriana Belletti, Jeff Lidz, Terje Lohndal, Jairo Nunes, Andrew Radford, Milan Řezáč, Luigi Rizzi, Ur Shlonsky, Vidal Valmala and the members of GIST for challenging comments on an earlier version of this paper and for helpful suggestions.
The deviance of (1b) is standardly captured in terms of a ban on ‘Improper Movement’, i.e. the descriptive generalization which bans movement from an \(\Lambda^\prime\)-position to an \(\Lambda\)-position (see among others Chomsky 1973; Fukui 1993; Müller & Sternefeld 1993). However, apparent cases of finite raising such as the ones in (2), in which the relevant segment is underlined, are produced and are accepted by some speakers.\(^1\) Superficially, such examples seem to be instances of the illicit pattern in (1b) with raising of a subject from within a finite clause:

(2) a. There were no signs of violence and a postmortem examination is due to take place tomorrow [Tuesday], which is hoped \(t\) may provide further information.
   ⟨http://www.theguardian.com/artanddesign/2013/mar/18/david-hockney-friend-dies-hospital⟩

b. Organizations that provide counseling and legal assistance to various tenant populations will now have the opportunity to bid for the new city funds, which are hoped \(t\) will help up to 150 families facing eviction.
   ⟨http://sfist.com/2013/10/01/mayors_office_will_throw_some_cash.php⟩

c. A recording was also made of each School and was then used to transcribe the minutes and any quotes which were felt \(t\) were relevant to the process.

In these examples, a long moved subject triggers agreement in both the embedded and the matrix clause. This is clearest in (2c), in which the relative operator which, whose antecedent is the plural noun phrase any quotes, triggers plural agreement both in the clause from which it is extracted (were relevant) and in the superordinate clause (were felt). The majority of English speakers reject such examples and instead accept the alternatives in (3), with an expletive subject in the raising clause. The superordinate agreement is then with the expletive:

\[\text{which is hoped that }\]

---

\(^1\) Although we will not be concerned with frequencies in this paper, a small informal pilot study conducted on the basis of the GLoWbE corpus (Corpus of Global Web-based English; ⟨http://corpus2.byu.edu/glowbe⟩) on 8 January 2014 suggests that the pattern we are looking at is productively used. The following results were obtained: for the string which/who/that it is hoped will (finite complement with regular \(\Lambda^\prime\) subject extraction) we found 70 hits; which/what/that is hoped to (canonical raising with \(wh\)-subject): 29 hits; which/what/that is hoped will (finite \(wh\)-raising): 27 hits. In other words, for this particular predicate (be hoped) there were almost as many occurrences of the \(wh\)-raising pattern as of regular raising.
Deriving idiolectal variation

(3) a. There were no signs of violence and a postmortem examination is due to take place tomorrow, which it is hoped to may provide further information.

b. Organizations that provide counseling and legal assistance to various tenant populations will now have the opportunity to bid for the new city funds, which it is hoped will help up to 150 families facing eviction.

c. A recording was also made of each School and was then used to transcribe the minutes and any quotes which it was felt were relevant to the process.

The data in (2) depart from the subject extraction pattern standardly observed in English. We will assume that such examples are generated by the grammar of a subset of speakers of English, or put differently, that this is idiolectal variation due to underlying microvariation in the grammar. Our goal in this paper is to identify the locus of this variation. Using a cartographic framework, we develop an analysis framed against the background of Rizzi’s (2006) approach to subject extraction, including his concept of ‘Subject Criterion’. The observed inter-speaker variation will be related to whether or not a CP-selecting predicate can incorporate the (φ-enriched) Fin head of its complement clause. For reasons that will become clear shortly, we will refer to the pattern in (2) as wh-raising.

The paper is organized as follows: the remainder of Section 1 provides some additional illustrations of the relevant data. Section 2 is an inventory of the core properties of wh-raising. In Section 3, we discard a number of accounts of the pattern investigated. Section 4 lays out our theoretical assumptions, and Section 5 presents our analysis, the key component of which is our hypothesis of Fin-incorporation. We will also discuss, and discard, some alternative implementations of our analysis which, though simpler and therefore more attractive, are not empirically adequate. Section 6 is a brief conclusion.

Additional attested examples of the wh-raising pattern are given in (4) and (5): (4) illustrates relative clauses and (5) interrogatives. There are also instances of the same pattern with comparative wh-movement, which are given in (6). We will not discuss such examples further here, but they would be captured by the analysis we propose.

---

2. Note that (5a) is the only attested example of wh-raising we have which originates from a non-written source. At this point we are not in a position to conclude that the phenomenon is typical of written language.
(4) a. It is set at rates which are considered to not deter the development and growth as set out in the Core Strategy, or impact on affordable housing provision.

b. This launches what is hoped will be a ten-year effort that will require as much as $25 million each year (COCA:1992:MAGNatlParks)

(5) a. What is thought has happened to him? (Sentence produced by BBC reporter, BBC radio 5 Live, reported in Radford 2004: 429)

b. There were many church council meetings in which the church leaders decided on which books should comprise the “bible”. They disagreed as to [which books] were thought were “Godly inspired”. (GloWbE; ABC News, Was Jesus Married? Ancient Papyrus Mentions His ‘Wife’)

(6) a. A little steam in Radstock, even if a little smaller than is hoped will run on the line, could once again be seen at Radstock. (BNC, Steam Railway News. 474 s-units)

b. Keep more balloons available than is thought will be necessary.

Informally speaking, the examples in (2), (4) and (5) seem to be ‘hybrids’ between cases of (non-finite) subject raising and examples of long wh-movement out of a finite clause. One might consider them as ‘blends’ (cf. Bolinger 1961, Coppock 2010 among many others) of two clauses: for instance (2c) could be seen as a combination of the two licit structures below, a raising pattern (2c’) and a regular wh-movement pattern (2c”).

(2) c’. any quotes which were felt to be relevant to the process
c”. any quotes which it is felt were relevant to the process


(i) John invited you’ll never guess how many people to his party.

In this example, the underscored part seems to be a parenthetical (presumably a sluice), but in contrast with regular parentheticals, it shares material with its host clause (viz. many). Although we do not exclude that (a subset of) our data can be analysed in terms of grafts, we will not pursue such an analysis here.
One view would be that such ‘blends’ are not part of the grammar of (certain) speakers, but rather that they are an ‘extragrammatical’ phenomenon.⁴ In our paper, we will take a different route: we take such examples to illustrate idiolectal microvariation and thus to be generated by the grammar of a subset of speakers, and we examine how a grammar that allows the derivation of these ‘hybrid’ patterns would have to differ from that which does not generate them. We have based our account on (i) anecdotally encountered attested data like those in (2), (4a) and (5a), (ii) material from additional searches in online corpora like (4b) and (5b), and (iii) the intuitions of five native speaker informants who accept the pattern, and who are in agreement with all judgements reported below.

It is standardly assumed that in a regular raising configuration such as that in (2c’) the non-finite complement clause is structurally reduced and lacks a left periphery, allowing the subject to move into the matrix domain. On the other hand, in the extraction pattern in (2c”) it is assumed that the \textit{wh}-subject moves out of the complement clause via an intermediate step in the embedded left periphery, which in this case is somewhat reduced. Anticipating our discussion: we will propose that the \textit{wh}-raising patterns are made possible as the result of the incorporation of a functional head in the C-domain of the embedded clause to the head of the selecting predicate in the higher clause.

2. A descriptive inventory

2.1 The core properties

We will start the discussion with a descriptive overview of the main properties of the \textit{wh}-raising pattern.

2.1.1 Only \textit{wh}-movement

First of all, and very importantly, in the configuration we are dealing with (cf. (2), (4) and (5)), a \textit{wh}-subject is extracted from a finite clause, moves to the higher clausal domain and triggers subject-verb agreement in both the embedded and the matrix clause. Though there are occasional attestations of non-\textit{wh}-subjects giving rise to this type of superordinate agreement, like for instance (7), our informants reject these examples and the attestations are far less easy to come by.

⁴ This would be in the spirit of work such as, for instance, Otero (1972), Sobin (1994), or Straum & Sag (2008), to mention but a few references, in which widely attested examples are considered ‘acceptable’ but ‘ungrammatical’.
The manufacturing and natural resources sector will lead the vertical markets with total spending expected to reach $478 billion in 2013, up 2.3 per cent from $467 billion in 2012. However, IT spending rates are expected will bottom out in 2013 and will be resilient over the long run [...]. (Google search 18.01.2014)

Based on the judgements of our informants, we assume that only *wh*-subjects give rise to the finite raising configuration.5

2.1.2 Double agreement

In the examples we investigate, a *wh*-subject triggers agreement in both the embedded clause – as expected – and in a superordinate clause: the latter agreement sets these examples apart from canonical instances of long subject extraction. In (2c) for instance, repeated here in a simplified form in (8), plural *which* agrees both with the lower copula *were* and with the higher auxiliary.

(8) any quotes which were felt to be relevant to the process.

2.1.3 Only subject extraction

Even for speakers allowing *wh*-raising, a long moved *wh*-object cannot give rise to agreement in a superordinate clause: examples such as (9) are not attested and are rejected by our informants.

(9) *the new city funds, [which are hoped [they can use to help 150 families facing eviction]]]

2.1.4 That-trace effect

In all the attested examples of *wh*-raising, the complement clause from which the subject is extracted lacks an overt complementizer and our informants reject examples such as (10), where the *that*-complementizer is present. In terms of the *that*-trace effect, the extraction from the lower clause in the *wh*-raising configuration is identical to the standard pattern.

(10) the new city funds, which are hoped (*that) will help up to 150 families facing eviction

5. Put differently, the generalization is that while the agreement in the superordinate clause is available with A’-moved constituents, it is not so with A-moved constituents. The A/A’-discrepancy that emerges from this contrast is reminiscent of acquisition facts described in Hirsch and Wexler (2004), where it is shown that English children acquire raising with *wh*-subjects earlier than regular A-raising. Thanks to Luigi Rizzi for pointing this out to us.
2.1.5 The selecting predicate
In the attested examples the higher clause in which the wh-subject triggers agreement contains a one place predicate. More precisely, in all our examples the higher predicate is a raising predicate including raising verbs such as seem, appear, passive predicates such as said, felt, hoped, and adjectival predicates such as likely.6

2.1.6 Locality restrictions
The pattern under investigation is subject to a series of locality restrictions which are absent in more familiar cases of wh-movement. To facilitate the discussion we will use numerals to identify the clausal domains implicated in wh-raising: the clause from which the wh-subject is initially extracted is assigned the index 1 and will be referred to by means of the shorthand label CP1, the immediately dominating raising clause is CP2, etc. Similarly, the lower TP is indicated as TP1, the immediately dominating one as TP2, etc.

First of all, we observe that further extraction of the wh-subject triggering agreement in CP2 to CP3 is ruled out regardless of whether the wh-subject agrees with T3. Instead, the moved wh-subject must halt in the left periphery of CP2. The a-examples below with double agreement are accepted by our informants. The b-examples, in which the wh-subject triggers agreement in CP2 and CP3, resulting in triple agreement, are not.

(11) a. the new city funds, [CP2 which i are hoped [CP1 t i will help up to 150 families facing eviction]]
     b. ??*the new city funds, [CP3 which i are said [CP2 t i are hoped [CP1 t i will help up to 150 families facing eviction]]]

(12) a. This is a mutation of the virus [CP2 which i was suspected [CP1 t i had initially caused the infection]].
    b. */*This is a mutation of the virus [CP3 which i was reported [CP2 t i was suspected [CP1 t i had initially caused the infection]]].

As seen in (12c), wh-raising thus differs from regular raising patterns in which recursion is acceptable:

(12) c. This is a mutation of the virus [CP3 which was reported [TP2 to be suspected [TP1 to have initially caused the infection]]].

6 The specific set of predicates that allow the pattern remains to be established. In particular, it appears surprising that our speakers allow the double agreement with the adjective probable, which is standardly claimed not to allow for subject-to-subject raising (Hudson 1972), but for the speakers in question probable is also acceptable with canonical subject-to-subject raising.
In addition, further *wh*-movement of a *wh*-subject that has triggered *wh*-agreement in CP2 into a higher clause is considered degraded by our informants, regardless of the nature of the predicate in CP3 (one place or otherwise):

(13) a. ? the new city funds, \[CP3 \text{ which } \text{they say } \{CP2 \ t \text{ will help up to 150 families facing eviction}\}]  
   b. ? the new city funds, \[CP3 \text{ which } \text{it is said } \{CP2 \ t \text{ will help up to 150 families facing eviction}\}]

In fact, there is a stronger restriction to the effect that *wh*-raising is limited to two adjacent clauses: the configuration in which a *wh*-subject triggers agreement in a domain dominating its extraction site is restricted to CP2, i.e. the clause immediately dominating that from which extraction takes place, as illustrated in the a-examples in (14)–(15). The variants in the b-examples, in which a *wh*-subject moves out of CP1, skips CP2 and triggers agreement in CP3, are not attested and are rejected by our informants, regardless of whether the intermediate clause has a lexical (14b) or an expletive subject (15b):

(14) a. the new city funds, \[CP2 \text{ which } \text{are hoped } \{CP1 \ t \text{ will help 150 families facing eviction}\}]
   b. *the new city funds, \[CP3 \text{ which } \text{are hoped } \{CP2 \text{ the government will confirm } \{CP1 \ t \text{ will help 150 families facing eviction}\}\}]

(15) a. the new city funds, \[CP2 \text{ which } \text{are said } \{CP1 \ t \text{ will help up to 150 families facing eviction}\}]
   b. *the new city funds, \[CP3 \text{ which } \text{are said } \{CP2 \text{ it is hoped } \{CP1 \ t \text{ will help up to 150 families facing eviction}\}\}]

2.1.7 Summary

A summary of the descriptive overview just given is provided in Table 1:

<table>
<thead>
<tr>
<th></th>
<th>main properties of the <em>wh</em>-raising pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Only under <em>wh</em>-movement</td>
</tr>
<tr>
<td>2.</td>
<td>Double agreement</td>
</tr>
<tr>
<td>3.</td>
<td>Only subject extraction</td>
</tr>
<tr>
<td>4.</td>
<td>Familiar constraints on <em>wh</em>-subject movement (<em>that</em>-trace)</td>
</tr>
<tr>
<td>5.</td>
<td>One-place raising predicate in the matrix clause</td>
</tr>
<tr>
<td>6.</td>
<td>Locality restrictions: no unbounded reiteration</td>
</tr>
</tbody>
</table>

Observe that among these six properties some are typically associated with A-movement (agreement, raising and lack of unbounded dependencies), and others
are properties of A’-movement (only wh-elements, that-trace effects). Our analysis to be presented in Section 5 will capture this apparently hybrid behaviour.

2.2 Some similar patterns in English and in Romance

Before we proceed, we will briefly list a number of phenomena, mostly in English, which also illustrate a configuration in which a wh-moved subject takes part in syntactic processes typical for A-movement (such as case and agreement) in a clause higher than the one it is extracted from.  

2.2.1 Wh-agreement with long moved subjects in American English

First, our wh-raising data are reminiscent of the American English pattern discussed in Kimball & Aissen (1971) and Kayne (1995), in which a wh-moved constituent triggers agreement in a superordinate clause: in (16a) the plural wh-subject who triggers agreement with think in spite of the presence of the singular subject Clark:

\[(16)\ a. \text{Mark knows the people who}_{pl}^{\text{sg}} \text{Clark}_{sg}^{\text{pl}} \text{think}_{pl}^{\text{pl}} \text{are in the garden.} \]

(from Kimball & Aissen (1971: 241, their (1b); cf. Kayne 1995)).

However, the patterns differ in that a moved subject can recursively overrule agreement in a higher clause:

\[(16)\ b. \text{the boys who}_{pl}^{\text{pl}} \text{Tom think(s) Dick believe(s) Harry expect(s) to be late} \]

(Kayne 1995: 193, his (17))

Though the two patterns are at first sight similar, it is at this point not clear whether they require a unified account (for one thing, wh-raising does not seem to be restricted to American English).  

2.2.2 Accusative case on long wh-moved subjects in English

Second, our data are also reminiscent of English examples such as (17a), in which a wh-subject of a finite clause is unexpectedly realized by the accusative whom, whose source is the selecting verb expect (Quirk et al. 1985: 368, 1299; Sigley 1997: 217; Quinn 2005: 357–359).

7. On wh-agreement, compare also Polinsky & Potsdam (2001), who analyse data from Tsez as involving agreement of a matrix verb with an embedded constituent, which they argue undergoes covert topicalization to the left periphery of the subordinate clause.

8. Note however that our proposal developed below in terms of Fin-incorporation to a higher head does share properties with the account in Kayne (2000), who derives the patterns in (16) by Agr-to-C movement.
(17)  a. This is the candidate whom we expect will win the competition.

Such examples could also be analysed as blends, with (17a) as a blend of (17b) and (17c):

(17)  b. This is the candidate whom we expect to win the competition.

   c. This is the candidate who we expect will win the competition.

Some descriptive grammars such as Quirk et al. (1985: 1299) consider examples such as (17a) hypercorrect and due to a confusion ‘of the finite with the non-finite form’, but others (Jespersen 1927: vol. III.2, 197–198; Payne & Huddleston 2002: 466–467) consider them acceptable. For the latter, examples such as (17a) would be generated by the grammar of at least some speakers. In formal accounts for the accusative form of the subject it has been proposed that by virtue of transiting through the embedded left periphery, the \( \text{wh} \)-subject attains a local relation with the higher verb – here expect – and is assigned accusative case (Kayne 1995; Haegeman 2008), but see also Lasnik & Sobin (2000) for a different view on these patterns.

Observe that, as is the case for \( \text{wh} \)-raising, the marked case pattern in (17a) displays an asymmetry between \( \text{wh} \)- and non-\( \text{wh} \)-subjects, in that only the former can be assigned case from a higher verb.

(17)  d. *We expect him/her/them will win the competition.

This is expected since in the canonical subject position DP subjects would not attain a sufficiently local configuration with the case assigning verb in the superordinate clause. In contrast, such a local relation between a case assigning matrix predicate and \( \text{wh} \)-subjects will obtain at the point where the latter are located in the intermediate landing site in the embedded CP:

\[
\begin{array}{c}
\text{V'} \quad \text{CP} \\
\text{[ACC]} \quad \text{C'} \quad \text{C^0} \\
\text{no local configuration} \Rightarrow \text{no case} \\
\text{DP} \quad \text{T'} \quad \text{T^0} \\
\end{array}
\]

2.2.3 \( \text{DP/wh-asymmetries and ECM} \)

Third and finally, it has also been observed that with some verbs the ECM pattern is not available with DP subjects while it is available with \( \text{wh} \)-extraction. This is shown
for English in (19) and for Italian in (20) (for similar patterns in French, see Postal 1974: 53; Kayne 1981; Rizzi 1982; Ura 1993)).

(19) a. *I assure you John to be the best student.
    b. John, who, I assure you t_i to be the best student… (Kayne (1980: 79–80), his (34) and (33); see also Ura (1993: 251), his (26a,b))

(20) a. *Possiamo ritenere [queste persone aver sempre be.able.1.pl believe.inf these people have.inf always fatto il loro dovere].
    done the their duty
    ‘We can believe these people to have always done the their duties.’
    (Rizzi 1982: 79, his (3c))
    b. [Quante di queste persone]i possiamo ritenere how.many of these people be.able.1.pl believe.inf [t_i aver sempre fatto il loro dovere]? have.inf always done the their duty
    ‘How many of these people can we believe to have always done their duties?’
    (Rizzi 1982: 78, his (2c))

It has been proposed in the literature that the relevant infinitival complement clauses have a left-peripheral space, i.e. they are CPs rather than bare TPs. Thus, in the default case, a DP in the specifier of the infinitival TP is not close enough to the selecting verb to be assigned case. On the other hand, a wh-moved subject will transit through the left periphery of the complement clause and will become accessible to the case assigning selector in the higher clause, much in the same way as was the case for the data described in the previous section (cf. the tree in (18)).

What we retain from the examples in (19) and in (20) is that one side effect of the wh-movement of the subject is that it brings it closer to the functional heads in the dominating TP. Anticipating the analysis in Section 5, below we will also conclude that in the case of English wh-raising, wh-movement plays a crucial (but not on its own decisive) role in creating a local relation between a T head in a dominating clause and the φ-features of the wh-subject of the finite complement clause.

3. Two unlikely syntactic analyses

This section briefly sets aside two syntactic analyses which, though deriving some of the attested data, cannot account for the restrictions listed in Section 2.1.
3.1 A null expletive

One might hypothesize that speakers who accept the wh-raising configuration postulate a null expletive subject in the raising clause:

(21) *Organizations that provide counseling and legal assistance will now have the opportunity to bid for the new city funds, which it/Ø are hoped will help up to 150 families facing eviction.

However, this analysis raises several questions. First, in English null expletives are standardly taken to be restricted to root clauses (Weir 2012; Haegeman 2013). Furthermore, while an it-expletive (overt or covert) in the canonical subject position triggers singular agreement, the defining property of our attested examples is that agreement in the raising domain is determined by the moved wh-constituent. Example (2c) is repeated here for convenience:

(22) A recording was […] used to transcribe the minutes and any quotes [which were felt [t₁ were relevant to the process]].

Along similar lines, one might postulate that the superordinate clause itself is actually a parenthetical, with a null expletive subject, inserted between the wh-subject in the left periphery and its extraction site in the clause in which it originates, as illustrated, for instance, in (23a). Thus (2b) would have the representation in (24), where the commas indicate the parenthetical status of the clause:

(23) a. These are organizations which, I think, will be able to help up to 150 families facing eviction.

(24) the new city funds, which, it/Ø is hoped, t₁ will help up to 150 families facing eviction

However, this analysis again fails to account for the agreement between plural wh-subjects and the raising verb. Moreover, the restriction to wh-subjects is unexpected: parenthetical placement does not privilege wh-subjects (23b).

(23) b. These organizations, I think, will help up to 150 families facing eviction.

3.2 Hyperraising

The patterns we are looking at share properties with some variants of finite raising patterns that have been discussed in the literature, but in each case there are important distributional differences, and in particular none of these variants show the restriction to wh-subjects. We illustrate some such patterns here.9

9. Compare also Roussou (2001) and Zeller (2006) who discuss raising out of subjunctive finite clauses in Modern Greek and the Bantu language Nguni respectively. See also Béjar &
One pattern that comes to mind is that referred to as English ‘copy-raising’ (Rogers 1974a, b; Asudeh 2002), illustrated in (25), in which the copy of the subject of the raising verb is spelt out by a pronoun in the finite complement clause of the raising verb:

(25) Richard\textsubscript{i} seems/appears like/as if/as though he\textsubscript{i} won.

However, unlike the *wh*-raising configuration under discussion, copy-raising is not restricted to *wh*-subjects (as shown in (25)), it features a pronoun in the lower clause, and there is also overt complementizer material (*as if, as though*) in the lower clause.

Brazilian Portuguese (BP) has been reported to allow raising out of finite CPs with (Martins & Nunes 2010) or without (Rodrigues 2004; Martins & Nunes 2005, 2010) an overt coreferential pronoun in the embedded domain. (26) is from Martins & Nunes (2010), cf. their (3a,b):

(26) [Os meninos\textsubscript{i}] parecem [CP que t\textsubscript{i}/eles\textsubscript{i} viajaram ontem].

\begin{flushright}
the boys seem-3pl that / they traveled-3pl yesterday
\end{flushright}

‘The boys seem to have traveled yesterday.’

The Portuguese pattern resembles the English *wh*-raising pattern discussed here in that one constituent seems to trigger agreement in two finite clauses. However, as shown by (26), the BP pattern is not restricted to *wh*-subjects and again in some variants there is an overt complementizer *que* in the embedded clause.

Third, the *wh*-raising pattern we are looking at is also reminiscent of Bantu hyper-raising reported in Carstens (2011) and in Carstens & Dierckx (2013). Consider for instance the Lubukusu examples in (27) and (28) (from Carstens & Dierckx 2013, their (3)). In (27), the one place predicate *seem* takes a finite complement whose subject only triggers agreement in the complement clause:

(27) Ka-lolekhana (mbo) babaandu ba-kwa.  
\begin{flushright}
6sa-seem (that) 2people 2sa.pst-fall1
\end{flushright}  

‘It seems that the people fell.’

In contrast, in (28) the subject is raised from the lower finite clause and also triggers agreement in the superordinate clause:

(28) Babaandu ba-lolekhana (mbo) ba-kwa.  
\begin{flushright}
2people 2sa-seem (that) 2sa.pst-fall
\end{flushright}  

‘The people seem like they fell/The people seem to have fallen.’

Again, as shown in the examples, Bantu hyperraising is not restricted to *wh*-subjects.

---

4. Theoretical framework: The Subject Criterion

In this section we outline the assumptions that will underlie our analysis. Since the data crucially involve subject extraction, we have opted for the framework developed in Rizzi (2006) and Rizzi & Shlonsky (2006, 2007). These authors postulate a specialized functional head Subj associated with the clausal subject. As this head is 'criterial' (in a sense to be defined below), this line of analysis seeks to reduce the EPP to the Subject Criterion and account for certain familiar restrictions on subject extraction in terms of criterial freezing (cf. Shlonsky 2014). We first summarize the components of their analysis that are crucial for our discussion.

4.1 Clausal hierarchy: The articulated subject domain

Based on Cardinaletti's (1997, 2004) proposal for an articulated subject field, Rizzi (2006) postulates that the TP domain of a finite clause is dominated by a projection SubjP, which hosts the subject of predication. In line with Rizzi’s (1997) proposals for the articulated left periphery, SubjP in turn is dominated by FinP, the lowest left-peripheral projection whose head encodes the finiteness properties of the clause. (29) is the relevant hierarchy:

(29) FinP
    /  \
   /    \
Fin0   SubjP
    /  \
Subj0  TP
     /   \
   T0   ...

4.2 Criterial freezing and subject extraction

In (29), the subject properties associated with the traditional TP are split between SubjP and TP. T determines finite subject-verb agreement and licenses nominative case on the agreeing subject DP, and SpecSubjP is the actual position for non-wh-subjects. Importantly, SubjP is a criterial projection. A criterial requirement is defined as in (30a) (Rizzi & Shlonsky 2007:138, their (53)):
For [+F] a criterial feature, X+F is in a Spec-head configuration with A+F. Criterial features include [wh] (or [Int]), [Top], [Foc], [Rel] and [Subj]. All criterial configurations induce criterial freezing of the constituent in the specifier position (on syntactic freezing effects, see Wexler & Culicover 1980 and subsequent literature). Obviously, if Subj is criterial and if the satisfaction of a criterion leads to freezing, the prediction is that once it has satisfied the Subject Criterion (henceforth SCrit) by moving to SpecSubjP, the subject is frozen in place and cannot be extracted from SpecSubjP, as illustrated by the subject-object asymmetry shown by long extraction in the French interrogatives in (32) below.

(a. SubjP
   \[
   \begin{array}{c}
   \text{XP}^\phi \\
   \text{Subj}^\prime \\
   \text{Subj}_0 \\
   \end{array}
   \] 
TP
   \] 

(32) a. *Qui crois-tu que [SubjP t_1 va partir]?
   who think-you that will leave
   ‘Who do you think will leave?’

   b. Que crois-tu que [SubjP Jean a fait t_1]?
   what think-you that Jean has done
   ‘What do you think (that) John did?’

   However, since subjects can in some cases be extracted from finite clauses, as shown in French (32c), the grammar must have specific mechanisms to make subject extraction compatible with satisfaction of the SCrit. In French, the effect of such a mechanism is manifested by the replacement of the regular complementizer que by qui, known as the que/qui alternation:

(32) c. Qui crois-tu qui va partir?
   who think-you qui will leave
   ‘Who do you think will leave?’

   To account for (32c) Rizzi & Shlonsky (2007: 138–139) propose that qui is the reflex of a special occurrence of Fin which is enriched with nominal (φ) features (cf. Taraldsen 2001), which they represent as Fin-i and which satisfies the SCrit. In our paper, we will adopt their hypothesis and represent the enriched variant of Fin, Rizzi & Shlonsky’s Fin-i, as Φin.
Observe that, in geometrical terms, the relation between SpecSubjP with Subj in (31a)
is identical to that between Φin and Subj in (31b), in that the configuration is strictly
local, with no (phrasal or otherwise) node intervening between the Subj-head and the
element satisfying the criterion. Rizzi & Shlonsky (2007: 138–139) restate the criterial
condition as follows:

(30) b. For [+F] a criterial feature, X+F is locally c-commanded by A+F.

However, with respect to the presence of Φin, Rizzi & Shlonsky introduce an important
proviso: the φ-features on Φin have to be licensed independently. According to Rizzi &
Shlonsky, this is achieved by the presence of a constituent with (matching) φ-features
in SpecΦinP (33). On its way to its criterial landing site, the subject wh-phrase moves
through SpecΦinP and licenses the φ-features of Φin. Importantly, SpecΦinP itself is
not a criterial position, meaning that it is not a halting place.

(33)

The effect achieved in derivation (33) is that of a kind of indirect ‘two step satisfaction’ of
the SCrit by the wh-subject: the extracted wh-subject does not satisfy the SCrit directly,
but, indirectly, it plays a role in satisfying the SCrit by licensing the features on Φin.

We also assume that given that the constituent in SpecΦinP φ-agrees with the
head, SpecΦinP is an A-position (cf. Cardinaletti 1992; Haegeman 1996 for arguments
from V2).

4.3 Subject extraction and the SCrit in English

Let us return to subject extraction English, concentrating first on the pattern
accepted by all speakers and illustrated in (34a). We assume that, as is the case
for French, the SCrit can be satisfied by the φ-features on the (enriched) Φin and
that, as before, these features in turn are licensed by the wh-moved subject tran-
siting through SpecΦinP. With Rizzi & Shlonsky (2006), we assume that the finite
complement clause in (34a) is ‘truncated’, with only ΦinP1 remaining of the CP1 layer (see Rizzi & Shlonsky 2006: Section 9 for motivation). Representation (34b) shows the crucial ingredients of the analysis: the wh-subject triggers agreement with the finite verb of the clause from which it moves; it does not trigger agreement on the matrix verb think, which agrees with its own subject you.

(34) a. Who do you think came?
   b. [CP2 whom do you think ΦinP1 Φ° Φin [TP1 t[w] ΦinP1 CRIT [TP1 t[w] came]]]

This analysis carries over to long wh-extraction from a complement clause embedded under a one place predicate as in (35a). The analysis is summarized in (35b): agreement in the complement clause is triggered by the plural subject which 〈quotes〉; matrix T-agreement is with the expletive subject it.

(35) a. quotes which it was felt were relevant to the process
   b. ForceP2
      which φ Force′
      Force′ [CRIT]
      FinP2
      Fin° SubjP2
      Subj′
      Subj° [CRIT]
      TP2
      T° VP2
      φ-agreement
      V′
      V° ΦinP1
      Φ° Φin′
      φ-agreement
      t[Which φ]
      Φin° SubjP1
      Subj° [CRIT]
      TP1
t[Which φ]
The pattern discussed above is the unmarked case, but, as we have shown, for a subset of speakers (35a) can alternate with the *wh*-raising configuration in (36), in which the matrix clause lacks the expletive pronoun and the plural relativizer *which* triggers plural agreement in the matrix clause:

(36) A recording was also made of each School and was then used to transcribe the minutes and any quotes [CP2 which were felt [CP1 were relevant to the process]].

We develop our analysis for these data in the next section.

5. English *wh*-raising and the SCrit

In the *wh*-raising configuration (36), the extracted subject (*which, or which quotes* in a head raising analysis), triggers T-agreement in both the embedded clause – as is standard – as well as in the immediately dominating raising domain. T-agreement with the *wh*-subject in the superordinate domain is unexpected and we consider this to be our main *explanandum*. In what follows we discuss possible derivations of this exceptional agreement.

In the ‘canonical’ configuration of long subject extraction featuring the expletive subject *it* like those in (3), agreement between the superordinate T and the *wh*-subject of the embedded clause is not possible because T and the *wh*-subject are not in a local relation: in its base position the *wh*-subject is too far from the higher T and when it moves to its left-peripheral criterial position it cannot legitimately attain the local configuration required for agreement. So in the unmarked case, the higher T cannot agree with the embedded *wh*-subject.

The grammar of speakers who allow *wh*-agreement must therefore have a marked property to allow the features of the embedded *wh*-subject to become accessible to the higher T.

5.1 *Φ*-in-to-V incorporation

The agreement between matrix T2 and the long-moved *wh*-subject constitutes the key difference between the *wh*-raising pattern and the generally available pattern with *wh*-extraction across an *it*-expletive. The relevant structural configuration is schematically given in (37). (37) is provisional: below we will refine this representation.

(37) … T2 [vP … [ΦinP1 *wh*-phrase Φin0 [SubjP1 CRIT [TP1 *wh*-phrase …

We assume that agreement between T2 and the *wh*-subject as illustrated by the agreement between *any quotes which* and were (*felt*) in (38a) blocks insertion of an *it*-expletive
as the superordinate subject (38b), and hence makes the regular mode of satisfying the SCrit, insertion of an XP in SpecSubjP, unavailable in the superordinate clause:

(38)  

<table>
<thead>
<tr>
<th></th>
<th>to transcribe any quotes which were felt were relevant to the process</th>
</tr>
</thead>
<tbody>
<tr>
<td>b.</td>
<td>*to transcribe any quotes which it were felt were relevant to the process</td>
</tr>
</tbody>
</table>

The agreement in the superordinate clause in (38a) is 'exceptional', in that it is not available in the grammar of all speakers for reasons of locality: T2 cannot normally attain a sufficiently local relation with the wh-subject. Therefore, the key question is how in the wh-raising configuration, the wh-subject can legitimately attain a close enough relation with T2 to trigger agreement. Our hypothesis is that the locality problem can be overcome because the φ-features of the lower wh-subject become indirectly accessible to T2. More precisely, we propose that the embedded Φin1, which at some point of the derivation has the wh-subject as its specifier, incorporates into the selecting predicate head (V2) in the superordinate domain. Recall that, with Rizzi & Shlon- sky (2006), we assume that a clause from which a subject is extracted is structurally reduced ('truncated'): ΦinP1 is the highest projection in the embedded left periphery; it is in a strictly local configuration with the matrix V which selects it. The complex head ‘V2+Φin1’ resulting from the incorporation is itself in a local relation with T2, and as a result, T2 can agree with the φ-features on that V2+Φin1 complex. Thanks to incorporation, the φ-features of the wh-subject are closer to the superordinate T-head than they would be in a grammar without the incorporation.

Under this analysis, the derivation of the examples under consideration is thus not strictly speaking one in which the superordinate T2 agrees with the wh-subject in SpecΦinP1, as suggested in (37), but rather one in which superordinate T2 agrees with the φ-features on V2/Φin1, which themselves have been licensed by the wh-subject:

(39)

Our hypothesis that Φin1 incorporates to V2 is reminiscent of analyses of null complementizers in terms of C-to-V incorporation (see for instance Pesetsky (1991) and
Bošković & Lasnik (2003); see also Hornstein & Lightfoot (1991) for a different implementation). However, we have to assume that contrary to null complementizers, Φin1-incorporation to V2 is restricted to a subset of speakers, so as to rule out generalized Φin-agreement in cases of subject extraction for all speakers.

5.2 Satisfying the SCrit in the superordinate clause

We have proposed that thanks to Φin1-incorporation to the selecting predicate, the superordinate T2 agrees (indirectly) with the *wh*-subject. As a consequence, because T2 agrees with the ϕ-features of Φin1, it is not possible to insert an expletive in the canonical subject position of the superordinate clause. This means that in the matrix domain the SCrit cannot be satisfied by means of such an expletive.

SpecSubjP is a criterial position: a constituent moving there is frozen. As the relative operator *which (quotes)* has to end up in the left-peripheral criterial position for relativization, it cannot itself move to the matrix SpecSubjP2 to satisfy the matrix SCrit because this would induce freezing. In addition, if SpecSubjP is an A-position, such a movement would imply an illicit extension of an A-chain beyond the finite CP-boundary (cf. Sigurðsson 2012: 207). We come back to this particular point in Section 5.4.1 below.

It follows that in the matrix domain, the SCrit also has to be satisfied indirectly, via the insertion of the ‘nominal’ Φin2. Recall that the ϕ-features in Φin have to be licensed (e.g. by a constituent which is on its way to a criterial position). An obvious candidate to license the ϕ-features of Φin2 is the moving subject *wh*-phrase. However, on its way to its criterial position (say SpecForceP (Rizzi 1997) or SpecRelP (Shlonsky 2014)), the subject *wh*-phrase cannot move from the embedded SpecΦinP1 to the matrix SpecΦinP2. This is because SpecΦinP is an A-position, so movement from SpecΦinP1 to SpecΦinP2 would again illicitly extend an A-chain beyond the finite CP (see again Section 5.4.1).

On the scenario sketched so far, then, the ϕ-features on Φin2, which are crucial for the satisfaction of the superordinate SCrit, are in danger of remaining themselves unlicensed. We propose that Φin2 itself incorporates into the criterial head Force2. This creates a complex head through which the ϕ-features of Φin2 become accessible to the specifier of the complex head Φin2-Force2.10 Thus when the relative *wh*-phrase lands in the specifier position of Force2-Φin2, it can satisfy both the criterial condition on Force2 as well as license the ϕ-features on Φin2. A detailed tree diagram of this derivation is given in (40):

---

10. In his work on relativization in Hebrew, Shlonsky (2014) proposes that Φin and the criterial head in whose specifier relative operators are hosted (Rel in his system) can form one syncretic head. His proposal can be reinterpreted along the lines set out here.
In other words, in our proposal the ‘exceptional’ nature of wh-raising patterns is captured by assuming two applications of Φin-incorporation: in the lower domain, Φin1 incorporates to the selecting lexical head, in the higher domain, Φin2 incorporates to the selecting Force.

One possibility to formulate a unified account of this analysis would be to say that what differentiates the ‘exceptional’ English grammar with wh-raising from the (more generally available) grammar without wh-raising is the availability of a ‘defective’ Φin-head which obligatorily incorporates via head movement. Let us assume that deficient Φin does not impose any requirements on the nature of the head it incorporates to, but that the operation canonically obeys the Head Movement Constraint. Φin-to-X incorporation in the case of a clause from which the subject is extracted and which, following Rizzi & Shlonsky (2006), we assume to be truncated up to Φin, will then target the lowest head of the immediately higher clause (say ‘V’), whereas at the next cycle, in which the full left periphery is articulated, Φin incorporates to a left-peripheral head. This approach allows us to reduce the ‘exceptional’
properties of the \textit{wh}-raising pattern to a single property of a single lexical item, the ‘deficient \(\Phi\)in’, available to some speakers. By relating the variation to a single head, we effectively interpret the idiolectal variation in terms of nanovariation in the sense of Biberauer et al. (2014).

Observe that since the relevant speakers also have the ‘canonical’ pattern of subject extraction, we must assume they also have the ‘regular’ variant of \(\Phi\)in which does not incorporate.

We now proceed to show that the analysis outlined above successfully captures the locality restrictions on \textit{wh}-raising discussed in Section 2.1.6.

5.3 Restrictions on \textit{wh}-raising: The ‘halting effect’

Recall that the \textit{wh}-raising pattern cannot be reiterated beyond the clause that displays the marked agreement: concretely ‘exceptional’ \textit{wh}-agreement is only available in CP2. In Section 2.1.6, we identified two subcases of an unacceptable continuation of \textit{wh}-movement into CP3. In the first, \textit{wh}-agreement applies in both CP2 and CP3, which is severely degraded. A relevant example (cf. (11b)) is repeated here for convenience:

\begin{equation}
\text{(41)} \quad ?*\text{the new city funds, \[(CP3 which_i are said \[CP2 t_i are hoped \[CP1 t_i will help up to 150 families facing eviction]]\]}}
\end{equation}

Additional patterns are illustrated in (42) (= (13b) and (15b)), in which a \textit{wh}-subject is extracted to the left periphery of CP3. In (42a) it triggers agreement in CP2 but fails to do so in CP3, whereas it is the other way around in (42b). In both cases, the clause which does not feature T-agreement with the relative pronoun has its own (lexical or expletive) subject. These examples are also judged degraded:

\begin{equation}
\text{(42) a. } \quad ?\text{the new city funds, \[(CP3 which_i it is said \[CP2 t_i are hoped \[CP1 t_i will help up to 150 families facing eviction]]\]}}
\end{equation}

\begin{equation}
\text{(42) b. } \quad *\text{the new city funds, \[(CP3 which_i are said \[CP2 it is hoped \[CP1 t_i will help up to 150 families facing eviction]]\]}}
\end{equation}

We ascribe the (unexpected) relative acceptability of an example like (42a) (as compared to (41)) to the availability of an alternative reading where the string in boldface \textit{it is said} functions as a parenthetical inside CP2, which is of course predicted to be grammatical. In any event, we take it that there is a marked contrast between the examples in (41)–(42) on the one hand, and the licit \textit{wh}-raising pattern involving only one layer of embedding on the other, and that the degraded status of (41) and (42) is due to one and the same factor.
In both CP1 and CP2, the availability of wh-raising depends on the incorporation of the Phi1 head. In the case of CP1, Phi1-to-V2 incorporation makes the phi-features of the lower Phi1 accessible to the matrix T2. At the level of CP2, Phi2 incorporates to Force2. Assuming that in relative clauses, SpecForce2 is a criterial position – possibly by virtue of a feature Rel – Phi2-to-Force2 incorporation would effectively stop the moved wh-subject at the CP2 level, because the wh-subject will be frozen in its criterial position. The exceptional double agreement cannot be reiterated, as a result of criterial freezing. For cases of A'-movement different from relativization, a similar freezing effect would obtain if Phi2 incorporates into a left-peripheral criterial head (say Top2 or Foc2).

However, to exclude (41) and (42), we also need to exclude the derivation in which the wh-subject would target a criterial position in a clausal domain dominating CP2, and in which a non-terminal step of successive cyclic wh-movement targets an intermediate, non-criterial ‘edge’ position in the left periphery of CP2. If Phi2 could incorporate into a non-criterial head in CP2, the wh-subject ‘in transit’ could locally license the features of the (incorporated) Phi2, after which it could move on to e.g. SpecForceP3. This derivation can be avoided if the incorporation of Phi to such non-criterial left-peripheral heads can be excluded. Although this question does touch upon a number of issues of the cartography of the left periphery which go well beyond the scope of this paper, we briefly present two options that come to mind. The choice depends on the general issue of how to handle successive cyclic movement in the cartographic and criterial framework and it hinges on the identification of criterial vs. non-criterial left-peripheral positions.

By assumption, Fin and Phi are not criterial. Criterial heads are endowed with contentful features like [Top], [Foc], [Int]. In addition, to derive successive cyclicity of movement, Rizzi (2006: 110–111) postulates there is a non-criterial version of the criterial heads, which contains the purely formal counterpart of the criterial features and whose role is to trigger movement without giving rise to any interpretive (scope/discourse) effect. With respect to the case at hand, we would have to stipulate that Phi can only incorporate into a head with a contentful feature, not into one with a mere formal feature. As a result, in the case of a continuation of the A'-chain beyond CP2, the features of the intermediate Phi would themselves never be licensed.

Alternatively, we could differentiate terminal and intermediate steps of A'-movement more strongly and propose that, whereas the former target the criterial positions in the articulated CP, the latter escape from a CP domain via an ‘indiscriminate’ edge position dominating ForceP, the highest projection of the CP-domain. The need for postulating such a scenario is argued for in Danckaert (2012), where the landing site of intermediate movement is labeled ‘EdgeP.’ The relevant structure is diagrammed in (43):
If we assume that in the *wh*-raising pattern, CP2 is not truncated but projected up to ForceP2, it would follow from the Head Movement Constraint (which dictates that head movement take place in a strictly local fashion) that Φin2 incorporates into a criterial head. As a result, assuming that the licensing of the φ-features of Φin2 has to involve a strictly local (spec-head) configuration too, the extracted *wh*-subject would have to move to the specifier of the criterial head, where it would be frozen in place.

The unavailability of repeated *wh*-raising could then be related to the distance between Φin2 and EdgeP: en route to a higher criterial position in CP3, the *wh*-subject must extract from CP2 via the EdgeP2. Consequently, it will not be able to attain a sufficiently local configuration with Φin2 to license the φ-features of the latter. For some additional scenarios we also refer to Section 5.4.

As it happens, the locality constraints on *wh*-raising are even stronger than what can be deduced from the cases just discussed. In fact, *wh*-raising always involves a biclausal configuration. As shown by (44) (= (13b), in addition to the unacceptable patterns in (41) and (42), non-local *wh*-raising targeting CP3 across a clause with a (lexical or expletive) subject is also unacceptable.

(44)  *the new city funds, [[CP3 which_i are hoped [CP2 the government will confirm [CP1 t_i will help 150 families facing eviction]]].

In (44) the relative pronoun *which* would trigger agreement in CP1 (*will*), then move on to CP3, where it would also agree with the auxiliary *are*; in the intermediate clause (CP2) agreement on *will* is triggered by the DP *the government* in the canonical subject position.
Our analysis excludes such patterns as follows. In order to derive *wh*-agreement with a superordinate T2, we assume that the relevant T2 agrees with the embedded Φin1, whose φ-features are licensed by the *wh*-subject. We also assume that the embedded Φin1 becomes accessible to T2 because Φin1 incorporates to V2.

In the offending example (44), T2 of the intermediate CP2 agrees with *the government*, which will also satisfy the SCrit in SubjP2. It follows that in this case a featurally enriched Φin2 is not required and therefore not inserted in the intermediate clause. If the Φin2 head is not available at the topmost layer of CP2, the φ-features of the *wh*-subject will not be accessible to the highest T3 head. Since *wh*-agreement with T3 ultimately depends on the availability of an accessible Φin2 head in the immediately lower CP2, the *wh*-agreement pattern cannot arise. As shown in the tree in (45) (where we label the intermediate landing site of the *wh*-item as *(Spec)CP2*, which can either be EdgeP or the non-criterial variant of ForceP), there is no point in the derivation where T3 can plausibly agree with (the φ-features of) the moving *wh*-subject:

(45)

5.4 Discarding some alternative analyses

It might be objected that the derivations we propose are complex and involve some stipulations that unduly enrich the system. In this section, we examine some alternative derivations which at first sight are less stipulative and thus more plausible.
However, attractive though they may seem, they are problematic at various points, so we cannot maintain them.

5.4.1 Illicit continuations of the A-chain

The two scenarios sketched (and discarded) in this section have the advantage that they are simpler, in that they do not make use of \( \Phi \)-incorporation, the mechanism which we postulated to account for \textit{wh}-agreement.

To allow for the agreement of the superordinate T2 with the moved \textit{wh}-subject, the \( \varphi \)-features of the moved \textit{wh}-subject need to attain a local configuration with T2. Diagram (46) summarizes three illicit derivations: the full arrows represent the ‘improper movement’ derivation hinted at earlier, and the dashed arrows represent the other two derivations to be discussed presently, in which an A-chain is extended beyond the top node of CP1.

\begin{equation}
(46)
\end{equation}

We briefly discuss the details of these derivations.

Adopting Rizzi & Shlonsky’s (2006, 2007) approach to subject extraction we assume that in the lower domain the SCrit is satisfied by the enriched \( \Phi \)-1, which in turn is licensed by the movement of the \( \textit{wh} \)-subject through its specifier. To derive \( \textit{wh} \)-agreement, one might envisage that the \( \textit{wh} \)-subject (\textit{which} \langle quotes \rangle) moves from the lower Spec\( \Phi \)-1, where it licenses the \( \varphi \)-features on \( \Phi \)-1, through an edge position in the complement clause (here labelled ‘CP1’) to the matrix SpecTP2, and then reaches its landing site, a criterial position (say ForceP2) via the matrix Spec\( \Phi \)-2.
In SpecTP2, the $wh$-phrase could agree with T2. In both the embedded domain and the matrix domain the SCrit would be satisfied in the ‘indirect’ way, through the $\varphi$-features on $\Phi_{in}$. However, we can assume that this derivation is not available, because it involves ‘improper’ movement from an $A'$-position (the embedded edge position) to a matrix A-position.

As an alternative one might propose that the $wh$-subject moves in one step from the embedded Spec$\Phi_{in}P1$ to the matrix SpecTP2, and then on to its final criterial landing site. Again, the moved $wh$-subject could then agree with T2; in both the extraction domain and the immediately dominating clause, the SCrit would be satisfied indirectly, by virtue of the $\varphi$-features on $\Phi_{in1}$ and $\Phi_{in2}$ respectively. However, the movement step from Spec$\Phi_{in}P1$ to SpecTP2 can again be assumed to be illicit, as there are reasons to believe that A-movement across a finite CP-boundary is not available. Quoting Sigurðsson (2012: 207): “CPs are A-islands; that is, A-relations, including T-licensing, are blocked from being established across C-boundaries” (see also Rizzi & Shlonsky 2007: 146).\footnote{Note that under the assumption that this generalization is exceptionless, the Brazilian Portuguese and Lubukusu data discussed in Section 3.2 will have to be analysed accordingly: one could think that they either do not involve repeated A-movement, or that they do not involve a (full) biclausal structure.}

Finally, in a variant of the previous analyses, the $wh$-subject could be argued to move directly from the lower Spec$\Phi_{in}P1$ to the matrix Spec$\Phi_{in}P2$. This is again an illicit continuation of an A-chain beyond the upper boundary of a tensed domain.

5.4.2 Against a restructuring alternative
An alternative scenario might be to maintain $\Phi_{in1}$-to-V incorporation, as in our proposal in Sections 5.1–5.3, but to associate this with a more radical effect on the structure. As a result we could dispense with $\Phi_{in2}$-incorporation at the CP level. So far we have assumed that the embedded clausal domain from which the $wh$-subject is extracted is truncated at $\Phi_{in}P1$, i.e. the embedded clause still has a CP layer and, as discussed in Section 5.4.1, this residue of the CP layer prevents (long) A-movement of the $wh$-subject. An alternative would be to assume that the incorporation of $\Phi_{in1}$ to the predicate head restructures the two clauses into one and suspends the lower CP-boundary, allowing A-movement from the lower clause into the higher one. In this scenario, the $wh$-subject could move from Spec$\Phi_{in}P1$ to SpecVP2 and T2 could agree with the $wh$-subject in SpecVP2.
The advantage of this alternative is that no special version of T-agreement needs to be called upon. Rather, T2 would canonically probe down the tree and agree with the highest DP in its VP complement. However, the full restructuring account leads to a number of incorrect predictions which we briefly list here.

First of all, if Φin1-to-V2 incorporation genuinely leads to a collapse of the clausal domain then the movement of the subject to the higher SpecTP2 is in effect a case of raising and the restructuring process should be able to reapply at the level of CP2, hence *wh-raising (with ‘marked’ agreement) should be recursive. As we have seen (Sections 2.1.6 and 5.3), this prediction is incorrect.

Second, if Φin1 to V2 incorporation leads to a restructuring and to what is tantamount to a raising configuration, *wh-raising should allow for quantifier floating in the intermediate clause, contrary to fact:

\[(48)\]
a. They took a statement from the student participants, who were all said to have been involved in the boycott.

b. *They took a statement from the student participants, who were all said had been involved in the boycott.

Along the same lines, one might expect that just as is the case in regular raising, *wh-raising is compatible with Adverb Climbing (in the sense of Edelstein 2012), the phenomenon whereby an adjunct modifier of the lower domain appears in the raising domain (for a first discussion see Kayne 1975, see also Bok-Bennema & Kampers-Manhe 1994 and especially Edelstein 2012). This is an incorrect prediction:

\[(49)\]
a. Interest is set at rates which are next year expected to encourage the development and growth as set out in the Core Strategy.

b. *Interest is set at rates which are next year expected will encourage the development and growth as set out in the Core Strategy.

For these reasons, in spite of its initial appeal, the restructuring analysis does not seem superior to that developed in Sections 5.1 to 5.3.
6. Conclusion

In this paper we consider a pattern of subject wh-extraction which we have labelled wh-raising. In this pattern, an extracted wh-subject is apparently able to trigger T-agreement in the next clause up. The pattern is standardly considered ungrammatical but in view of the attestations and the fact that a subset of speakers accept the sentences we have interpreted the data as evidence for idiolectal grammatical variation, whereby the grammar of a subset of speakers generates the relevant examples.

After having outlined the main properties of the pattern and the theoretical background which we are assuming, i.e. Rizzi’s theory of subject extraction, we develop a syntactic account for such patterns that crucially relates the availability of wh-raising to the nature of the left-peripheral head ‘Φin’ (i.e. φ-enriched Fin) which is involved in licensing subject extraction. We propose that in the grammar of speakers who allow wh-raising, this Φin head can be deficient and has to incorporate in the next higher head. The agreement of the lower wh-subject with a dominating T is then the result of this incorporation.

In our analysis, then, the locus of the idiolectal variation described here resides in the properties of one specific instantiation of the left-peripheral head Fin and could be viewed as a case of nanovariation in the sense of Biberauer et al. (2014).

References


On the variable nature of head final effects in German and English
An interface account

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The paper investigates head final effects (HF-effects) in German and English and argues that the syntactic configuration that underlies them gives rise to three different types of violations in the interfaces. It is shown that HF-effects are either morphological or prosodic in nature. A diagnostics – morphological versus syntactic displacement – is established that allows to connect HF-effects to their relevant interface conditions. The prosodic conditions on word order are then argued to be twofold: they involve a condition on heavy constituents, on the one hand, and a condition on the mapping of syntactic constituents onto prosodic constituents respecting the Strict Layer Hypothesis, on the other hand. Finally, I argue that a pure syntactic condition, like the Final-over-Final Constraint proposed by Biberauer, Holmberg and Roberts (2007 and 2014) is inadequate to account for the variable nature of HF-effects.

1. Introduction

The paper investigates the presence/absence of head final effects (HF-effects) in the verbal and nominal domain in English and German. I will show that HF-effects in the two languages despite of their first appearance vary in their nature and require different explanations. In particular, I will argue that HF-effects in German and English do not represent a uniform phenomenon, even though they are based on the same syntactic configuration, but result from three different types of constraints that are operative in the syntax-prosody and in the syntax-morphology interface, and are given in (1) and (2).

(1) Conditions operating in the syntax-prosody interface
   a. Weight condition: In a weight-sensitive phase, a specifier that constitutes a heavy syntactic phrase must be mapped onto a strong branch in prosodic structure
b. Phrasing condition: The prosodic structure \(((A (B)) C)\) cannot be mapped onto a flat prosodic structure respecting the SLH, unless \(C\) is an affix or a free clitic

(2) Condition operating in the interface between syntax and morphology

Adjacency condition: A phrasal affix is fused with its selected stem at MF under strict adjacency

HF-effects appear in the sentential domain in English. Adjuncts that can occur between the subject and the vP obey restrictions which are absent in OV-languages (cf. Haider 2000, 2013, 2015), as is illustrated by the contrasts in (3). HF-effects also appear in the nominal domain in both English and German, as is illustrated in (4).\(^1\)

(3) a. John (more) often (*than Peter) read the book
   b. John (very) carefully read the book
   c. *John with care read the book
   d. Hans hat öfter (als der Peter) das Buch gelesen
      John has more-often (than Peter) the book read
   e. Hans hat das Buch (sehr) sorgfältig gelesen
      John has the book (very) carefully read
   f. Hans hat das Buch mit großer Sorgfalt gelesen
      John has the book with great care read

(4) a. a \([\text{AP} \text{proud}]\) man
   b. *a \([\text{AP} \text{proud} \text{[of his children]}]\) man
   c. *ein \([\text{stolzer auf seine Kinder}]\) Mann
      a proud of his children man
   d. weil er \([\text{stolz auf seine Kinder}]\) ist
      since he proud of his children is

What the data in (3) and (4) show is that the head of the adjunct must not have material to its right in head-initial structures, while no such restriction seems to apply in head final structures (cf. the minimal contrast in (4cd) in German). The contrast in (4ab) was first discussed by Emonds (1976) and Williams (1982). Williams (1982) proposed a condition that requires that the head of a prenominal modifier be adjacent to the (modified) noun. A generalized version of this condition that also captures the data in (3) is given in (5). Note that the traditional term pre-modifier in (5) is to be identified with a left-hand adjunct in modern terminology.

(5) Generalized Head Final Filter (HFF):
    A pre-modifier must be head final

\(^1\) To the best of my knowledge, Haider (1997, 2000) first pointed out the connection between the restrictions on preverbal adverbials and prenominal modifiers, using the term edge effect.
In this paper, I will argue that (5) cannot be maintained and needs to be replaced with the condition in (1a). Furthermore, I will take a closer look at HF-effects in the nominal domain in English and German and argue that while the English facts call for an analysis along the lines of (1a), the German facts are different and require an analysis that makes crucial use of the interface condition in (2). Then, I will investigate HF-effects in the vP-domain in German and show that these effects can neither be captured by condition (1a) nor by condition (2), but follow from general constraints on the formation of prosodic structures, and propose the condition in (1b). Finally, I will compare this interface account with a prominent new syntactic account of HF-effects, as proposed by Biberauer, Holmberg and Roberts (2014), the much-discussed Final-over-Final Constraint.

2. The HFF as a syntactic condition

While the HFF covers a great number of empirical facts (cf. Escribano 2009) and thus constitutes a valid empirical generalization, its status as a genuine syntactic condition is problematic for the following reasons.

First note that the HFF does not apply to subjects (that is, to the specifier of T) as in (6a), intonationally detached DP and PP frames (cf. 6b), which are traditionally analysed as adjuncts to CP/IP, and specifiers of functional heads in the C-domain (cf. 6c). This raises the question of why the condition should apply to adjuncts in the I-domain but not to adjuncts in the C-domain and furthermore, why it should apply to adjuncts but not to specifiers in the I-domain.

(6) a. [Students [of linguistics]] read Chomsky a lot
   b. [On [Tuesday evening]] I will take out Mary for dinner
   c. [In [which city]] did John meet Mary?

Secondly note that in Cinque’s (1999) approach to modification, the HFF cannot be stated anymore as a genuine syntactic generalization that is based on the specific syntactic configuration of adjunction. If we get rid of adjunction, a problem arises for the statement of the HFF, since specifiers of functional projections are generally not subject to (5), as we have seen above.

Thirdly note that within current minimalist theory, the HFF is best treated as a bare output condition at the PF interface, since order and adjacency are taken to be irrelevant to narrow syntax. On the other hand, it is clear that the condition, as it is stated in (5), cannot be a genuine PF-constraint either, since the structural difference between specifiers and modifiers is no longer visible at PF. Therefore, I conclude that the HFF is in need of a deeper explanation.
Alternatively, I will argue that the HF-effects in the verbal and nominal domain in English can be reduced to a metrical condition on a phase-based mapping between syntax and prosody that requires heavy syntactic phrases to occupy a dominant position in prosodic structure. HF-effects in English disappear, if the adjunct is epenthetic, constituting a separate intonational domain, as is indicated by the comma intonation in (7bc). Note that (7c) involves an elliptical construction with a clear prosodic boundary between negation and verb (as is indicated by the stress on the negation).

(7)  a. *John more often than Peter visited Mary
    b. John, more often than Peter, visited Mary
    c. John, more often than not, visited Mary

The observation that HF-effects are ameliorated if adjunct and verb are mapped into separate intonational phrases clearly speaks in favor of a condition that applies in the formation of prosodic constituents. Thus, I will discuss what is generally assumed about the mapping between syntactic structure and prosodic structure and propose a metrical approach to the interface in which the condition in (1) is embedded.

3. On the mapping between syntactic and prosodic structure

In the present paper, I will adopt a prominence-based approach to the mapping between syntactic structure and prosodic structure (cf. Halle & Vergnaud 1987, Ladd 1994). This approach assumes that accents are assigned on the basis of prosodic constituents and the prominence relations among them, where both the prosodic constituents and their prominence relations in turn are derived from syntactic structure.

Note, however, that accent placement is not only dependent on syntactic structure in intonational languages, but is also crucially determined by information structure, that is, the focus-background articulation of the sentence in a particular context. That is why most researchers favour an accent-first based approach to the mapping between syntactic and prosodic structure (cf. Gussenhoven 1984, Uhmann 1991, Selkirk 1995). The core of these accounts consists in focus projection rules (Selkirk 1995) which serve to derive the focus domain for a given accented constituent or, vice versa, to derive the placement of the sentence accent (nuclear accent) for a given focus domain, readjusting prominence relations accordingly.

Since we are not concerned with issues of information structure in this paper, we can abstract away from the extra complications for a prominence-based approach brought in by the notions of focus and givenness. The interested reader is referred to Büring (2002) who proposes that focus projection rules can be dispensed with in a system in which (metrical) prominence relations are taken into account and to Nespor et al. (2008), who show that the type of accent that this assigned to a phonological phrase
depends on its metrical structure, clearly indicating that prominence is on the base of accent and not the other way round.

3.1 Background Information

The prosodic representation of a sentence in most formal accounts distinguishes two levels of prominence above word stress, as illustrated in (8).

(8) \[
\begin{array}{c}
* \\
* \\
\end{array}
\]

John gave a book to Sue

The lower level represents phrasal stress, called accent in Gussenhoven (1984, 1992) and Selkirk (1984, 1995). Prominence at the lower level is indicated by a grid mark in the prosodic structure. It is assigned relative to the syntactic structure (see Section 3.2 below) and it entails the assignment of an obligatory pitch accent. This level of prosodic structure is identified with the level of the phonological phrase in the prosodic hierarchy of Selkirk (1984), as illustrated in (9) (cf. Nespor & Vogel 1986, Selkirk 1995).

(9) syllable < foot < prosodic word < phonological phrase < intonation phrase

Hence, the higher level in (8) is that of the intonation phrase, which in most cases corresponds to the sentence. The strongest stress of the intonation phrase, indicated by a second grid mark in (8), is usually referred to as sentence stress or nuclear stress (cf. Chomsky and Halle 1968) and is assigned to the most prominent constituent in the clause.

Furthermore, prosodic structure in relation to syntactic structure is assumed to be rather flat, not allowing for recursion of prosodic constituents. This is expressed in the so-called Strict Layer Hypothesis (SLH), which demands that prosodic constituents on a certain layer are all of the same type (cf. Selkirk 1984).

3.2 Prosodic domain formation in a phase-based approach

In this section, I will outline how prosodic constituents and the prominence relations among them are to be derived from syntactic structure. The core ingredient of the account is a two-step process in which first an initial prosodic phrasing is derived on the basis of the syntactic structure and its metrical evaluation in the interface. In a second step, this prosodic structure is adjusted according to the SLH in phonology proper, as we will discuss in detail below.

There are two basic approaches to deriving prosodic structure from syntactic structure: end-based approaches (cf. Selkirk 1984) and relation-based approaches (cf. Nespor & Vogel 1986, Wagner 2005). End-based approaches match boundaries
of syntactic constituents with prosodic boundaries. These alignment rules are best expressed in an OT-like account (cf. Truckenbrodt 1999).

In relation-based approaches, on the other hand, prosodic constituents are built around lexical heads on the basis of the relations they entertain with adjacent constituents. The two approaches differ in the assumption of how much syntactic information is available in the interface. While end-based approaches only assume the visibility of syntactic boundaries, relation-based ones assume the visibility of syntactic relations expressed in the X’-Schema.

In the following, I will adopt a relation-based approach, assuming that prosodic domain formation goes in parallel with the syntactic derivation in a phase-based way. The following basic facts in the mapping between syntactic and prosodic structure in German and English have to be accounted for.

First, note the differences in phrasing between a verb and an adjacent argument or adjunct (cf. Gussenhoven 1984, Krifka 1984) in German. While verb and argument obligatorily form a joint phonological phrase, a verb and an adjacent adjunct are regularly mapped onto two separate phonological phrases, as is illustrated in (10). Here and below, main stress is indicated by underlining the respective prosodic word; phonological phrases are indicated by round brackets and the intonation phrase is indicated by square brackets.

(10)  a. [(weil Hans) (im Zelt blieb)]
       since John in the tent remained

       b. [(weil Hans) (im Zelt) (rauchte)]
       since John in the tent smoked

Thus, the prosodic phrasing of verb and object in German (and Dutch) crucially differs from the way they are phrased in English, where they only optionally form a joint phonological phrase, as is illustrated in (11bc).

(11)  a. [((weil Hans) (das Buch las)]
       since Hans the book read

       b. [((since John) (read the book)]

       c. [((since John) (read) (the book)]

In Hinterhölzl (2009), I propose two modes of prosodic composition which apply in a uniform way in German and English and take into account the phase status of syntactic constituents: while constituents that belong to the same phase-predicate (a predicate and its arguments) are mapped onto a joint phonological phrase (prosodic subordination), constituents that belong to different phase-predicates (a verb or noun and its adjuncts) are mapped onto separate phonological phrases, as is illustrated in (12). (12) accounts for the data in (10). We will come back to the contrast in (11) in Section 3.4 below.
(12) Modes of prosodic composition (Hinterhölzl 2009)
   a. subordination: (DP) + V -> ((DP) V)
   b. coordination: (PP) & V -> (PP) (V) (where PP is an adjunct

3.3 Syntactic structure and default prominence

After the mapping of prosodic phrases from syntactic phrases, the heads of these prosodic constituents have to determined as the most prominent element within it, raising the question of what default prominence is derived from. A straightforward answer to this question comes from a simple metrical evaluation of a binary branching syntactic tree, in which the right branch is interpreted as metrically strong. This procedure yields the correct default prominence pattern of an English sentence, as is illustrated in (13).

(13) Yesterday John visited his mother

Next to the default procedure called extrinsic heading in (14a) which reflects the branching nature of a binary asymmetric syntactic tree, we need to assume a procedure called intrinsic heading in (14b), which is sensitive to the nature of prosodic constituents being combined and accounts for the assignment of main stress to the object rather than to the verb in German.

(14) a. Extrinsic heading (default)
   In prosodic composition, the right-hand member is metrically stronger than its sister constituent

b. Intrinsic heading: (language particular)
   In the combination of two distinct prosodic constituents, the constituent that is higher on the hierarchical layer counts as metrically stronger than its sister constituent

I propose that languages may differ in whether they only allow for extrinsic heading or also admit for intrinsic heading. Intrinsic heading makes use of phase-theory. When the combination of a verb and its complement is evaluated prosodically, there is an intrinsic asymmetry: the DP-argument constituting a complete phase has already been mapped onto a phonological phrase when combined with the verb, which is standardly mapped onto a prosodic word.
If we assume along the lines of Halle & Vergnaud (1987) that during prosodic evaluation the labelled tree is converted into a bracketed grid representation, the relative strengths of the several accents in the clause and the position of the main accent are derived, as is illustrated in (15) for a putative German sentence comprising a subject DP, two adjunct XPs and a direct object DP and the verb.

(15)  

$$\begin{array}{c}
\text{DP} \\
\text{XP} \\
\text{XP} \\
\text{DP} \\
\text{V (DP)} \\
\text{(XP)} \\
\text{(XP)} \\
\text{(DP V)}
\end{array}$$

3.4 Further operations in phonology proper

Note that the operation of subordination creates recursive prosodic structures that violate the SLH (Selkirk 1984, Nespor & Vogel 1986). However, Ladd (1986), Selkirk (1995), Peperkamp (1997) and Truckenbrodt (1999) provide arguments for the availability of recursive prosodic structures in certain languages.

Here, I propose that syntax derives an initial recursive prosodic phrasing which at a later level may be flattened by language specific rules that delete outer boundaries in a cyclic fashion according to global prosodic parameters like rhythm, length and branchingness of constituents and the like. In addition, I follow Nespor & Vogel (1986), who propose the operation of restructuring to account for flexible prosodic phrasing in Italian and French. As is illustrated in (16), they argue that verb and complement are standardly mapped onto separate phonological phrases, but the object may optionally restructure with the verb, if it is non-branching.

(16)  

a. (Gianni) (ha mangiato) (una mela)  
b. (Gianni) (ha mangiato mele)  

John has eaten an apple / apples

Under the assumption that non-branching prosodic constituents delete redundant prosodic boundaries, as is illustrated in (17a), I propose the following condition for the operation of restructuring in (17b).

(17)  

a. ($\phi$ (pwd N)) $\rightarrow$ (pwd N)  
b. Prosodic Restructuring: an un-phrased prosodic constituent restructures with an adjacent phonological phrase crossing maximally one prosodic boundary.

With these assumptions in place, we are now in a position to derive the differences in prosodic phrasing between German and English and to spell out the rules that derive
a flat prosodic structure obeying the SLH from the initial prosodic structure mapped from syntactic structure.

Remember that outer boundaries can be deleted in a cyclic fashion. After the deletion of an outer boundary an un-phrased category must either be rephrased according to the prosodic category of its prosodic sister (to respect the SLH) or undergo restructuring. From these rules and the principle in (18) which records the various faithfulness constraints between input and output in segmental phonology, it now follows that the verb must obligatorily restructure with the preceding object in German, as is illustrated in (19).

(18) preservation of (main) prominence: The deletion of prosodic boundaries must not alter pre-established prominence relations

(19) a. weil Hans der Maria ein Buch gab
   since Hans to-the Maria a book gave
b. (weil Hans) ((der Maria) ((ein Buch) gab)) initial phrasing
c. (weil Hans) (der Maria) ((ein Buch) gab) boundary deletion
d. (weil Hans) (der Maria) (ein Buch) gab boundary deletion
e. (weil Hans) (der Maria) (ein Buch ) gab restructuring
f. (weil Hans) (der Maria) (ein Buch) (gab) rephrasing of pwd

(19b) displays the initial prosodic phrasing in a sentence in which the subject constitutes a topic: the verb forms a joint phonological phrase with the indirect and direct object, which have been mapped onto phonological phrases in the previous phase. (19c) and (19d) show the resultant structure after the respective deletion of the outermost prosodic boundary. The second step results in a representation in which the prosodic word of the verb is not part of any phonological phrase, violating the SLH. In (19e), the un-phrased verb undergoes restructuring into the adjacent phonological phrase of the preceding object crossing one prosodic boundary. Note now that the alternative option of rephrasing the verb in a separate phonological phrase is ungrammatical since the phrasing does not preserve main stress on the direct object. Since only extrinsic heading is possible in the prosodic structure in (19f), main stress would be assigned to the verb, violating the faithfulness constraint in (18).

Note that no such effect occurs in the order VO: independently of the phrasing, the main stress remains on the object, as is illustrated in (20). Thus in the order VO, languages are free to employ either the restructuring option or the rephrasing option and may impose special conditions on both options as we have seen above is the case for Italian.

(20) a. (John) (read (a book))
   b. (John) read (a book) deletion of outer boundary
c. (John) (read a book) restructuring
d. (John) (read) (a book) rephrasing
4. The HFF as a metrical condition

The metrical evaluation of a binary branching, anti-symmetric tree which assigns the metrical label strong (s) to the right branch at each level, immediately makes clear why something like the weight condition should apply to adjuncts to the left and why the effect is dismissed if the adjunct appears to the right of modified head, as is illustrated again in (21).

(21) Yesterday John visited his mother

If we assume that the prosodic composition, like the syntactic derivation, starts with the head of the extended projection, that is, the verb in the sentence domain and the noun in the nominal domain, then it follows that syntactic constituents preceding this head are mapped onto a weak branch and syntactic constituents following this head are mapped onto a strong branch by default. These considerations suggest the relevance of a condition like (22).

(22) Weight-sensitivity:
A heavy syntactic phrase contained in a weight-sensitive domain must occupy a strong branch in prosodic structure

The condition in (22) raises the question of when a syntactic phrase counts as heavy in prosodic structure. In Hinterhölzl (2009b, 2013), I proposed that weight effects in the phrasal domain should be analyzed like weight effects at the word level, referring to the parallelism between X’-structure and syllable structure. At the level of a prosodic word, a syllable counts as heavy if it is bimoraic, that is, if its rhyme is branching, as is illustrated in (23), suggesting the definition of heaviness in (24).

(23) a. H
(b. H

| σ CVC | ϕ (ω₁ proud) (ω₂ of his mother) |

(24) A syntactic phrase XP counts as heavy if both its head X and the complement of X contain lexical material
One might think that a prosodic condition on heaviness should be a condition that applies to prosodic constituents. Note that what we are left with after the mapping of syntactic structure onto prosodic structure is a string of segments, possibly bracketed in terms of prosodic words, feet and syllables, as is illustrated in (23b). However, when we decide whether a syllable counts as heavy or not we refer to the structural level and check whether its rhyme is branching. In a similar vein, I would like to propose that when we decide whether a phonological phrase counts as heavy or not we make reference to its structural representation, that is, the arrangement of its parts in syntactic structure.

Therefore, I propose that the complex condition in (1) is broken down into two conditions. (25) applies in the interface at the point where the syntactic structure is metrically evaluated and mapped onto prosodic structure. At this point of the derivation, we may assume that syntactic constituents and their phase status are still visible. The condition in (26) may then be taken to apply in phonology proper where it accounts in a uniform fashion for heavy constituents at the level of prosodic words and prosodic phrases.

(25) A phonological phrase that corresponds to a heavy syntactic phrase in a weight-sensitive phase is assigned the metrical value H

(26) A prosodic constituent assigned the metrical value H must be mapped onto a strong branch in prosodic structure

5. The HFF as a morphological condition

In this section, I discuss in more detail HF-effects in the nominal domain in German and English and argue that they are caused by two different types of conditions. While HF-effects in English nominals can be undone by the postposition of the adjunct – remember that the adjunct in post-nominal position necessarily occupies a strong position in the metrical tree – pointing to its prosodic nature, HF-effects in German noun phrases display a phenomenon of displacement of morphology, pointing to its morphological nature.

It is tempting to relate the contrast between (27ab) and (27bc) to an adjacency condition that applies in morphological form (MF) in the framework of distributed morphology (Halle & Marantz 1993). In (27), a HF-effect appears in prenominal position where the adjective is inflected but is absent in post-nominal position where the adjective is uninflected.

(27) a. der [auf seine Mutter stolze] Mann
   the of his mother proud man

b. *der [stolze auf seine Mutter] Mann
   the proud of his mother man
If we assume that inflected words are formed in the syntax and that the adjectival inflection constitutes a phrasal affix, the contrast between (27ab) follows: Given that an Agreement projection hosting the adjectival affix dominates the AP and attracts it into its specifier, we may assume that affix and head may be joined at MF under the condition of strict adjacency. This is the case in (27a) where the complement of the adjective precedes its head, but ruled out in (27b) where the complement intervenes between affix and adjectival head.

While this account may be appropriate for German (below we will see some direct evidence for this analysis), it is not clear how to extend this approach to the nominal domain in English and to the adverbial domain in German and English. For the nominal domain in English, we would have to assume that prenominal adjectives have a zero-morpheme, while post-nominal ones are uninflected, as their German counterparts, and for the adverbial domain, we would have to assume that English adverbials contain a zero-morpheme of some sort, while German adverbials do not contain such a morpheme. So to extend the morphological account of HF-effects to the nominal and adverbial domain in English, we would have to assume a number of stipulations that make this approach considerably implausible.

That HF-effects in the nominal domain in English may call for a metrical rather than a morphological account is suggested by parallel effects in Italian, which, however, cannot be explained with a morphological adjacency condition. There is a class of attributive adjectives in Italian that may appear in pre- or post-nominal position. The crucial point is that these adjectives show inflection in both positions, but a HF-effect is obsoleted by the post-nominal placement of the inflected adjective, as is illustrated in (28). This clearly speaks in favor of the relevance of a metrical condition rather than for a morphological condition.

(28) a. un simpatico ragazzo
    a pleasant boy

b. *un [simpatico a tutti ] ragazzo
    an pleasant to everyone boy

c. un ragazzo simpatico a tutti
    a boy pleasant to everyone

Now, it is interesting to see that the evidence goes into the other direction for HF-effects in the nominal domain in German, as is illustrated in (29). If an adjective in German is modified by an adverbial like genug, which appears after the adjective, as is illustrated

2. The example is due to Henk van Riemsdijk whom I hereby thank for relevant discussion of the issue.
in (29a), a HF-effect appears in its use as a prenominal modifier, as in (29b) (cf. Haider 2011). This follows straightforwardly under the analysis of the adjectival inflection as a phrasal affix (due to the lack of adjacency between the adjective and the ending), but comes as a surprise when viewed as due to the violation of the weight-condition, since it is not clear why the phrase *big enough should count as heavy. Note furthermore the grammatical status of the alternatives of (29b). (29c), in which the adjectives remains without adjectival inflection is strictly ungrammatical as well, but (29d) in which the adjectival ending is attached to the adjacent adverb is acceptable for many speakers.

(29)  
a. Das Problem ist groß genug  
the problem is big enough  
b. *ein großes genug Problem  
a big enough problem  
c. *ein groß genug Problem  
d. ? ein groß genuges Problem

Contributing evidence for this analysis of the German facts in (29) comes from a similar contrast in Dutch. As is discussed in detail in van Riemsdijk (1998), adjectival inflection in Dutch – though minimal, consisting in -e with non-neutral nominals and in the lack of an ending with neutral nominals – gives raise to a similar adjacency and repair effect, as is illustrated in (30).

(30)  
a. een zo snel mogelijk vliegtuig (neuter)  
a as fast (as) possible airplane  
b. *een zo snelle mogelijk auto (non-neuter)  
c. een zo snel mogelijke auto  
d. *een zo snel mogelik auto

In (30a), where the modified nominal is neuter the adjective *snel remains uninflected and no HF-effect appears. In (30b), where the modified nominal is neuter, the adjective *snel should appear with the ending -e, but the construction is ungrammatical due to lack of adjacency between the respective adjective and the noun. (30c), in which the adjectival ending attaches to the adjacent adjective *mogelijk is grammatical. van Riemsdijk (1998) explains this contrast with an adjacency condition on head movement on part of the adjective.

What is relevant for us here is that the contrast between (30a) and (30b) cannot be explained in terms of heaviness, since the constituent zo *snel(le) mogelijk should count as heavy or non-heavy in both cases alike. The only explanation remaining is that the observed HF-effect is morphological in nature.

The parallel effect in (29d) in German and in (30c) in Dutch is reminiscent of the displacement of morphology with participles and to-infinitives in German verb clusters, illustrated in (31).
(31) a. *ohne das Buch lesen wollen zu haben
    without the book read want-IPP to have

b. ohne das Buch haben lesen zu wollen
    without the book have read to want
    “without having wanted to read the book”

In (31), the infinitival prefix *zu* should appear with the auxiliary but is attached to the lower infinitive of the modal verb instead. The reason is that the verb cluster comprising an IPP-infinitive is always right-branching, giving rise to the cluster *haben lesen wollen* before the infinitival marker *zu* is applied. The infinitival marker, occupying an Aspect head in the v-domain, will attract this cluster to its specifier and will consequently be attached as a prefix to the adjacent infinitive of the modal, despite the fact that the modal is selected by the auxiliary and not by the infinitival marker.

Morphological HF-effects in the v-domain are responsible for the phenomenon of IPP (infinitivus pro participio) in German, as is argued in detail in Hinterhölzl (2009a). Morphological adjacency effects in the v-domain are quite common in Germanic languages and appear in various forms due to different repair operations in the interface. In older German, the effect appears in its purest form as a simple displacement of the participial ending of V2 onto V3: Behaghel (1924: 367ff) notes that the construction *haben + infinitive + participle* occurs rather frequently in legal writings in the late 13th and early 14th century. The same construction, however, can already be found in the Nibelungenlied, as is illustrated in (32a). The syntactic structure giving rise to this effect is illustrated in (32c), with Asp⁰ hosting the participial morphology.

(32) a. ob in diu edele frouwe het lazen das getan (Nib. 634,2)
    whether the royal woman had let-IN that done

b. do si so reht wol von irem allerlibsten liep het hören gerett
    when she so right well from her belovest lover had hear said

c. [[V2 V3 Asp⁰ ]]

A frequent variant of the above construction which is due to copying of the relevant features onto a higher head in the v-domain of the selecting verb as a last resort operation is the double participle construction (cf. Hinterhölzl 2009a). While double participle constructions are rather rare in the history of German – an example is given in (33a) – they are common in colloquial variants of Frisian, Swedish and Norwegian (cf. den Dikken & Hoekstra 1997, Wiklund 2001). (33b) illustrates the double participle in Frisian.

(33) a. hand wir unser eigen insigel geton henket (Urkunden Basel 1387)
    have we our own seal done hanged

b. hy soe it dien ha wollen (den Dikken and Hoekstra 1997, 1058)
    he would it done have wanted

The IPP-effect, that is the occurrence of a double infinitive construction, in standard German is due to a historical accident. Modal verbs in MHG lacked a participle and
attained a new weak participle only at the beginning of the 16th century. Due to the preponderance of modal verbs in verb clusters, the use of a construction with a zero-morpheme on the selecting verb became the norm in standard German, but the situation is quite different in various modern dialects of German (cf. Höhle 2006 and Hinterhölzl 2009a for additional discussion).

To summarize this section, a HF-effect that is morphological in nature leads to a displacement of the relevant morphological ending and various repair operations in the interface. Crucially it does not necessarily give rise to an ungrammatical sentence when the relevant constituent remains in its canonical position. A HF-effect that is prosodic in nature, on the other hand, will lead to syntactic displacement of a heavy constituent into a post-verbal or post-nominal position where the effect is discarded. A heavy constituent remaining in its canonical position gives rise to an ungrammatical sentence.

In the following section, I will use these diagnostics – morphological displacement and eventual repair vs. syntactic displacement – for investigating (further) restrictions on word order in verb clusters in German and argue that this type of HF-effects in the v-domain in German, as well as the obligatory extraposition of CP-complements from verb clusters, are neither due to the prosodic condition in (1a) nor due to the morphological condition in (2).

6. Additional HF-effects in the German v-domain

There is a peculiar restriction that applies in the v-domain in German. In Standard German verb clusters are predominantly left-branching, but right-branching verb clusters are possible as long as the most deeply embedded cluster is left-branching (cf. Hinterhölzl 2006b). A case in question is given in (34a). However, once a right-branching verb cluster is introduced, the verb cluster must also be right-branching at the next level up (cf. (34b) and (34c)).

(34) a. weil er den Text [muß [lesen können]]
   ‘since he must be able to read the text’

3. There is a lot of variation in German dialects in this domain (cf. Salzmann (2013ab)).

4. Verb cluster formation is argued in Hinterhölzl (2006a) to involve XP-movement of the dependent infinitives into two different functional specifiers in the v-domain of the selecting verb for licensing purposes. Given that the selecting verb moves into the highest head position in the v-domain, left- and right-branching verb clusters are derived by spelling out the dependent infinitives in the higher or lower specifier in this account.
b. *weil er den Text [[müssen [lesen können]] wird]  
   since he the text must read can will  
   ‘since he will have to be able to read the text’

c. weil er den Text [wird [[müssen [lesen können]]]]  
   since he the text will must read can

The contrast between (34b) and (34c) can be analysed as a HF-effect. The syntactic phrase  
[müssen [lesen können]] to the left of the selecting auxiliary wird is not head final.

Also the extraposition of CP-complements from complex verb clusters, illustrated in (35), can be analyzed as a HF-effect. (35a) shows that the selecting infinitival verb and its CP-complement must form a joint constituent, to obey the Verb-Second constraint. However, as is shown in (35b), this constituent is not licit in the base-position of the infinitival verb in the verb cluster, giving rise to obligatory extraposition of the complement clause in the standard OV-approach to German, as is illustrated in (35c).

(35) a. [sagen dass die Erde rund ist] wird man wohl können  
   say that the earth flat is will one well can

b. *Man wird wohl [sagen dass die Erde rund ist] können

c. Man wird wohl sagen können [dass die Erde rund ist]

The traditional account for the contrast in (35bc) is given in terms of a filter by Büring & Hartmann (1997), requiring that “finite sentences may not be governed by V or I” (p. 28ff). Note first that a condition making use of the notion of government is not admissible in the MP. Secondly, there is wide-spread agreement that complement clauses in the middle field are marginally possible in German, disqualifying also the empirical aspect of their filter, as is illustrated in (36).

(36) a. ? weil Hans [dass Peter kommt] nicht weiß  
   since Hans that Peter comes not knows

b. ?*weil Hans nicht [dass Peter kommt] weiß  
   since Hans not that Peter comes knows

c. *[[dass Peter kommt] sagen] wollte Hans nicht  
   [sagen [dass Peter kommt]] wollte Hans nicht

d. [sagen [dass Peter kommt]] wollte Hans nicht

There is an alternative account of the data in (35) that is fully compatible with the minimalist framework. Truckenbrodt (1995) argues that extraposition constitutes phonological movement by showing that the site of the landing position is constrained by prosodic rather than by syntactic conditions. His constraint is given in (37).

(37) Let XP be a syntactic category that is canonically mapped onto the prosodic category π upon extraposition (where π is either the phonological phrase or the intonational phrase in the following). The extraposition from NP will take XP as far as out of a prosodic constituent of the same category π.  

\[
(\ldots \text{XP} \ldots)_{\pi} \rightarrow (\ldots t_{\pi} \ldots)_{\pi} (\text{XP}_{\pi})_{\pi}
\]

(Truckenbrodt 1995: 503)
This condition is formulated for cases of extraposition from NPs (or DPs), but may be taken to hold also for extraposition from vP. It requires that an extraposed constituent of a particular prosodic type is placed immediately outside of the phrase (of the same prosodic type) that contains it, ruling out shorter or longer movement of the extraposed constituent.

However, (34b), (35b) and (36bc) can be ruled out in a uniform manner as violations of the HFF, while the account of Truckenbrodt must find additional explanations for the data in (34bc) and (35b). Thus, I will assume that the HFF applies in the German v-domain. The question that we have to address now is whether the effect is prosodic or morphological in nature.

Our diagnostics clearly point into the direction of a prosodic effect. First note that a HF-effect can be avoided if the right-branching verb cluster is placed after the selecting auxiliary (cf. 34bc) or if the CP-complement is extraposed from the verb cluster (cf. 35bc). If no syntactic displacement obtains the relevant structures are ungrammatical. No effect of morphological displacement and/or repair is visible. All these diagnostics speak in favour of a prosodic effect and against a morphological effect.

Note, however, that these HF-effects do not follow from the weight-condition. As an example, let us take the case of (34b). The constituent [müssen [lesen [können]]] does constitute a heavy constituent according to our definition, but also occupies a strong branch in prosodic structure. As a matter of fact, main stress in the complex verb cluster in (34b) falls on the verb lesen contained in the heavy constituent preceding the auxiliary wird.

This follows from the basic rules of prosodic composition argued for in Section 3.2 above. Since in (34b) a phonological phrase (comprising the cluster müssen lesen können) is combined with the prosodic word of the auxiliary wird, the heavy cluster müssen lesen können will be mapped onto a strong branch due to the rule of intrinsic heading in (14b) above. Thus the weight condition is fulfilled.

Note, however, that (34b) is ungrammatical for a much more basic reason: its initial prosodic structure cannot be mapped onto a valid output structure in phonology.\(^5\) To see this let us consider the prosodic structure of (34b) as initially derived from its syntactic structure, as is illustrated in (38).

\[(38)\]

\[\begin{align*}
\text{a.} & \quad (\text{müssen } (\text{lesen } \text{können})) \text{ wird} \\
\text{b.} & \quad (\text{müssen } (\text{lesen } \text{können})) \text{ wird} \\
\text{c.} & \quad (\text{müssen } (\text{lesen } \text{können})) \text{ wird} \quad \text{restructuring is blocked} \\
\text{d.} & \quad (\text{müssen } (\text{lesen } \text{können})) \text{ (wird)} \quad \text{stress should fall on wird}
\end{align*}\]

---

\(^5\) I thank Martin Prinzhorn, Katharina Hartmann and the audience of my talk *The Head Final Filter in the syntax-prosody interface* at the Wiener Sprachgesellschaft (17.6.2014) for relevant discussion of this issue.
Assuming that each vP is mapped onto a phonological phrase per default we arrive at the recursive prosodic phrasing in (38a). This structure needs to be flattened by boundary deletion and re-phrasing or restructuring operations. Cyclic deletion of the outer boundaries gives rise to the representation in (38b) with an un-phrased auxiliary. The prosodic word of the auxiliary must either be re-bracketed or restructure into the adjacent phonological phrase, if possible. Note now that restructuring is impossible since the auxiliary would need to cross more than one prosodic boundary, as is illustrated in (38c). Note also that re-phrasing of the auxiliary as a separate phonological phrase does not preserve main stress, since the rule of extrinsic phrasing would assign the main accent to the auxiliary in (38d). Since in the initial mapping main stress falls on the constituent preceding the auxiliary, the condition on the preservation on prominence in (18) above is violated. Thus the syntactic structure of the verb cluster in (34b) gives rise to a crash in the syntax – prosody interface and is ungrammatical. Let us refer to this effect informally as the phrasing condition.

Why does it help also in this case to move the right-branching constituent to a position following the auxiliary (cf. 34c)? As is shown in (39), in this position, the auxiliary may either restructure into the adjacent phonological phrase crossing only one prosodic boundary (39c) or be re-phrased as in (39d), since re-phrasing in this case does not lead to a change in pre-existing prominence relations. The preferred option here is restructuring since it leads to two phonological phrases of equal size, as is indicated in (39e).

(39) a. (wird (müssen ((lesen) können)))
b. wird (müssen ((lesen) können))
c. (wird müssen) ((lesen) können) restructuring
d. (wird) (müssen ((lesen) können)) rephrasing
e. (wird müssen) (lesen können)

In essence, what I am proposing here is that HF-effects in the v-domain arise from an initial recursive prosodic phrasing derived from syntactic structure that needs to be rephrased to obtain the flat prosodic structure required by the SLH. As we have seen above, a right-branching verb cluster on a left branch cannot be rephrased to a form a valid prosodic output structure.

The prosodic rule of extraposition proposed by Truckenbrodt (1995) can now be interpreted as direct evidence for the prosodic nature of this effect in the German v-domain. Note that the result of the rule in (37) is to render a prosodic structure in which prosodic sisters are of the same type obeying SLH: in the resultant structure the prosodic constituents are either two phonological phrases or two intonation phrases. I will leave open the question if this is achieved via prosodic movement as proposed by Truckenbrodt or via the spell-out of a lower copy as proposed in Hinterhölzl (2009). In the following section, I want to discuss how the present approach squares with the much-debated FOFC-condition.
7. HF-Effects and the FOFC

In recent years, a new syntactic condition has been proposed that accounts for the pattern in (34). The condition is termed the Final-over-Final constraint and has been proposed, discussed and refined in various publications by Biberauer, Holmberg & Roberts (2007, 2014). An initial version is given in (40).

(40) The Final over Final Constraint (FOFC):
If $\alpha$ is a head-initial phrase immediately dominated by $\beta$, then $\beta$ must be head-initial as well; if $\alpha$ is a head-final phrase, $\beta$ may be head-initial or head-final.

The condition was originally motivated to account for a well-known fact in the history of English. In Old English, we find OV and VO orders as well as Aux V and V Aux orders, but the combination VO Aux is not found. Hence Biberauer, Holmberg and Roberts argue that the missing pattern is excluded by the syntactic constraint in (40).

The problem with a syntactic condition of this type is twofold. First, one would expect it to apply across the board. Second, one would like to know why a condition like (40) should hold at all. As for the first issue, Biberauer, Holmberg and Roberts argue that it is a general condition that applies in all sentence domains and in all languages. There are two major exceptions to a general syntactic rule like (40).

A. DPs and PPs in OV-languages, which give rise to a right-branching constituent that itself occupies a left branch with respect to the verb: ((D/P NP/DP) V)
B. Sentence final particles (SFPs) in many languages, including Mandarin Chinese (Paul 2014), as is illustrated in (41).

(41) a. [Wǒ zuótiān dào Zhāng jiā chī fàn] le
   1sg yesterday go Zhang home eat food part
   ‘I went to the Zhangs for dinner yesterday.’

   b. [Tā huì shuō zhōngwén ] ma
      3sg can speak Chinese part
   ‘Can he speak Chinese?’

   c. [Nǐ yě yào qù] a
      2sg also want go part
   ‘You also want to go!’

6. An alternative syntactic condition to the HFF was already proposed in Haider (1997). Moreover, Haider (2013, p. 132–135) shows that the FOFC follows from his Binary Branching Condition (BBC).
Paul (2014) convincingly argues that SFPs in Chinese constitute functional heads in the C-domain that can be distinguished in three classes: a lower class, including the particle *le* in (41a), which interact with the tense/aspect system; a class of force related particles including the element *ma* in (41b) that serve for clause typing with *ma* indicating interrogative force and a class of high particles like *a* in (41c) that indicate various types of speaker attitudes with *a* signaling the speaker's surprise about the state of affairs expressed by the complement IP/TP.

C. Complex Pre- and postpositional phrases in Chinese and German, as discussed in Djamouri, Paul and Withman (2013) with some German cases illustrated in (42).

(42) a. [[unter der Brücke] durch]
under the bridge through
b. [[von morgen] an]
from tomorrow on

As for the cases of type A), Biberauer, Holmberg and Roberts (2014) propose a refinement of the original condition, as given in (43).

(43) FOFC (informal statement)
A head-final phrase $\alpha P$ cannot dominate a head-initial phrase $\beta P$, where $\alpha$ and $\beta$ are heads in the same extended projection.

According to (43), no violation of the FOFC constraint arises in cases like A) since the verb and the determiner or the preposition are not part of the same extended projection. This account is tentatively extended to the cases in B) under the assumption that particles lack a syntactic category and thus do not belong to the extended projection of any head.

Let us now turn to its motivation and the question of why a condition like (40/43) should hold at all. They propose that FOFC is an effect of the distribution of a movement-triggering feature in extended projections that is subject to relativized minimality.

To see what they mean, let us reconsider the ungrammatical order *V O Aux: to derive this order in an anti-symmetric framework, one would have to assume that v does not have the movement triggering feature for attracting the object to its specifier, while a Tense or Aspect projection hosting the auxiliary would be marked for the movement triggering feature attracting VP across the intervening v head that does not carry a movement triggering feature, violating relativized minimality.

Thus FOFC is definitely much better motivated than the original syntactic HFF. But let us see now, how our interface approach fares with violations of and exceptions to FOFC. Note first that the pattern *V O Aux gives rise to the same prosodic structure as the ungrammatical verb cluster in (34b) above, as is illustrated in (44).
As above, the initial prosodic structure cannot be mapped onto a correct prosodic structure obeying the SLH, since restructuring is impossible and re-bracketing leads to a change in main prominence.

Let us now address the question of how the interface approach would deal with the three exceptions discussed above. First, I would like to discuss why DPs and PPs in OV-languages do not give rise to the phrasing problem illustrated in (44). Here the crucial difference seems to be that DPs (and CPs) can be taken to constitute complete phases. I propose that a DP can be evaluated in the phase in which its formal features, including case, have been checked. For the sake of the argument, I will assume that this is the T-domain for structural case and the P-domain for oblique case. In the example in (19) above, we were only considering a simple DP containing a determiner and a noun. Let us see why also more complex DPs do not give rise to a crash in the phonological component. In (45) below, I will only focus on the phrasing of the object and the verb in final position. The account rests on the well-accepted assumption that mapping onto the interfaces applies in a phase-based fashion.

(45)  a. Er hat [den Freund meiner Schwester] getroffen
       He has the friend of my sister met

       b. (den (Freund (meiner Schwester))) initial phrasing of the object

       c. (den Freund) (meiner Schwester) structure after evaluation

       d. ((den Freund) (meiner Schwester) getroffen) DP + V

(44b) displays the initial phrasing of the object. Since this object constitutes a complete phase and occupies the T-domain in an antisymmetric approach to the syntax of OV-languages (cf. Kayne 1994), the latter can be prosodically evaluated and is mapped onto a flat prosodic structure respecting the SLH, as is illustrated in (44c). As is shown in (44d), combining this object with the verb leads to a phonological phrase that contains two phonological phrases and the prosodic word of the verb. The latter can then restructure into the second phonological phrase (corresponding to the DP complement of the friend ) in the usual manner.

The difference between (44) and (43) lies in the fact that the DP in (43) is still contained in the v-domain and cannot be prosodically evaluated, leading to a crash in the mapping of syntactic structure onto prosodic structure of that domain. The difference between (44) and illicit verb clusters in (34) above lies in the fact that the vPs/Aspect-phrases contained in verb clusters do not constitute complete phases, as CPs and DPs do, and thus are not prosodically evaluated separately and can therefore only be simplified by cyclic deletion of outer boundaries and restructuring operations, as outlined above.
What about sentence final particles? According to Chao (1968, p. 149), SFPs in Chinese “are enclitics (unstressed final syllables) which are in construction with a preceding phrase or sentence, though phonetically closely attached to the syllable immediately preceding it.” If these particles have the prosodic status of clitics, they will not give rise to a prosodic HF-effect for the following reason. Selkirk (1995) proposes that monosyllabic function words are exempt from the SLH and argues that they constitute simple syllables, when not occurring in isolation. These syllables are then either adjoined to a prosodic word as affixal clitics, or to a phonological phrase as free clitics, as is illustrated in (46).

(46) a. \((\Phi (pwd\sigma(pwd lex)))\) affixal clitic
b. \((\Phi\sigma(\Phi(pwd lex)))\) free clitic

Let us assume for the sake of argumentation that sentence final tense/aspect particles in Mandarin Chinese are free clitics. Then their representation follows directly from the rules of prosodic composition proposed above. As is illustrated in (47), sentence final particles analyzed as free clitics can be added to a given prosodic structure without inducing any restructuring or re-phrasing operation. Assuming that the particle le as the lowest element in the C-domain selects the TP (cf. Paul 2014) containing subject, object and verb, the rule of subordination maps them onto a joint recursive phonological phrase (cf. (12a) above). No metrical adjustments are necessary to arrive at a valid prosodic output. Furthermore, main prominence will be assigned to the phonological phrase containing the verb and its arguments by the rule of intrinsic heading in (14b) above.

(47) \(((\text{DP})\Phi (V \text{DP})\Phi)\sigma)\Phi$

Djamouri, Paul & Whitman (2013) point out cases of complex pre- and post-positions in Chinese and German as problematic for the FOFC. As far as I can tell, the German examples in (48) below constitute a major problem for the FOFC, because it is rather undisputable that the sequence of a pre- and post-position in these examples are part of the same extended projection. In the interface account, we can again resort to the complete phase status of the relevant DP. In the examples in (47ab), the phonological phrase projected by the DP can be deleted at the point of prosodic evaluation, allowing for the postposition to restructure with the preceding PP, and resulting in a single phonological phrase containing three prosodic words, as illustrated in (48).

(48) a. \(((\text{unter}pwd (\text{der Brücke})) \text{durch}pwd)\) initial structure
b. \(((\text{unter}pwd (\text{der Brücke})pwd) \text{durch}pwd)\) evaluation of DP
c. \(((\text{unter}pwd (\text{der Brücke})pwd \text{durch}pwd)\) restructuring of PoP

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7. I am indebted for this reference to Waltraud Paul, who I also would like to thank here for her help with Chinese data.
As these examples indicate, the presence of phases is crucial for reducing the complexity in the mapping from syntactic structure onto prosodic structure. However, the different cases that we discussed only follow, if an initial recursive prosodic structure is mapped onto a flat prosodic output structure under the restrictive conditions that we have been arguing for.

To summarize, the interface approach can account for all types of HF-effects that can be explained by FOFC. In addition, it has no problems with the main exceptions to FOFC discussed in the literature. Moreover, it may be said that it has a more natural explanation for them than FOFC has. It is the complete phase status of DPs and the clitic nature of particles that makes these exceptions fall outside of the domain of HF-effects for independent reasons.

On the other hand, the syntactic account in terms of FOFC must assume that there are also interface conditions like the weight-condition and the morphological adjacency condition. The presence of weight-effects with adjuncts in the English I-domain and their absence in the parallel domain in German cannot be accounted for by FOFC. In addition, a syntactic condition like FOFC cannot explain why certain HF-effects can be repaired by morphological displacement. In the interface account, this falls out naturally. Functional affixes (like particles) do not lead to a crash in phonology. But due to their affixal nature, they impose the additional condition of being attached to a suitable host. It is this condition that leads to morphological displacement and other repair operations. If the latter are possible no grammatical violation ensues. Only if no appropriate host is available, the structure will be ungrammatical. Note that the existence of morphological HF-effects that do not lead to ungrammaticality is very problematic for a syntactic account of HF-effects.

The interface account also explains why something like the weight condition is necessary to account for HF-effects that are structurally identical to the type A)-exceptions to FOFC. Weight effects arise in the combination of adjuncts and their modified heads N and V. Crucially, they cannot be reduced to a failure in prosodic phrasing, since adjuncts and their modified heads always map onto separate phonological phrases and thus obey the SLH from the outset.

8. Conclusions

What do the interface conditions in the present account have in common? The weight condition and the phrasing condition both derive from a metrically based mapping between syntactic structure and prosodic structure and thus form a natural class. All three conditions are based on the same syntactic configuration, but it is a matter of fact that the very same syntactic configuration gives rise to three different effects that vary in their appearance and their exceptions. HF-effects can thus not be explained
by a single syntactic condition. They have a common syntactic basis, namely the configuration of a head-initial phrase under a head final phrase, which, however, leads to different consequences at the interfaces.

References


PART TWO

Diachronic variation in phonology and syntax
Variation and change in Italian phonology

On the mutual dependence of grammar and lexicon in Optimality Theory

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In this paper I discuss the influence of language acquisition and borrowing on the reorganisation of grammar and lexicon in the development from Latin into Italian. We will have a look at the historical sequencing of the introduction of new phonological processes, velar palatalization, mid vowel breaking, and lateral palatalization, and how they conspire to create new contrasts or reintroduce contrasts that have been subject to neutralisation. The amphichronic analysis proposed here brings together insights from acquisition and loanword phonology in Optimality Theory to explain the historical development.

Keywords: Italian phonology; diachronic microvariation; language change; palatalization; Optimality Theory; acquisition

1. Introduction

The repeated introduction of new phonological processes with a partial overlapping of targets and outputs leads to an increase in the degree of opacity in the grammar up to a peak at which learners radically restructure both the grammar as well as underlying representations. The selected processes from the history of Italian to be discussed here show how counter-feeding opacity arises and how it leads to the innovation of contrasts.

Optimality Theory (Prince & Smolensky 1993/2004; McCarthy & Prince 1995 et seq.) sees the differences between languages as an epiphenomenon of different constraint rankings. Likewise, the differences between historical stages of a single language have to be seen in this way (e.g., Anttila & Cho 1998; Holt 2003; Bermúdez-Otero 2006, 2007). The diachronic stages of a language vary by small differences in constraint ranking, just as dialects synchronically vary in this way. We are thus dealing
with microvariation in time here. Unlike with dialectal variation, the question arises how one ranking turns into another, i.e., how (and why) do rankings change, a question that has not been satisfactorily answered yet.

It is by now a widely held assumption that language change at least partially emerges through imperfect learning by new generations of speakers (McMahon 2000; Bermúdez-Otero 2014). We will have a look at the Biased Constraint Demotion Algorithm (Tesar & Smolensky 2000; Prince & Tesar 2004 inter alia), the currently predominant approach to language learning in OT, and how this can help explain selected historical processes in Italian. In addition, it will be shown here that some historical changes are caused by adults, who introduce new loanwords and thereby render the grammar inconsistent for the next generation of learners. Adults and children (i.e., learners) deal with grammatical inconsistency in different ways. While adults can cope with exceptions more easily, children try harder to make a consistent generalisation. Technically this is modelled by the introduction of lexically indexed Faithfulness constraints (Ito & Mester 1999, 2001; Pater 2000, 2006, 2009). This paper is a contribution to the amphichronic program (Kiparsky 2006; Bermúdez-Otero 2014), since it explains diachronic variation by looking at the grammars of individual historic stages and linking them through language acquisition and borrowing.

The paper is structured as follows. In the next subsection I will give some empirical background on the Latin and Italian segment inventories. In 1.2 the phonological processes are introduced and brought into a historical order. Section 2 provides the theoretical background. I will introduce the basic learning algorithm, the idea of phonological opacity as a motor of contrast innovation, and finally the technical tools of constraint indexation and conjunction, which will be utilized in the analysis of exceptional loanwords and opacity, respectively. Section 3 puts together the results of 1.2 with the machinery of Section 2 to provide an explanatory amphichronic (Kiparsky 2006; Bermúdez-Otero 2014) account of the historical development.

1.1 The Latin and Italian segment inventories

Even though Italian is considered the closest offspring of Latin, the differences in both inventories and phonotactics are quite dramatic. While Italian has lost three of the Latin consonants (the laryngeal fricative and the labialized dorsals), it has also extended the voicing contrast to the fricatives and, more importantly, introduced a whole new series of palatals and affricates. Compare (1) and (2). The segments missing in the respective other inventory are given in boldface.
Variation and change in Italian phonology

(1) Latin contrastive consonants (Vincent 1988a: 29)

<table>
<thead>
<tr>
<th>Labial</th>
<th>Alveolar/Dental</th>
<th>Velar</th>
<th>Labio-velar</th>
<th>Glottal</th>
</tr>
</thead>
<tbody>
<tr>
<td>p, b</td>
<td>t, d</td>
<td>k, g</td>
<td>k(^{w}), g(^{w})</td>
<td></td>
</tr>
<tr>
<td>f</td>
<td>s</td>
<td>h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>m</td>
<td>n</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>l</td>
<td>r</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>r</td>
<td>r</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(2) Italian contrastive consonants (Krämer 2009a)

<table>
<thead>
<tr>
<th>Stop</th>
<th>Dental</th>
<th>Alveolar</th>
<th>Palatal</th>
<th>Velar</th>
</tr>
</thead>
<tbody>
<tr>
<td>p, b</td>
<td>t, d</td>
<td>k, g</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Affricate</td>
<td>ts, dz</td>
<td>tf, dz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fricative</td>
<td>f, v</td>
<td>s, (z)</td>
<td>f</td>
<td></td>
</tr>
<tr>
<td>Nasal</td>
<td>m</td>
<td>n</td>
<td>n</td>
<td></td>
</tr>
<tr>
<td>Lateral</td>
<td>l</td>
<td>l</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rhotic</td>
<td>r</td>
<td>r</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The development is not less fascinating in the vowel and diphthong system. While the inventory of plain vowels has been shrunk considerably, abandoning the length distinction and allowing a tenseness contrast only in mid vowels, all three Latin diphthongs have been eliminated and a whole new range of diphthongs has been introduced.

(3) a. Latin vowels b. Latin Diphthongs

i: ɪ u:ʊ u: a: (orthographic AE)
e: ɛ ɔ o: au
a: a o: oi (orthographic OE)

(4) Italian simple vowels (Krämer 2009a)

i u
e o
ɛ ɔ
a
It is a matter of debate whether all these diphthongs should be analysed as such. Criteria for diphthonghood could be that both vocoids are part of the same syllable constituent. Thus, if, for example, the glides in the rising diphthongs are part of the onset, this reduces the inventory considerably. See the discussion in Krämer (2009a) and references there. However, as we will see shortly, some of these diphthongs are an important part of the puzzle about the introduction of the palatal series of consonants, regardless of their analysis.

1.2 Phasing processes

Palatalization came in two waves in Italian (Calabrese 1993). The first wave affected all sorts of coronal and dorsal consonants before front vocoids.

(7) First palatalization

\[
\begin{align*}
/\text{i}/ & \rightarrow \lambda \lambda / & \text{FILIA} & \text{figlia} & [\text{fiʎʎa}] & \text{‘daughter’} \\
/\text{e}/ & \rightarrow \lambda \lambda / & \text{PALEA} & \text{paglia} & [\text{paʎʎa}] & \text{‘straw’} \\
/\text{e}/ & \rightarrow \eta \eta / & \text{BALNEU} & \text{bagno} & [\text{baɲɲo}] & \text{‘bath’} \\
/\text{t}/ & \rightarrow \text{tts} / & \text{UITIU} & \text{vezzo} & [\text{vetʦsɔ}] & \text{‘habit’} \\
/\text{d}/ & \rightarrow \text{ddz} / & \text{MEDIU} & \text{mezzo} & [\text{meddzo}] & \text{‘half’} \\
/\text{k}/ & \rightarrow \text{ttʃ} / & \text{ERICIU} & \text{riccio} & [\text{rittʃɔ}] & \text{‘hedgehog’} \\
\end{align*}
\]
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(8) Parasitic onset licensing of features in coda position by fusion

\[
\begin{align*}
\text{LAXARE} & \quad \text{lasciare} & [\text{laf\text{\textajre}] & \quad \text{‘(to) let’ (X = [ks])} \\
\text{LIGNA} & \quad \text{legna} & [\text{len\text{\textaj}] & \quad \text{‘wood’ (GN = [\text{\textajn}]})
\end{align*}
\]

Second, or velar, palatalization affected only the dorsal stops and created more palatal fricatives and affricates.

(9) Second palatalization

\[
\begin{align*}
a. \quad \text{CIRCULUS} & \quad \text{circolo} & [\text{t\textjirkolo}] & \quad \text{‘circle’} \\
b. \quad \text{GENTE} & \quad \text{gente} & [\text{d\textjente}] & \quad \text{‘people’} \\
c. \quad \text{PISCE} & \quad \text{pesce} & [\text{pef\textje}] & \quad \text{‘fish’}
\end{align*}
\]

Palatalization of dorsals also results in paradigmatic alternations, as illustrated in (10)a. However, in modern Italian we find many exceptions to the pattern. Verb stems in the 1st conjugation class never alternate (while 2nd and 3rd conjugation class stems always alternate) and nominals show mixed behaviour. I will come back to the discussion of the productivity of velar palatalization below in Section 3.

(10) Morphophonological consequences of palatalization

\[
\begin{align*}
a. \quad \text{giun[d\textje]}\text{ere} & \quad \text{giun[g]o} & \quad \text{‘(to) join – (I) join’} \\
b. \quad \text{pa[g]are} & \quad \text{pa[g]i} & \quad \text{‘(to) pay – (you.sg) pay’}
\end{align*}
\]

Even more palatals emerged from glide fortition. Since in these cases as in the coalescence cases above the trigger disappears and since many forms do not show alternations that reveal the original or underlying form, as illustrated with a 2nd conjugation verb above, it becomes more and more likely that the palatal consonants are lexicalized.

(11) Glide fortition

\[
\begin{align*}
a. \quad \text{PEIUS} & \quad \text{peggio} & [\text{pef\textd\textje}] & \quad \text{‘worse’} \\
\text{IANUARIALM} & \quad \text{gennaio} & [\text{d\textje\texten\textja\textno}] & \quad \text{‘January’} \\
b. \quad \text{CIUILEM} & \quad \text{civile} & [\text{t\textjiv\textile}] & \quad \text{‘civil’} \\
\text{UINUM} & \quad \text{vino} & [\text{\textvi\textno}] & \quad \text{‘wine’}
\end{align*}
\]
After the original glides were eliminated by fortition, new glides emerged through the diphthongisation of mid vowels. That modern Italian has mid vowels is owed to the smoothing of Latin diphthongs to mid vowels, as in *poco*. Smoothing of Latin AU (but not AE) thus must have happened after mid vowel diphthongization. The interesting development here is the formation of front glides after dorsal stops (in cooperation with delabialisation of original /kw/), which is the context of velar palatalization. A source of mid front vowels is the disappearance of the glide after diphthongization when it coalesced with the preceding stop to form the palatal affricate.

(12) Reorganisation of mid vowels and diphthongs

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>‘kwɔːko’ (COQUUS)</td>
<td>‘chef’</td>
<td>‘not much’</td>
</tr>
<tr>
<td>b.</td>
<td>‘nwɔːvo’ (NOUUM)</td>
<td>novi’ta</td>
<td>‘new/news’</td>
</tr>
<tr>
<td>c.</td>
<td>‘gɔːdo’</td>
<td>‘(I) enjoy’</td>
<td>‘enjoy-inf.’</td>
</tr>
<tr>
<td>d.</td>
<td>‘ɔːdo’</td>
<td>‘(I) hear’</td>
<td>‘hear-inf.’</td>
</tr>
<tr>
<td>e.</td>
<td>‘tʃɛːko’ (CAECUS)</td>
<td>‘blind’</td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td>‘kjɛːdere’ (QUAERERE)</td>
<td>‘ask-inf.’</td>
<td>‘(we) ask’</td>
</tr>
</tbody>
</table>

Further instances of dorsals followed by palatal glides were created through the lenition of laterals in complex onsets. In some dialects, *l*-weakening and palatalization apply transparently, as shown in (13) on the right. When the lateral is weakened into a palatal glide and preceded by a dorsal stop the context for palatalization is created. In standard Italian the process underapplies, while in some dialects (e.g., Venetian) the dorsal stop and the palatal glide coalesce to the palatal affricate.

(13) Cl to Cj

<table>
<thead>
<tr>
<th>Latin</th>
<th>Italian</th>
<th>Dialectal</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLAUSTRUM</td>
<td>chiostro</td>
<td></td>
<td>‘cloister’</td>
</tr>
<tr>
<td>CLAUIS</td>
<td>chiave</td>
<td>[tʃ]av(e)</td>
<td>‘key’</td>
</tr>
<tr>
<td>ECCLESIA</td>
<td>chiesa</td>
<td>[tʃ]esa</td>
<td>‘church’</td>
</tr>
<tr>
<td>PLUVIA</td>
<td>pioggia</td>
<td></td>
<td>‘rain’</td>
</tr>
<tr>
<td>PLENUM</td>
<td>pieno</td>
<td></td>
<td>‘full’</td>
</tr>
</tbody>
</table>

There are several words that are exceptions to lateral weakening, as shown in (14). They are either newer loans from other languages (e.g., *club* ‘club’) or assumed to be...
re-borrowings from Latin (e.g., classe). The re-borrowing hypothesis finds additional support through doublets, such as chierico ‘cleric’ versus clericale ‘clerical’.

(14) (Re-)borrowing (from Latin)

<table>
<thead>
<tr>
<th>Word</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>classe</td>
<td>‘class’</td>
</tr>
<tr>
<td>flauto</td>
<td>‘flute’</td>
</tr>
<tr>
<td>flotta</td>
<td>‘flea’</td>
</tr>
<tr>
<td>club</td>
<td>‘club’</td>
</tr>
</tbody>
</table>

Not only l-weakening creates exceptions to palatalization, borrowing does as well, as attested in words like chitarra ‘guitar’, which probably entered Italian from Greek via Arabic in the late middle ages. Compare chitarra and civile ‘civil’.

Tekavčić (1980) provides the following chronology. Metaphony (another source of diphthongs) applied already in Latin. First palatalization (before /j/) started in the 1st/2nd century, followed by AE smoothing, which was followed by mid vowel breaking in Late Latin. According to Tekavčić, second palatalization does not set in before the fifth century and Lateral palatalization (ClV->CjV) begins much later, in the second half of the 10th century.

(15) A chronology

1. 1st palatalization applies.
2. /kw/ reduces to /kʷ/
3. Diphthong AE and AU smoothen to mid vowels
4. Mid vowel breaking
5. 2nd palatalization
6. /kʷ/ → /k/
7. Lateral palatalization
8. Cl clusters reimported, /ki-/ words reimported

In a word like kqedere (QUAERERE) neither palatalization process could apply, because there was a labial glide between the smoothened vowel and the dorsal stop. In CAECUS cieco ‘blind’, the diphthong turned into a mid vowel and there was no intervening labial glide that could stop palatalization of the dorsal. Thus, the dorsal palatalized either immediately or by the latest when the mid front vowel split into a diphthong again, this time [je], rather than [ai]. Since we still find /kʷ/, as in questo ‘this’, qualità ‘quality’, questione ‘question’ etc., I suspect that only those labial glides disappeared that had to make room for the palatal glide emerging from diphthongization of mid front vowels. The laterals in complex onsets, e.g., ECCLESIA chiesa ‘church’, palatalized even later and did not cause velar palatalization either. All the words that contain a consonant + lateral onset or a velar before a palatal vowel are assumed to have entered the language (via Latin, Greek and other languages) after all three palatalization processes.
In conclusion, the historical events constitute a case of counterfeeding opacity. Later processes create the environment for earlier processes, which fail to apply in these newly created environments. It has to be assumed that there were phases in which this was also an opaque process interaction in the synchronic grammar, and that it is this opacification which resulted in a severely restricted environment of velar palatalization in present-day Italian.

Palatalization of the lateral in onset clusters does not cause any alternations due to other constraints on Italian morphophonology. It could thus have applied throughout the whole lexicon and got switched off very fast again. This is supported by the many new words with consonant-lateral onset clusters. Velar palatalization, on the other hand, causes regular alternations and non-alternating forms could, at least in some environments, take a free ride on the alternation to keep the palatal affricate out of the lexicon (McCarthy 2005). A form that gives us a (weak) hint that second palatalization was still active even after lateral palatalization stopped is the word CYCLUS ciclo [tʃiklo]’cycle’, which underwent velar palatalization but not lateral palatalization. It could have entered after lateral palatalization stopped, indicating that velar palatalization was still active and only stopped in word-initial environment in the middle ages, when the guitar chitarra appeared in Italy.

2. Theoretical background

In Section 1.3 I concluded that successively introduced innovative processes that create the environment for older processes, as well as new borrowings, which tend to be exempt from regular phonological processes before they get fully nativized, create surface exceptions to a formerly productive exceptionless process. The process becomes either inactive or is marginalized to certain morphological contexts. In contemporary Italian, velar palatalization is marginalized to morpheme junctures, mostly in second and third conjugation verbs. Whether velar palatalization is productive in nouns and adjectives seems to be a personal decision every Italian has to make. Krämer (2009a,b) presented native speakers of Italian with nonce-words with root-final dorsal stops, which they had to use in a plural context (changing the ending from -o to -i, creating a palatalization context). Half of the group applied palatalization, the other half did not.

2.1 Learning as constraint demotion

Bermúdez-Otero & Hogg (2003) discuss the actuation problem in OT, i.e., how does language change start or what is it that triggers language change. One answer to this question, though not an exhaustive one, is incomplete or imperfect acquisition of the
Variation and change in Italian phonology

Grammar by a new generation of speakers. A classic example is r-intrusion in English. What started as r-dropping got confused or reinterpreted by a new generation as r-insertion. This led to a surface change. Originally only prepausal and preconsonantal /r/ was dropped, which lead to paradigmatic alternations, as in snore – snoring. Once learners assume that non-alternating forms take a free ride on alternating forms and do not discover the changes this assumption causes in surface patterns early enough (as in saw – saw[r]ing), an insertion grammar emerges (see Krämer 2012). This is a case of reanalysis. However, dramatic changes can also arise by simple minor errors in constraint reranking.

In OT, language acquisition is a matter of finding the correct constraint ranking for the target language. There is relatively broad consensus that this development of the constraint hierarchy is brought about by constraint demotion (Tesar 1997; Tesar & Smolensky 2000; Prince & Tesar 2004).

(16) The Constraint Demotion Algorithm

Learners group the candidate set into winner-loser pairs (or mark-data pairs). For each such pair the learner registers for each constraint whether it supports the winner (W) or the loser (L), after all violation marks shared by both candidates have been cancelled out.

All L-marked constraints have to be dominated by at least one W-marked constraint. This is achieved by demotion of the L-marked constraints.

After every mark-data pair has been used and no ranking argument is left over the algorithm terminates.

The learning algorithm is error-driven. A learner only does this kind of operation on the grammar once she detects a mismatch between her own output and the perceived target output.

Furthermore, a learner is assumed to arrange the constraints in such a way that the grammar is as restrictive as possible. A way of measuring restrictiveness of a grammar in OT is to count how many Markedness constraints dominate every Faithfulness constraint, introduced as the r-measure by Prince and Tesar (2004).

(17) The r-measure (Prince & Tesar 2004:252)

The r-measure for a constraint hierarchy is determined by adding, for each faithfulness constraint in the hierarchy, the number of markedness constraints that dominate that faithfulness constraint.

One would assume that the Richness of the Base (i.e., the learner’s goal to exclude all candidates supplied by GEN¹ except for the desired winner) already makes sure that

---

¹. GEN = The Generator function, which generates the set of candidate output forms.
the grammar is maximally restrictive; however, constraint demotion alone does not lead to maximum r-measures, as Prince & Tesar note. To achieve maximum restrictiveness the algorithm has to be biased against Faithfulness constraints.

(18) Faithfulness Delay (Prince & Tesar 2004)

On each pass, among those constraints suitable for membership in the next stratum, if possible place only markedness constraints. Only place faithfulness constraints if no markedness constraints are available to be placed in the hierarchy.

As it happens, sometimes a learner has several Faithfulness constraints to choose from. This is the case when there is a positionally restricted clone of a general Faithfulness constraint. For example, when learning distinctions of place of articulation (PoA) and detecting the difference between, e.g., *pat and cat, a learner has to choose between demoting the Markedness constraint *PoA below IO-Ident-PoA or below IO-Ident-PoA/Onset, the latter only militating against unfaithfulness to segments in a syllable onset. Ranking *PoA below the positional Faithfulness constraint results in a more restrictive grammar than ranking it below the general Faithfulness constraint. The r-measure of the two grammars, though, is the same.

(19) Ranking options with equal r-measures

a. H₀: *PoA ›› IO-Ident-PoA, IO-Ident-PoA/Onset
b. Hₙ: IO-Ident-PoA/Onset ›› *PoA ›› IO-Ident-PoA

We can thus formulate an addition to Faithfulness Delay.

(20) Least Impact Strategy (freely interpreting Prince & Tesar 2004):

If a learner has the choice between two W-marked F constraints she ranks the one with the least impact. (i.e., rank the more specific constraint first).

A legitimate question to ask is if this should be extended to Markedness constraints: If some Markedness constraint has to be ranked below a Faithfulness constraint, only using the Markedness constraint with the widest scope has an effect; using a specific Markedness constraint would not show any change in the choice of output candidate. Consider the same scenario on PoA with a positional Markedness constraint instead. Detecting a PoA contrast in word-initial position does not affect the ranking of *PoA/coda. Only *PoA incurs L marks in this scenario. *PoA/coda becomes relevant only once a learner detects words, such as blog and blob. Thus, in a language that does not have these kinds of words, the positional Markedness constraint is left on top of the hierarchy and should show an effect in second language acquisition, which is borne out, see e.g., Broselow et al. (1998). See also the discussion of default rankings of Markedness constraints in Section 3.
In the following I illustrate the connection between learning and historical change in OT with the emergence of the Coda Condition (Itô 1988) in Italian. The basic idea is that this is a case of incomplete acquisition. A generation of Italians just stopped reranking constraints too early.

Latin displayed a wide range of consonants in word-final and in word-internal preconsonantal position. This disjunction is usually unified in the assumption of the coda as a syllable constituent.

(21) Latin syllable-final consonants
   a. Internal codas (mostly from Tekavčić 1980: 149)
      LŪCTUM ‘mourning’
      CLAUSTRUM ‘bolt, bar, prison, cloister’
      FARCTUS ‘stuffed’
   b. Word-final codas
      CAMPUM ‘field’
      SATIS ‘enough’
      CAPUT ‘head; top; leader’
      SOL ‘sun’
      NOMEN ‘name’
      PATER ‘father’
      AB, OB prep.
      ISTUD
      REX [ks] ‘king’

In comparison to Latin, the range of coda consonants is severely restricted in Italian. There is an increasing number of consonant-final loanwords, as shown in (22)a. Words directly inherited from Latin however, show several different types of modifications which all conspire to avoiding word-final consonants and non-coronal consonants in word-internal codas. Distinct PoAs are only allowed in word-internal codas if the consonant is a geminate, i.e., also linked to the following onset, as illustrated in (23).

(22) Italian word-final consonants
   a. 'ampo 'field'
      're 'king'
      'nome 'name'
      vir'tu 'virtue'
      tʃivil'ta 'civilisation'
   b. 'aɾ 'bar'
      'bɾɪʃ 'brioche'
      'bɾiʃ 'brioche'
      'klub 'club'
      'sprajt 'Sprite'
      'film 'film’
Other than that we find the coronal fricative /s/ (23)b, nasals that share PoA with the following onset (23)c, and the two alveolar liquids (23)d. There are a couple of exceptions, some of them in free variation with a more restricted form (23)e.

(23) Italian word-internal codas

<table>
<thead>
<tr>
<th>a.</th>
<th>‘patto’</th>
<th>‘pact’</th>
</tr>
</thead>
<tbody>
<tr>
<td>b.</td>
<td>‘faffa’</td>
<td>‘band, bandage’</td>
</tr>
<tr>
<td>c.</td>
<td>‘ampio’</td>
<td>‘ample’</td>
</tr>
<tr>
<td>d.</td>
<td>‘ampio’</td>
<td>‘trio’</td>
</tr>
<tr>
<td>e.</td>
<td>‘ampio’</td>
<td>‘trio’</td>
</tr>
</tbody>
</table>

The development from Latin to Italian codas, disregarding the recent loanwords, can be analysed as incomplete learning.

A learner of Proto-Romance started with all Markedness constraints outranking all Faithfulness constraints and was faced with the ranking dilemma discussed above, when discovering a PoA contrast in onsets.

(24) Incomplete acquisition

<table>
<thead>
<tr>
<th>gato</th>
<th>*PoA</th>
<th>IO-Ident-PoA</th>
<th>IO-Ident-PoA/Onset</th>
</tr>
</thead>
<tbody>
<tr>
<td>gato &gt; tato</td>
<td>L</td>
<td>W</td>
<td>W</td>
</tr>
</tbody>
</table>

A careful learner chooses to demote the Markedness constraint only below the positional Faithfulness constraint, to keep the grammar as restrictive as possible.

Once the learner is confronted with more complex inputs she automatically produces the innovative Italian pattern.

(25) Accidental coda neutralisation

<table>
<thead>
<tr>
<th>/akto/</th>
<th>IO-Ident-PoA/Onset</th>
<th>*PoA</th>
<th>IO-Ident-PoA</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. akto</td>
<td></td>
<td>*!</td>
<td></td>
</tr>
<tr>
<td>b. atto</td>
<td></td>
<td>*</td>
<td></td>
</tr>
</tbody>
</table>
Learning the Latin pattern would thus involve a second ranking operation, which is left out in Italian. This historical change is thus an effect of incomplete learning. To complete the acquisition of Latin a learner would have had to demote *PoA one further step, below the general Faithfulness constraint.

(26) The Latin target ranking

<table>
<thead>
<tr>
<th>/akto/</th>
<th>IO-Ident-PoA/Onset</th>
<th>IO-Ident-PoA</th>
<th>*PoA</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. akto</td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>b. atto</td>
<td></td>
<td></td>
<td>*!</td>
</tr>
</tbody>
</table>

The emergence of lateral palatalization constitutes a case of incomplete learning in which a Markedness constraint was left at the top that should have been demoted. Two Markedness constraints against laterals are relevant here. The general *Lateral militates against all laterals, and the very specific *Cl does not allow laterals in complex onsets. In Italian, Obstruent + lateral clusters are the onsets with the flattest sonority rise, compared to obstruent + rhotic and obstruent + glide onsets. The latter two classes of sonorants are generally assumed to be of higher sonority than laterals. *Cl might thus be one of the constraints that add up to the Sonority Sequencing Principle (Clements 1990). We can formalize these as stringent constraints, as shown in (27).

(27) Sonority Sequencing constraints on onsets

a. *C+lateral (*Cl): Assign a violation mark for every obstruent+lateral onset.

At an early stage, at which she does not master complex onsets yet due to high ranking *ComplexOnset, the learner is concerned with learning laterals. To this end she demotes *Lateral below Faithfulness but does not touch *Cl. When she finally learns complex onsets she again demotes the more general constraints first, i.e., first *CS, then *CL. Medieval Italian learners did not finish demotion operations and “forgot” *Cl on top of the hierarchy. As history shows, forgotten constraints can have a visible impact.

(28) Learning laterals – H₀

<table>
<thead>
<tr>
<th>/lato/ ‘side’</th>
<th>*Cl</th>
<th>*CL</th>
<th>*CS</th>
<th>*Lateral</th>
<th>Faithfulness</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. lato</td>
<td></td>
<td></td>
<td>*!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. jato</td>
<td></td>
<td></td>
<td></td>
<td>!</td>
<td>*</td>
</tr>
</tbody>
</table>
(29) Learning laterals – $H_1$

<table>
<thead>
<tr>
<th>/lato/ ‘side’</th>
<th>*Cl</th>
<th>*CL</th>
<th>*CS</th>
<th>Faithfulness</th>
<th>*Lateral</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. lato</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td>!</td>
</tr>
<tr>
<td>b. jato</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>!</td>
</tr>
</tbody>
</table>

(30) Learning complex onsets – starting hierarchy

<table>
<thead>
<tr>
<th>/prato/ ‘meadow’</th>
<th>*Cl</th>
<th>*CL</th>
<th>*CS</th>
<th>Faithfulness</th>
<th>*Lateral</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. prato</td>
<td></td>
<td>*!</td>
<td>*</td>
<td>*</td>
<td>!</td>
</tr>
<tr>
<td>b. pato</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>*</td>
</tr>
</tbody>
</table>

From this starting ranking, a learner most probably first demotes the most general Markedness constraint, *CS, and then the next general one, *CL. I conflate both steps here into one tableau.

(31) Learning complex onsets after demotion of two M constraints

<table>
<thead>
<tr>
<th>/prato/ ‘meadow’</th>
<th>*Cl</th>
<th>Faithfulness</th>
<th>*CL</th>
<th>*CS</th>
<th>*Lateral</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. prato</td>
<td></td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>!</td>
</tr>
<tr>
<td>b. pato</td>
<td></td>
<td></td>
<td>*!</td>
<td>*</td>
<td>!</td>
</tr>
</tbody>
</table>

After demotion of the two more general Markedness constraints, a learner should also have demoted the last Markedness constraint. Apparently, this step was left out by several generations of Italians. Learning remained incomplete, as shown in the next tableau.

(32) Learning terminated before completion

<table>
<thead>
<tr>
<th>/pleno/ ‘full’</th>
<th>*Cl</th>
<th>Faithfulness</th>
<th>*CL</th>
<th>*CS</th>
<th>*Lateral</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. pleno</td>
<td>*!</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>!</td>
</tr>
<tr>
<td>b. preno</td>
<td></td>
<td>*</td>
<td>*!</td>
<td>*</td>
<td>!</td>
</tr>
<tr>
<td>c. pjeno</td>
<td>*</td>
<td></td>
<td>*</td>
<td></td>
<td>!</td>
</tr>
</tbody>
</table>

In these cases we see Emergence of the Unmarked Effects (TETU, see McCarthy & Prince 1994). However, recall the comparison of the Latin and the Italian segment inventories. The consonant and the diphthong inventories expanded considerably in the course of history, increasing the number of marked segments and segment combinations. How does more marked structure emerge historically?

2.2 Opacity as a motor of lexical innovation

Marked segments emerge as the result of assimilation or other phonological processes, e.g., coalescence. However, as long as the phonological process is transparent and the
emergent marked segments predictable one does not consider this as the introduction of new contrasts. The novel segments displayed in table (2) are contrastive, since we find minimal pairs, such as those in (33), or we find these segments in unpredictable environments, as also demonstrated by these forms.

(33) Unpredictable palatals

   *paglia* [paʎːa] ‘hay’  *riccio* [riʧːo] ‘hedgehog’

Bermúdez-Otero (2007) explains the introduction of new contrasts as the opaque interaction of successively innovated phonological processes. He illustrates this with the law of palatals in Sanskrit. Proto-Indo-Iranian is assumed to have had /k/ before all five vowels and no /c/. A palatalization rule then changed /k/ before non-low front vowels into [c]. A subsequently introduced vowel lowering rule removed the trigger of palatalization by lowering the mid vowels to [a]. Despite the absence of the context for the palatalization rule, the palatal consonants were retained. Thus, the allophones [k] and [c] of /k/ split into the two contrasting phonemes /k/ and /c/, at least before [a].

(34) The Law of Palatals (Bermúdez-Otero 2007: 506)

<table>
<thead>
<tr>
<th></th>
<th>a) Proto-Indo-Iranian</th>
<th>b) Palatalization</th>
<th>c) Lowering /e,o/ → [a]</th>
<th>d) Sanskrit distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>*-ki- *-ke- *-ka- *-ko- *-ku-</td>
<td>*-ci- *-ce- *-ka- *-ko- *-ku-</td>
<td>*-ci- *-ca- *-ka- *-ka- *-ku-</td>
<td>-ci- – {k} {a}-ku-</td>
</tr>
<tr>
<td></td>
<td>-ci- – {k} {a}-ku-</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This is an instance of historical phonological counter-bleeding opacity (see Kiparsky 1973 on the characterization of opacity, or the more recent discussion in McCarthy 2007). The context of a phonological rule is removed after its application.

Above we observed that weakening of laterals in complex onsets and mid vowel breaking created the context for velar palatalization, but the process did not apply. This is an instance of historical counter-feeding opacity: the context for a phonological process is created after it has applied. One can describe the two respective cases as well in more neutral terms as overapplication and underapplication of a process, respectively. Palatalization in Sanskrit overapplies before some low vowels, while velar palatalization underapplies in Italian velar stops followed by palatal glides derived from laterals.
In the case of Sanskrit, an abstractly minded reader might insist that all instances of surface [c] can be derived from underlying /k/ if one assumes vowel lowering as a synchronically active process and the two allophones thus did not split into two contrasting segments yet. In the same spirit one can say for Italian that one can still regard all instances of postalveolar affricates as derived from underlying velar stops, as long as one does not find a surface velar stop in an environment that is expected to cause palatalization. As soon as words such as *chiaro* 'clear' develop or words such as *chitarra* 'guitar' enter the language, the two segments have to be assumed to be contrastive at least in this position, and all non-alternating surface postalveolar affricates that historically derive from velar stops have to be regarded as underlying postalveolars/palatals rather than underlying velars/dorsals.

Here we are dealing with two sources for a phonemic split, the introduction of a new phonological process that creates a situation of counter-feeding opacity, and the import of new words from other languages, which display the input configuration for the older phonological process at the surface.

### 2.3 Constraint cloning

Above in Section 2.1 I discussed the r-measure as an evaluation metric for the restrictiveness of OT grammars. In principle, the hypothesis that all constraints are universal and languages only differ in terms of their ranking yields only grammars of the same level of complexity. In rule-based phonology one can count phonological rules and the symbols used in the formulation of each rule to evaluate complexity. In OT, an analysis of a process can make use of cloned constraints, and we can count the number of such cloned constraints to assess how complex a grammar is. A high number of clones makes a grammar more difficult to learn, since they introduce idiosyncrasies, and thus such a grammar is expected to be diachronically unstable, i.e., prone to change.

There are three ways of cloning constraints. Pater (2009) used the term in connection with lexical indexing of constraints. Constraints can be indexed and the copy of the constraint with the index is ranked higher in a hierarchy than its un-indexed original. Some lexical items are also indexed, and it is only the output candidates of these inputs that are sensitive to the higher ranked indexed constraint clone.

Arbitrary indexing of Markedness constraints explains rules that only apply in certain morphemes, while arbitrary indexing of Faithfulness constraints explains exceptional underapplication of a phonological process in certain morphemes (see Krämer 2009a, b for the use of both in the analysis of velar palatalization in Italian nouns).

A non-arbitrary type of indexing is positional Faithfulness: There is a general Faithfulness constraint (e.g., IO-IDENT-PoA above) and a more restricted version
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that is only active in a certain environment (e.g., IO-IDENT-PoA/onset above) that is a proper subset of the scope of the more general constraint. There are two differences between the two forms of indexing. First, positional restriction is not arbitrary, as lexical indexing can be. It refers to well-defined positions or classes, such as stressed syllables (i.e., prosodically defined) or stems (i.e., morphologically defined). The boundary between the two types of indexing already becomes blurry with morphologically defined classes/domains. Second, for prosodically defined positions one could say that positional Faithfulness is defined over surface categories, while indexing is defined over input properties.

The third cloning option is Local Constraint Conjunction (LCC; Prince & Smolensky 1993/2004; Downing 1998; Łubowicz 2002; Smolensky 2006). Two (or more) constraints join forces in a domain (e.g., the segment) and every instance of that domain in which each of the two constraints is violated constitutes a violation of the local conjunction of the two constraints. The LCC only has an effect on output forms if it dominates at least one of the two constraints involved. The idea is thus that the LCC and its component constraints are present in the hierarchy independently. We can thus subsume this kind of constraint interaction under cloning. In the next section I will use constraint cloning, i.e., indexation and LCCs to analyse exceptionality and indirect mapping. We can thus measure the level of grammatical complexity caused by lexical exceptions and opaque rule interaction. The more constraint clones a grammar contains the more instable it becomes, since it is built on contradictory ranking information. An instable grammar is instable in the sense that a learner can neither infer the correct ranking nor the correct underlying forms and is therefore going to reanalyse both in a way distinct from the previous generation.

Before I move on to the actual analysis it should be instructive to set up the LCC part of the analysis schematically. Counter-feeding opacity can be considered as a chain shift (see Łubowicz 2004). In a chain shift there is a change from /A/ to [B] and from /B/ to [C]. Crucially the direct map from /A/ to [C] does not happen. For OT this is a problem, because the map /B/ to [C] has to be caused by a Markedness constraint against B, i.e., *B. This Markedness constraint should also turn the mapping of /A/ to [B] less optimal than /A/ to [C], unless the two unfaithful maps are caused by different constraints and the map of /A/ to [C] is banned for an independent reason.

The idea to be advanced here is based on Kirchner’s (1996) proposal of LCCs of Faithfulness constraints as an explanation for synchronic chain shifts. Extending this approach to counter-feeding opacity boils down to the following. If the triggering environment for a process is created by an unfaithful mapping, the application of this process would result in an even more unfaithful mapping. While /A/ to [B] involves one violation of Faithfulness constraint F1, i.e., for changing one feature, the mapping
of /A/ to [C] must incur an additional violation of a second Faithfulness constraint, F2, i.e., for changing a second feature. While both constraints are ranked below some Markedness constraints which cause the mappings of /A/ to [B] and /B/ to [C], e.g., *A and *B, the LCC of both F1 and F2 outranks both *A and *B.

(35) Counter-feeding opacity as a chain shift as an LCC effect

<table>
<thead>
<tr>
<th></th>
<th>F1 &amp; F2</th>
<th>A</th>
<th>B</th>
<th>F1</th>
<th>F2</th>
</tr>
</thead>
<tbody>
<tr>
<td>/A/ → [A]</td>
<td></td>
<td>!</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>/A/ → [B]</td>
<td></td>
<td>*</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>/A/ → [C]</td>
<td></td>
<td>!</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>/B/ → [A]</td>
<td></td>
<td></td>
<td>!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>/B/ → [B]</td>
<td></td>
<td></td>
<td>!</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

LCC adds constraints to the grammar, as does Constraint indexation. With constraint indexation we can add an exception to the above schematic pattern.

(36) Lexical exception as constraint indexation

<table>
<thead>
<tr>
<th></th>
<th>F1 &amp; F2</th>
<th>L</th>
<th>A</th>
<th>B</th>
<th>F1</th>
<th>F2</th>
</tr>
</thead>
<tbody>
<tr>
<td>/A/ → [A]</td>
<td></td>
<td></td>
<td>!</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>/A/ → [B]</td>
<td></td>
<td></td>
<td>*</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>/A/ → [C]</td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>/B/ → [A]</td>
<td></td>
<td></td>
<td>!</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>/B/ → [B]</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>/A_L/ → [A]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>/A_L/ → [B]</td>
<td></td>
<td>*</td>
<td>!</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>/A_L/ → [C]</td>
<td></td>
<td>*</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The forms tagged with a lexical index L are loanwords, which defy application of otherwise regular neutralisation patterns.

Acquiring a language that contains both /A/ and /A_L/, the indexed constraint clone, is difficult for a learner. First of all it is a non-trivial task to figure out whether this is a case of a lexical exception to a productive process or whether the form undergoing the process is the exception, and, correspondingly, it is the Markedness constraint, e.g., *A, that is co-indexed.

To be able to establish that [B] is a correspondent of /A/ and that [C] is a surface correspondent of /B/ these mappings have to be context-specific and at least some
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instances of type /A/ have to map to [A] in other environments, and some instances of type /B/ have to map to [B]. Otherwise, the mappings /A/ to [B] and /B/ to [C] become undetectable and the inputs irrecoverable. A learner would have no other choice but to resort to a faithful map and a different (less restrictive) grammar.

In the next section we will see how this works in detail.

3. To input irrecoverability…and beyond

The chronological scenario for the changes from Latin to Italian was set up in Section 1.2 and is recapitulated in simplified form here.

1. Palatalization – (causing alternations, food for Free Rides)
2. Mid vowel breaking – (causing alternations, food for Free Rides)
3. L-weakening – (Sweeping the lexicon, causing no alternations)
4. ClV reintroduction via (re-)borrowing

In this section, we will look into the mechanical details of grammatical and lexical change. I will give an account of how velar palatalization and then lateral gliding/palatalization have emerged in acquisition, how the latter process created exceptions to the former and how both processes were further moved towards unproductivity by the introduction of loanwords that triggered subsequent grammatical reorganization.

3.1 The emergence of velar palatalization

In the analysis of palatalization I will follow Krämer (2009a) in assuming the affricate to be defined by the presence of two place features, [coronal] and [dorsal], the former contributed by the high vowel or glide and the latter by the velar stop. As indicated in the following tableau, already prior to learning, the grammar contains all sorts of Markedness constraints. The central one here is Pal, an abbreviation for a co-occurrence or co-articulation constraint that does not tolerate dorsal obstruents before coronal vocoids. This constraint can be satisfied by fusing the two segments, as here, or by spreading [coronal] from the vocoid to the preceding dorsal, and thereby changing the precedence relation between the features (and by other strategies which will not be discussed here, see Collins & Krämer 2016 and Kochetov 2016).

(37) Introducing palatalization: Step 1, no ranking

<table>
<thead>
<tr>
<th>/rikio/ 'hedgehog'</th>
<th>Pal</th>
<th>*Dors</th>
<th>*Dors&amp;*Cor</th>
<th>*Cplx</th>
<th>Faith</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. rittʃo</td>
<td></td>
<td>*</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. rikʃo</td>
<td></td>
<td>*</td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
</tbody>
</table>
A learner of an archaic form of Romance would be expected to arrive at the ranking shown in the next tableau.

(38) Expected ranking in Latin

<table>
<thead>
<tr>
<th>/rikio/</th>
<th>*Dors&amp;*Cor</th>
<th>PAL</th>
<th>Faith</th>
<th>*Dors</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>rittʃo</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td>rikjo</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

However, as discussed in Section 2.1, the learner has a bias towards keeping Markedness constraints high in the hierarchy, which include PAL, and some generations of learners must have missed the target ranking and instead ordered the constraints in a different way.²

(39) Achieved ranking in Late Latin/Early Romance

<table>
<thead>
<tr>
<th>/rikio/</th>
<th>PAL</th>
<th>*Dors&amp;*Cor</th>
<th>Faith</th>
<th>*Dors</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td></td>
<td>rittʃo</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td>rikjo</td>
<td>*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This ranking has two striking properties. First, the ranking of *[dorsal] below Faithfulness is warranted by any learner’s confrontation with words containing velar stops. Second, the ranking of all the Markedness constraints follows one simple principle: more specific ranks above more general (see Pāṇini’s theorem in Prince & Smolensky 1993/2004). PAL is more specific than *Dors&*Cor since it refers to a sequence of segments, whereas the latter only refers to single segments, i.e., any segment that contains both features violates the constraint. *Dors, finally, is less specific than *Dors&*Cor since it only refers to one feature. We are thus dealing with some kind of default ranking, an instance of the Least Impact Strategy: the constraints with the smallest scope are ranked highest.

Accordingly, a new and quite complex (double PoA specification) segment is introduced by simply not changing the default ranking of constraints. However, at this stage the segment is not contrastive yet. It emerges predictably and a learner could still have all instances of surface [tʃ] take a free ride on alternating forms that unambiguously have underlying /k/ (such as vinciamo – vinco ‘(we) win – (I) win’; the same holds for the voiced counterparts, e.g., leggiamo – leggo ‘(we) read – (I) read’).

². As a reviewer rightly points out, palatalization does not emerge directly from reranking. It is usually assumed to start as phonetic coarticulation. Dorsal/velar obstruents are generally slightly fronted before front vowels. This fronting has to be exaggerated by a generation or several and/or misinterpreted as phonological by some learners.
emerging affricates are not lexicalised yet even though the trigger of palatalization, the front glide, disappears in the process.

3.2 Constructing and breaking a chain

On the one hand, we have palatal affricates that alternate predictably, as well as affricates that do not alternate and do not show a triggering environment, such as in *riccio* 'hedgehog'. On the other hand, we encounter triggering environments in which the process underapplies once the laterals start to palatalize. (e.g., Latin *CLAUSTRUM* turns into *chiostro* [kjostro] 'cloister', or *okklo* becomes *occhio* [okkjo] 'eye'. An important question is why not all varieties just applied palatalization transparently in the newly derived environments.

Palatalizing the [kj] sequence in 'eye' to [tʃ] would be a two-step chain, changing the underlying segment twice:

\[(40) \text{Interrupted chain of change: okklo} \rightarrow \text{okkjo} \ast \rightarrow \text{otʃo}\]

In parallel OT, such changes are expected, since each of the changes is an optimization in response to a surface Markedness constraint. However, such double unfaithfulness seems to be suboptimal synchronically, especially in language acquisition, resulting in chain shifts (see Łubowicz 2011 on chain shifts) in child language, such as the famous *puzzle–puddle–puggle* shift observed in children acquiring English (Smith 1973). Children that try to say *puzzle* end up saying *puddle* instead. However, when targeting *puddle* they realize *puggle*. Since *puddle* is as unacceptable as *puzzle* one would expect that both *puzzle* and *puddle* are realized as *puggle*. To realize *puzzle* as *puggle*, however, a child would have to change both manner and place of articulation. Thus, relative markedness seems to be less important than cumulative faithfulness.

We observe the same in our case. To change historical /klV/ into [tʃV] at least one more change is necessary than for changing it into [kjV]. We can assume /kl/ → [kj] → [tʃ] as a trajectory of change on which [ʃ] is representationally intermediate between the lateral and the affricate. However, depending on the way one looks at it we get a different result. From a purely historical perspective we just see that velar palatalization must have happened before lateral palatalization. However, there is no reason yet to assume that palatalization ceased to be an active process in the language any time before lateral palatalization started. A derivational analysis of an early stage of Italian captures that by ordering both processes in their diachronic order in a synchronic grammar: The velar palatalization process happens before lateral palatalization within a synchronic derivation at the historical stage at which lateral palatalization was still active. In the parallelist view of OT, however, we can drive home the result that velar palatalization is first blocked in what would be a
phonologically derived environment in a derivational approach. A segment has to violate two Faithfulness constraints to undergo both velar palatalization and lateral palatalization.

(41) Historical, derivational, and parallel interaction
   a. Historical: Palatalization happens before lateral gliding
   b. Derivational: Palatalization happens before lateral gliding
   c. Parallel: Two F violations is too much unfaithfulness

The individual constraints violated on the way from the lateral via the glide to the affricate have to be ranked below the involved Markedness constraints *ClV and Pal, since for one thing laterals are subject to change and for the other, glides disappear in affricates.

For a lateral to turn into a glide we could assume that the feature [lateral] has to change (and most likely the place feature as well), which violates a specialized Faithfulness constraint, IO-Ident[lateral]. For the glide to coalesce with a dorsal stop into an affricate, it at least has to give up its status as a sonorant. We can thus identify IO-Ident[sonorant] as the involved constraint that is violated in the disappearance of the glide in velar palatalization. As inspection of the tableau below reveals, ranking any of the two Faithfulness constraints above any of the two involved Markedness constraints does not yield the right results. Furthermore, we encounter a ranking paradox: (a.ii) supplies information to rank Ident(son) above Pal, while (bi) provides the opposite information.

(42) Lateral palatalization and opacity I: The conundrum

<table>
<thead>
<tr>
<th></th>
<th>/okklo/</th>
<th>*ClV</th>
<th>Pal</th>
<th>Ident(lat)</th>
<th>Ident(son)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.i.</td>
<td>okkjo &gt; okklo</td>
<td>W</td>
<td></td>
<td>L</td>
<td></td>
</tr>
<tr>
<td>a.ii.</td>
<td>okkjo &gt; ottʃo</td>
<td></td>
<td>L</td>
<td></td>
<td>W</td>
</tr>
<tr>
<td>b.</td>
<td>/rikkjo/</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.i.</td>
<td>rittʃo &gt; rikkjo</td>
<td>W</td>
<td></td>
<td>L</td>
<td></td>
</tr>
<tr>
<td>b.ii.</td>
<td>rittʃo &gt; rikklo</td>
<td>W</td>
<td></td>
<td>L</td>
<td></td>
</tr>
</tbody>
</table>

Hence the two Faithfulness constraints join forces in a Local Constraint Conjunction, forming a third constraint that has a more narrow violation profile than the individual constraints and can be ranked at a higher stratum. This LCC is violated only by segments that violate each of the two conjoined constraints. Tableau (43) shows the ranking information a learner has available. Pal favours the loser in (a.ii) and should be demoted below either Ident(son) or the LCC, which both favour the winner. Demotion of Pal below Ident(son) is blocked by (b.i), since for this winner-loser pair, Pal favours the winner and Ident(son) the loser. The LCC is neutral with respect to this pair.
(43) Lateral palatalization and opacity II: LCC

<table>
<thead>
<tr>
<th></th>
<th>*ClV</th>
<th>Pal</th>
<th>IdEnt (lat)</th>
<th>IdEnt (son)</th>
<th>Id(lat) &amp; Id(son)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>/okklo/</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a.i.</td>
<td>okkjo &gt; okklo</td>
<td>W</td>
<td>L</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a.ii.</td>
<td>okkjo &gt; ottʃo</td>
<td></td>
<td>W</td>
<td>W</td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td>/rikkjo/</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.i.</td>
<td>rittʃo &gt; rikkjo</td>
<td>W</td>
<td>L</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.ii.</td>
<td>rittʃo &gt; rikklo</td>
<td>W</td>
<td>L</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

We thus arrive at the following grammar.

(44) Early Italian: Glide formation from post-consonantal laterals and opacity

<table>
<thead>
<tr>
<th></th>
<th>*ClV</th>
<th>Id(lat) &amp; Id(son)</th>
<th>Pal</th>
<th>Id(lat)</th>
<th>Id(son)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>/okklo/ – okklo</td>
<td>*!</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td>/okklo/ – okkjo</td>
<td></td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td>/okklo/ – ottʃo</td>
<td>*!</td>
<td></td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>d.</td>
<td>/rikkjo/ – rikkjo</td>
<td>*!</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td>/rikkjo/ – rittʃo</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
</tr>
</tbody>
</table>

As mentioned above, some dialects go the transparent road, as in words such as [tʃ]esa ‘church’. For such dialects we can assume that the Markedness constraint has not been demoted below this LCC.3

For Italian, the question arises as to where that LCC comes from. We could attribute it to the Least Impact Strategy, introduced above, exemplified by the emergence of the Coda Condition.

(45) Least Impact Strategy:
If a learner has the choice between two W-marked F constraints she ranks the one with the least impact. (Specific › General)

However, a LCC is not a primitive constraint. It is a construct of two primitives and one normally would assume that it is not part of the constraint set universally. On the other hand one could make the same assumption about positional Faithfulness constraints. As discussed above, a positional Faithfulness constraint is a clone of a general Faithfulness constraint, tagged for a certain domain or category or class. It is thus also not a primitive constraint and could be assumed to be a language-specific construct.

3. The situation is admittedly a bit more complex, since the same speaker might produce ‘church’ with palatalization, but ‘eye’ without. Thus, additional constraints, such as Contiguity, have to be recruited in a full analysis of dialectal variation of these patterns.
However, as discussed with chain shifts above, positional effects emerge spontaneously in language acquisition. Smith (1973) also observes final devoicing in his English child language data, a process that is not expected to occur in English learning children, since it is not part of English phonology. The only plausible explanation of such phenomena is that the constraints that shape these patterns are there universally and that the respective rankings are an effect of the transition towards the target ranking or emerge because of some ranking biases (such as the Least Impact Strategy for the ranking of F constraints).  

3.3 Borrowing with an already unstable grammar

The next historical step is the introduction of new words that violate otherwise top-ranked phonotactic constraints. The earliest of these loans are borrowed from Latin, e.g., *flauto* ‘flute’ or *classe* ‘class’. Presumably these words were introduced by educated adults. Adults deal with new words in a way different from children learning their first language. Adults have their constraint ranking in place. Any new form that is inconsistent with the ranking is either assimilated or stored as an exception. Pater (2009) proposes indexed Faithfulness constraint as a means to store exceptional morphemes. Thus, adults clone a constraint and add it to their hierarchy. The following tableau shows our crucial forms *occhio* ‘eye’, *riccio* ‘hedgehog’, *ciclo* ‘cycle’.

(46) Glide formation from post-consonantal laterals and opacity

<table>
<thead>
<tr>
<th></th>
<th>Id(lat)&amp;Id(son)</th>
<th>Id(lat)</th>
<th>*CIV</th>
<th>Pal</th>
<th>Id(lat)</th>
<th>Id(son)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. okklo</td>
<td>*!</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. okkjo</td>
<td></td>
<td>*</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. ottʃo</td>
<td>*!</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>/rikkjo/</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. rikkjo</td>
<td></td>
<td>*!</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. rittʃo</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>/kiklo/</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. tʃiklo</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g. tʃikjo</td>
<td></td>
<td></td>
<td>*!</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>h. tʃittʃo</td>
<td></td>
<td>*</td>
<td>*</td>
<td></td>
<td></td>
<td>*</td>
</tr>
</tbody>
</table>

4. Whether “universal” means genetically predetermined or inductively learned by every human being does not matter for the current discussion. However, such constraints cannot be learned by exposure to data from the target language. Thus inductive grounding of constraints has to be a more abstract process than simple behaviourist exposure to surface data.
The attentive reader might have noticed that *ciclo* is given here as underlying */kiklo/* rather than */tʃiklo/*. We thus see that loanword phonology is selective. While lateral palatalization is deactivated, velar palatalization shows an effect. However, since the same processes (lateral palatalization, diphthongisation and borrowing) have an obfuscating effect on initial position as well, palatalization does not endure in this position either (the affricates in words like *ciclo* or *cinema* might actually be an effect of orthographic rules rather than productive phonology).

### 3.4 Restructuring of the input leads to reorganization of the grammar

A learner of Italian is faced at this stage, i.e., after mid-vowel breaking, lateral palatalization and several instances of borrowing, with the following data.

(47) Anything goes

\[\begin{align*}
a. & \quad \text{cena} - \text{chiesa} - \text{clerico} - \text{cherubino} - \text{chilo} \\
& \quad \text{‘dinner – church – cleric – cherub – kilo (35.27396195 oz)’}
\end{align*}\]

\[\begin{align*}
b. & \quad \text{ciastrola} - \text{chiave} - \text{classe} \\
& \quad [tʃa] - [kjæ] - [kla] \\
& \quad \text{‘snowshoe – key – class’}
\end{align*}\]

Velar palatalization still causes alternations, at least at the stem-suffix juncture, and so does mid-vowel breaking, under stress shift (e.g., *nuovo – novità ‘new – news’; tiene – teniamo ‘s/he keeps – we keep’). Lateral palatalization does not and never did. However, at this stage, even the velar-palatalization alternations cannot cause Free Rides of non-alternating affricates anymore, as for *ciclo*. For if *ciclo* has an underlying */k/* that is turned into */tʃ/* by velar palatalization, so should the underlying */k/* in *chilo*.

(48) Lexicon and grammar have to be restructured.

- Previous generation’s */klave/* becomes */kjave/*
- Previous generation’s */kiklo/* becomes */tʃiklo/*

In the absence of evidence for coherent generalizations and corresponding free ride options for non-alternating forms, the indexed constraint for loanwords is not cloned anymore and even if Markedness constraints are demoted initially only below the Faithfulness LCC, they will have to be demoted further, below general Faithfulness, in a further step when the learner has a fuller picture of the surface phonotactic possibilities.

To cast more light on the situation we go through the learning procedure, step by step. Assume a learner first learns the form [okkjo]. The ranking information is given in (49). The Pal constraint favours the candidate with an affricate, while the constraint against palatals, *Dors&*Cor, favours the winner in this competition (b). Thus, the learner is tempted to rank these two constraints accordingly. Changing the glide in
the winner to a lateral does not improve on any Markedness constraint, it just adds a violation of *ClV. No additional ranking is required for this form.

(49) Faithful parse 1: Rank *Dors&*Cor ›› Pal

<table>
<thead>
<tr>
<th></th>
<th>*ClV</th>
<th>*Dors&amp;*Cor</th>
<th>Pal</th>
<th>Ident (manner)</th>
<th>Id(lat)&amp;Id(son)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>okajo › okalo</td>
<td>W</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td>okajo › ottfo</td>
<td>W</td>
<td>L</td>
<td></td>
<td>W</td>
</tr>
</tbody>
</table>

However, once the learner encounters a form like [rittʃo], a new ranking argument comes up (50). This time it is the reverse ranking of the two Markedness constraints that were ranked in the previous operation. For designated winner [rittʃo] to beat designated loser [rikkjo], Pal. has to dominate *Dors&*Cor. The learner could now use Ident(manner) and demote *Dors&*Cor. The learner has two options, either revise input forms to e.g., /okklo/ and /rikkjo/ respectively, or consider further constraints to rank. The LCC of Ident(lateral) and Ident(sonorant) does not help in this situation if inputs are not revised. The most efficient Faithfulness constraint to solve the problem without changed inputs would be Ident(manner). To avoid too many steps here we assume that the learner keeps the decision on hold and I directly jump to the third informative form to be considered, one with a kl cluster, and, as a bonus information source, another affricate, ciclo, see (51).

(50) Faithful Parse 2 Problem! Pal ›› *Dors&*Cor, *Clv ›› *Dors&*Cor

<table>
<thead>
<tr>
<th></th>
<th>*ClV</th>
<th>*Dors&amp;*Cor</th>
<th>Pal</th>
<th>Ident (manner)</th>
<th>Id(lat)&amp;Id(son)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>rittʃo › rikkjo</td>
<td>L</td>
<td>W</td>
<td></td>
<td>W</td>
</tr>
<tr>
<td>b.</td>
<td>rittʃo › rikklo</td>
<td>W</td>
<td>L</td>
<td></td>
<td>W</td>
</tr>
</tbody>
</table>

Such forms are evidence to demote *ClV below Pal, as well as *Dors&*Cor below Pal, as shown in the following tableau. Pair (a) requires Pal above *Dors&*Cor. (b) and (c) require demotion of *Cl below Pal and *Dors&*Cor, respectively.

(51) Faithful Parse 3: Pal ›› *Dors&*Cor ›› *Cl

<table>
<thead>
<tr>
<th></th>
<th>*ClV</th>
<th>Pal</th>
<th>*Dors&amp;*Cor</th>
<th>Id (manner)</th>
<th>Id(lat)&amp;Id(son)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>tʃiklo › kiklo</td>
<td>W</td>
<td>L</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td>tʃiklo › tʃikjo</td>
<td>L</td>
<td>W</td>
<td></td>
<td>W</td>
</tr>
<tr>
<td>c.</td>
<td>tʃiklo › tʃitʃo</td>
<td>L</td>
<td>W</td>
<td></td>
<td>W</td>
</tr>
</tbody>
</table>

Once we put the ranking information from the three sets of winner loser pairs together the inconsistencies become obvious (52). (a) contradicts (b), (c) contradicts (d), and
(e) conflicts with combinations of (a, b) and (b, c), i.e., if, according to (e) PAL outranks *Cl, then (a) and (c) cannot both be correct.

(52) Inconsistent ranking information

<table>
<thead>
<tr>
<th>Inconsistent ranking information</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. okkjo › *ottʃo = *Dors&amp;*Cor &gt;&gt; PAL</td>
<td>Pal outranks *Cl, so (a) and (c) cannot both be correct.</td>
</tr>
<tr>
<td>b. rittʃo › *rikkʃo = PAL &gt;&gt; *Dors&amp;*Cor</td>
<td></td>
</tr>
<tr>
<td>c. rittʃo › *rikklo = *ClV &gt;&gt; *Dors&amp;*Cor</td>
<td></td>
</tr>
<tr>
<td>d. tʃiklo › *tʃitʃo = *Dors&amp;*Cor &gt;&gt; *ClV</td>
<td></td>
</tr>
<tr>
<td>e. tʃiklo › *tʃikjo = PAL &gt;&gt; *ClV</td>
<td></td>
</tr>
</tbody>
</table>

The LCC does not help resolve any of these ranking paradoxes. It does not even help in connection with revised inputs. [kj] in occhio cannot be /kl/ because then the grammar needs to produce the mapping of /kl/ to [kj], which would also affect [kl] in ciclo, which has to be changed to something else or indexed with some constraint. Changing /tʃ/ to /kj/ and /kj/ to /kl/ and indexing in addition to selecting the local conjunction would do, as we have seen in the historical run-up to the situation. However, the learner needs to figure out the chain shift, which inputs have to be changed to what and select the right constraints for the LCC, as well as the right constraint and lexical items for indexing. The chances are high that a learner simply selects the only constraint that can be ranked to overrule all conflicting information on the ranking of Markedness constraints, the Faithfulness constraint Ident(manner), and decides to settle on an identity mapping for all items involved. While this reduces the r-measure of the grammar it greatly reduces its complexity, dispensing with arbitrary indexation and the use of LCCs.

This solution, however, only works as long as the learner does not consider the alternations caused by velar palatalization. Once a learner decomposes morphologically complex forms, the situation looks different again.

3.5 On the productivity of velar palatalization and the life cycle of constraint rankings

In this subsection we consider the issue of whether velar palatalization is productive at all in present-day Italian. A potential partial answer to this question could provide further evidence for Bermúdez-Otero’s “life cycle”. In the life cycle, which is couched within Stratal Optimality Theory, it is assumed that innovative phonological processes enter the grammar at a late stratum. They apply across the board (as, e.g., flapping in American English). The older and less productive a process becomes the more its domain is narrowed, which is reflected in its percolation up to earlier strata of the grammar (from phrase to word to stem level) until it tolerates lexical exceptions and eventually becomes completely unproductive (as velar softening, i.e., spirantisation of /k/ in pairs like electric – electricity). Thus, velar palatalization could be still fully
productive in Italian and its prosodic conditioning is just very complex. It could be partially active, with lexical exceptions, or it could be inactive with some exceptional cases which show a lexically marked alternation. Alternatively it could have retreated to an earlier stratum.

Present-day Italians divide into two groups according to Krämer (2009a, b), speakers with palatalization in nouns/adjectives as the exception and speakers with blocking of palatalization as the exception. Giavazzi (2008, 2012) conducted a nonce-word test (as Krämer 2009a, b) and arrives at the conclusion that palatalization is productive dependent on prosodic structure. Words with antepenultimate stress show palatalization, while words with penultimate stress display blocking. Apparently, nonce-word tests seem to produce variable results, depending on all sorts of external factors.

Giavazzi’s reason to assume foot dependence is that if the consonant in triggering position can be assumed to be outside the main stress foot or at its edge, it is more likely to undergo palatalization. However, the reverse is not the case: Just because a velar can be assumed to be in a foot does not mean it is immune to palatalization. Furthermore, as the example analogo – analoghi with stress on the antepenult in (54) shows, being outside a foot does not mean either that palatalization has to apply – it is just more likely. In example (53), feet are indicated by brackets.

The derived forms show that whether a velar palatalizes in a derivational context, that is, in a potentially earlier stratum of grammar, depends on its form and behaviour in inflection, not on the foot structure in the derived form. Furthermore, these foot parsings are at odds with recent analyses of Italian stress (see the discussion in Krämer 2009a, c).

(53) Palatalization, derivation and feet
   a. cattolico cat(toli)ci cattoli(cesi)mo cattoli(cissi)mo ‘catholic (sg/pl)/catholicism’
      cattolico mo ‘very catholic’
   b. sporco (sporchi) spor(chissi)mo turco (turchi) turchiz(zare) ‘dirt (sg/pl)/very dirty’
      turco (turchi) turchiz(zare) ‘Turkish (sg/pl)/make Turkish’
   c. greco (greci) greciz(zare) ‘Greek (sg/pl)/make Greek’

If one looks at further stems and derivational affixes, a more reliable conclusion seems to be that (a) some stems block palatalization in inflection, but do not do so with certain derivational affixes, as illustrated in (54)a, while other stems block palatalization as well in derived forms, as shown in (54)b. The reverse, i.e., blocking in derivation and application under inflection, does not seem to occur.
Variation and change in Italian phonology

(54) Velar palatalization with derivational affixes

a. pedagogo pedagoghi pedagogia ‘pedagogue/s pedagogics’
opaco opachi opacità ‘opaque (m.sg/m.pl)/opacity’
opacissimo ‘very opaque’
analogo analoghi analogismo ‘analogue (m.sg/m.pl) analogism’
pedagogo pedagoghi pedagogismo ‘educationism’
– – pedagogista ‘educationist’
pedagogico ‘pedagogic’
b. fuoco fuochi fuochista ‘fire (sg/pl)/pyrotechnist’
antico antichi antichità ‘antique (sg/pl)/antiquity’
antichissimo ‘very antique’

Morpheme-initial/-internal unpredictability coupled with alternations at root-affix junctures will persuade learners to swap the above Ident constraints with a constraint like Contiguity(F) (‘No changes inside strings’). In addition, Base-Output Faithfulness as well as arbitrary indexation are required.

Thus, palatalization is retreating to the stem level, as can be inferred from the implicational relation among blocking contexts for stems. There are no stems that block palatalization in derivation but palatalize in inflection. Most of the derivational affixes exemplified above are usually considered stem-forming; we are thus dealing with stem level phonology, while the inflectional affixes could be argued to be subject to word level phonology. The pattern also tolerates exceptions (stems that block palatalization only in inflection or both in inflection and derivation), as assumed in Bermúdez-Otero’s theory of the life cycle, though it does not do this in the straightforward way one would expect in Stratal OT. It is completely switched off in inflection of 1st conjugation verbs, but still completely regular in 2nd and 3rd conjugation inflection. And it is variably productive in nominal inflection, while in derivation its application depends on the involved morphemes. The most straightforward life cycle situation had been if all inflection behaved like 1st conjugation verbs and some or all derivational affixes triggered the process. However, as just sketched, the situation is not as straightforward.

4. Conclusions

In this paper I have provided an amphichronic analysis of central facts of diachronic variation in the history of Italian phonology. Rather than simply tracking change, the analysis provided several synchronic stages and, crucially, the trajectory from one
stage to the next via intergenerational transmission, i.e., taking heed of the different roles of adults and language learners, couched within a theory of acquisition.

In this endeavour we have seen that some changes are driven by errors in acquisition and governed by basic principles of acquisition, while others are rooted in adults’ additions to the lexicon leading to pattern inconsistency and therefore learning problems that result in radical lexical and grammatical restructuring.

The Italian history of change analysed here confirms Kiparsky’s (2015) claims that “[c]hange occurs when some aspect of the target language is never acquired. […] Changes which in the end simplify the language can pass through quite messy intermediate stages.” As one can see from the current state of velar palatalization, Italian has not quite cleaned up its mess yet. This shows that it can take quite a while for a process to become inactive.

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Which clues for which V2
A contribution to the typology of V2 on the basis of Old Italian

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In this article I argue that the V2-like property of Old Italian is to be found in all phases, i.e. not only at the CP level, but also at the vP and DP left periphery. This means that a change of perspective is in order to account for the OV scrambling cases in the vP and for scrambling in the DP/PP and AdjP, since they all derive from the same abstract property. Furthermore, this unified analysis of vP/DP/PP scrambling and V2 has consequences on the loss of the V2 property.

Keywords: Old Romance; syntax; scrambling; verb second; parallel phases

1. Introduction

In previous work (Poletto 2006, 2014 and in press) on Old Italian I argued in favor of the idea that all phases are built in a parallel fashion independently from the category they start with, either the verb, Tense or the noun. The parallelism manifests itself in the left periphery of Old Italian in a particularly clear way since each phase, CP, vP and DP, seems to display the same configuration and movement properties, i.e. we can identify a Focus/Operator position preceded by a set of Topics located just at the edge of each phase. This means that we can capture the V2-like property of the CP, scrambling phenomena which yield OV configurations and scrambling phenomena internal to the DP/PP phase by means of one single abstract property independently from the phase. Furthermore, I will show that scrambling phenomena similar to the ones found in the CP, vP and DP are also observed with AdjPs, which opens up the possibility that adjectival phrases (or at least some of them) can also be considered as phases. This paper is framed in a cartographic perspective and assumes, as standardly assumed in cartography, that sentence structure is universally present in the human brain and

not created each time we produce a sentence. The type of argumentation I present here is thus framed in a setting where elements move to positions that already exist and are not created by the element moving (or second merging). One might wonder in which sense it is possible to use the term ‘phase’ in such a framework, since phases have sense only in a derivational perspective. Notice, however, that the cartographic approach is not representational in the traditional sense used in the 80ties of elements only creating chains: cartography foresees feature-driven movement. It is thus justified to talk about phases also in cartography, since the units investigated here are not simply extended projections of syntactic domains of some sort: the Phase Impenetrability Condition (PIC), which is one of the main properties of phases, is relevant also in the present framework. Therefore, following a tradition initiated with Belletti (2004), I will use the notion of phase even though this article’s perspective is a cartographic one.

Evidently, this view has consequences on the way we interpret the supposed V2 property of Old Italian (and probably Old Romance). On the one hand OI is not to be analyzed as a “standard” V2 language in the same sense as languages like modern German, but on the other hand, it is not identical to modern Italian either, since the CP layer is always active in OI in all main clauses and requires that the inflected verb moves at least to the Focus/Operator layer. On the other hand, the trigger for V2 is fundamentally different in OI, because it is related to Information structure and not (or not only) to an Agreement mechanism established between C and SpecT as is generally assumed for Germanic V2. It is probably the case that different stages of evolution of the Old Romance languages display different types of V2; the stage that we observe in OI is already an advanced system, where the V2 property is related to a lower head with respect to the system of modern Germanic. This can contribute to clear the polemic that has been going on in the literature for some time about the V2 nature of Old Romance (see Roberts 1993, for an analysis of V2 in standard terms and Kaiser 2002 and Rinke 2007 for an analysis that stresses the non V2 character of Old Romance). If we define V2 as the obligatory realization of one of the heads in the left periphery of the clause, i.e. the CP layer, then OI was indeed V2, but if we define V2 in terms of the linear restriction typical of modern Germanic, then OI was definitely not a V2 language. On the other hand, the fact that there most probably are different types of V2 systems is relevant to the discussion of what the clues for its loss might have been. In the end, we should reach a sort of typology of possible V2 systems, which can be geographically as well as diachronically represented. The various types of V2 systems might depend on the feature that triggers obligatory movement to the CP domain. In the Germanic languages, the standard proposal is that this feature is an Agreement feature (see Tomaselli 1990; Platzack 1995). This is strongly supported by the fact that in the Germanic dialects it is possible to observe complementizer agreement, which to my knowledge is not found in Italian varieties. It might be the case that even inside Old Romance the differences between the various languages
have to be modeled in term of the feature and hence the projection that attracts the verb to the C domain. As for OI, I propose that it is an Operator/Focus feature located in the Focus Field, i.e. the lower part of the CP layer. Other authors have proposed that movement of the verb targets the $\text{Fin}^0$ head in Old Romance. I will not pursue this hypothesis, because, since this is the view on the Germanic type of V2, we would then expect OI to behave like German, which is not the case. Furthermore, the rise of V2 and its residual cases are both observed with wh-items and more generally operators (see Cruschina 2011 on Focus in Sicilian and Longobardi 1979 on Gothic), which target Focus/Op, which indicates that this must be the layer involved. In the present work I will further elaborate on the idea that not only is the structural configuration found in the left periphery of OI always the same across phases, but also the movements to the left periphery are parallel independently of the phase. This means that if the present work is on the right track, we have to take into account also phenomena which up to now have been considered as totally unrelated to the V2 property as clues for the acquisition of the system. In other words, not only phenomena like subject inversion, asymmetry between main and embedded clauses and topicalization could be seen as clues for a V2 system, but also cases of fronting inside the DP/PP\(^2\) and OV orders in front of the past participle can count as clues, since the setting of the property is phase independent.

In Section 2 I summarize the situation of OI on the basis of Benincà (2006) and show that the inflected verb really moves to the left periphery. In Section 3 I recapitulate my analysis of OI OV constructions as cases of scrambling that display the same properties found in the CP. In Section 4 I argue that inside the DP there are cases of scrambling of internal PPs and adjectives modified by the adverb molto ‘very’, and in Section 5 I show that the head noun can indeed raise in some constructions to the left periphery of the DP; the test I will use to show this implies the identification of a structural genitive position located immediately below the left periphery of the DP that is the nominal counterpart of SpecT.

In Section 6 I show that also in the domain of AdjP we observe cases of scrambling of the internal argument of the AdjP which feeds the possibility of extraction out of the AdjP into the clausal spine both of arguments, modifiers and also of the adjectival head that can even strand its modifiers in situ.

2. In this work, I will analyze PPs as projecting the same highest category as DPs, namely a KP. In other words, prepositions are treated here as the realization of case, and the only distinction between DPs and PPs is that PPs display an additional projection with respect to DPs, since the KP of oblique cases is more complex than the one of direct cases (see Caha 2009 on this).
2. The properties of the CP in Old Italian

In this section I will briefly summarize the properties of the CP layer in OI. The following sketch is based on Benincà (2006), to whom I refer for a detailed description of related phenomena like enclisis and proclisis, sentential particles and pro-drop licensing. The basic idea is that the V2 property of OI is not identical to the one of the Germanic languages for two reasons: (a) OI does not obey the V2 linear restriction typical of modern Germanic because it crucially does not only tolerate V3, which is also possible in Old High German, but V* where the verb can be preceded by several constituent; (b) it also tolerates V1 in narrative structures, much as it was the case in Old High German but has come to be rather restricted in modern Germanic.

(1) E per volontà de le Virtudi tutta questa roba tra'
and for will of the virtues all this stuff among
poveri dispense
poor dispensed
'And according to the will of the Virtues he dispensed all these goods among the poors' (VeV 99)

(2) Avemo detto che è rettorica
have.1pl told what is rhetorics
'We have told what rhetorics is' (Rettorica 5)

Since OI is a pro drop language in which pro is licensed by the I to C movement of the inflected verb, cases of subject inversion are not as widespread as they are in languages like the modern Germanic ones. Furthermore, since OI allows for postverbal subjects in the same way as modern Italian does (i.e. for new information Focus in the case of unergative verbs and in all new/broad Focus sentences in the case of unaccusatives), one has to distinguish two types of subject inversion (a) the one where the subject is in SpecT and the verb has moved to the C layer (let us call it Germanic inversion) and (b) one where the subject is still sitting in the vP, either in a Focus position or in its base position depending on the type of verb which is traditionally referred to as free inversion (see Belletti (1999) for an analysis of postverbal subjects in modern Italian that carries over to Old Italian). Hence, in order to prove that Germanic subject inversion exists in Old Italian, we can only take compound tenses into account, where it is clear that the subject occurs in front of the past participle. These cases exist, as shown in (3), where the QP subject is marked in bold:

(3) a. E per questi intendimenti ha catuno trovata sua legge
and by these meanings has each-one found his law
'Through these meanings each one has found his law' (VeV 75)
b. Adunque sanza gramatica non potrebbe alcuno
   so without grammar not could.anyone
   bene dire…
   well speak.

‘Without grammar one could not speak well…’

(3b) (see also (4) below) represents an even stronger argument that shows that OI
is indeed a language where the verb systematically reaches the CP domain in main
clauses because here the inverted subject also precedes adverbs which mark the vP
border and therefore must be analyzed as sitting in the SpecT position. As for the typi-
cal third correlate of V2, namely the asymmetry between main and embedded clauses,
Benincà notes that the only clear asymmetry between main and embedded domains
is found in the case of embedded interrogatives where, as Benincà (2006: 259) states:
“any access to the CP system is blocked.” In all other embedded clauses, the asymmetry
does not come up quite so clear, since V2 is possible, though more restricted than in
main clauses (see Poletto 2014: 11ff.). This is a point we will come back at the end of
the paper. Therefore, it is possible to find subject inversion also in embedded clauses:

(4) perché stessero i Romani sempre poscia securi
    for were.3pl the Romans always after safe

‘So that the Romans could be safe for the future’

Still following Benincà (2006), I will assume that the left periphery of the clause in
OI is in principle not different from the one of modern Italian, i.e. it contains a low
Operator/Focus layer and several Topic projections located lower than Force, where
the finite complementizer is sitting. What varies with respect to modern Italian is the
accessibility of these projections: in OI the Operator Focus layer is used also for infor-
mational Focus (see Benincà and Poletto 2004) while modern Italian only uses the
lower position in the vP for informational Focus (see Belletti 1999). Furthermore, in
OI the inflected verb always reaches the Operator\(^0\)/Focus\(^0\) position in main clauses,
yielding pro-drop and subject inversion, while this is not the case in modern Italian.
Third, when the SpecOp/Focus position is empty, the inflected verb raises up to Topic,
where it licenses a null Topic in its Spec yielding V1 structures and enclisis of the clitics
(see Poletto 2014 for a summary of Benincà’s proposal).3 The layering proposed by
Benincà (2006) is the one illustrated in (5).

3. Essentially, Benincà proposes that proclisis is derived by moving the inflected verb to
   Focus dragging clitics with it. When the inflected verb must move higher than Focus, i.e. to
   Topic, it leaves the clitic behind and moves to the Topic in order to license a null Topic in its
   specifier. Benincà does not explicitly assume an excorporation mechanism, which would be
   necessary to this type of movement.
Hence, in OI the verb must either reach one of the OP/Focus positions if a SpecFocus position is occupied, otherwise it must reach Topic. This complex left periphery also allows us to capture phenomena like pro drop licensing, which is possible when the verb moves to the left periphery, and enclisis of object clitics, which occurs when the verb moves to Topic.

Summing up, the main clause left periphery in OI has the following properties:

(6) a. it is always occupied by the verb
   b. in front of the verb we can have Ø, a single constituent or more than one
   c. the order of the Topics is not fixed, just as in modern Italian
   d. there exist secondary effects of I to C like pro drop and enclisis if the verb moves to Topic.

3. The properties of the vP phase in OI

OI also allows for an unexpected amount of OV orders, and this is true even factoring out OV derived by V2: there are a lot of cases of direct (7a), indirect objects (8a), PPs and even verbal modifiers (7b) and particles located in front of the past participle, which clearly cannot be explained in terms of V2 since they occur lower and which also give rise to multiple scrambling (cf. (8b)).

(7) a. il quale da che ebbe tutto Egitto vinto…
   whom since had.3sg all Egypt won…
   ‘since he submitted all Egypt…’ (Pagani 83)
   b. Poi lo fece fuori trarre
   that him made.3sg outside take.inf
   ‘then he had him taken out’ (Nov. XIII, 158)

(8) a. ch’elli è a fine venuto
   that he is to end come
   ‘that he has died’ (Tristano 397)
   b. Come se ciascuno fosse di morte a vita suscitato
   as if everybody was.sbj.3sg from death to life come.back
   ‘As if everybody had come back from death to life’ (VeV 84)

These cases have been analyzed in Poletto (2014), where I argue that they are to be analyzed as scrambling, i.e. movement to the vP left periphery which also contains an Operator/Focus and Topic positions (see Belletti 2004) and not as a consequence of the fact that OI was an optional OV language due to the influence of Latin. Scrambling
is the way OI authors ‘mimic’ the Latin OV grammar, simply because OV orders are not associated with the typical properties or real OV languages but is clearly a scrambling phenomenon as shown by cases like the following, where part of the preposed constituent has remained in situ after the past participle, a configuration which is impossible in a real OV language:

\[(9)\] a. E quand’ebber questa schiera fatta così grossa
    ‘And when the rank was really big’ (VeVeV 76)
    and when had.3pl this rank made so big

b. avegna che neuno possa buono advocato essere
    ‘even if no one can be a good or perfect lawyer’ (Rettorica 147)
    happens that noone can.SUBJ.3SG good advocate be.INF
    né perfetto
    nor perfect

However, ‘real’ OV is to be analyzed, these cases show that the OI one is not an OV grammar like German or Japanese.

The scrambling phenomenon thus displays the same properties as the V2-like in the CP: i.e.

a. there can be either no scrambling at all, i.e. scrambling is optional
b. it is possible to scramble one or more elements and
c. they do not have a fixed word order inside the Topic field

Interestingly, these three properties are identical to the ones found in the CP and which constitute the V2-like property of OI: we can have V1 (which corresponds to no scrambling at all in a)), it is possible to have V3 or V4, i.e. more than one Topic can be found in front of the inflected verb just like more than one scrambled element can be found in front of the past participles and the topicalized elements do not have a fixed word order just like the scrambled elements.

Since these properties are the same, I have proposed in Poletto (2014) to treat V2 and scrambling in the same way: they are both the effect of the peculiar properties that the left periphery has in OI, properties that remain constant across the CP and vP phase.

If the two phases are to be completely parallel, we should also find evidence that the past participle moves in a way which is similar to the one reported for the inflected verb in the CP phase, i.e. the past participle should move to the Operator/Focus position in the left periphery and stay there, or if there is no Operator/Focus

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4. More generally, OI presents lots of cases where an element has been preposed while others remain after the past participle, which is not possible in a real OV language.
element it should be able to move to the Topic position. The proposal of a low FocusP in the vP periphery has already been made by Belletti (2004) for modern Italian: she assumes that this is not a criterial position, and I do as well. As for possible interference between movements to the CP and movements to the vP left peripheries, under relativized minimality, this should arise in cases in which the features of the two elements that have been displaced are the same and their movement paths cross each other. This means that cases of Focus would not interfere with cases of quantifier floating, as assumed by an anonymous reviewer (see Poletto 2014 for a description of the position of universal quantifiers in the clause). Since it is not always evident whether the elements moved to the vP edge are topics or foci, i.e. whether they have the same features or not, I cannot test this prediction.

Actually, there is evidence that this happens, since there is a clear difference in the movement span of the active past participle between Old and Modern Italian. In Modern Italian the past participle moves to the aspectual projections located higher than the low phase vP, crossing adverbs and bare quantifiers which occur in a post-participial position, as extensively shown by Cinque (1999), who provides empirical arguments to show that the past participle in modern Italian raises higher than the aspectual projections where elements like *tutto ‘all’, completamente ‘completely’, sempre ‘always’ are located. This is not the case in Old Italian, where it is clear that the past participle stops lower than the position of elements like bare *tutto, which occurs in a position similar to the one found today in French. As shown by Poletto (2014), the same distribution is found with infinitival forms under modal, causative, perception and aspectual verbs.

(10) e come l’ à tutto perduto
    and how it has all lost
    ‘and how he lost it all’ (FR 75)

(11) seguire Idio chi à tutto venduto
    followINF God who has everything sold
    ‘(he can) follow God who sold all his possessions’ (Fiore 232)

(12) perché non sono bene tutte le cose che nuocere
    because not are.3pl good all the things that do.harm.INF
    possono considerate
    can.3sg considered
    ‘because not all the things that can be dangerous have been well considered’ (VeV 59)

(13) o vuogli tu sempre alla tua vita stare infermo
    or want.2sg you always to.the your life stay.INF sick
    ‘or you want to be sick during all your life’ (FSI 204c)

This difference between Modern and Old Italian is straightforward if we adopt Rizzi’s (2002) idea that some positions in the structure are criterial in the sense that the
elements which land there are frozen in place because they enter a special relation with the head which blocks any further movement. Since Focus/Operator are criterial positions in Rizzi’s view, we simply have to say that the distinction between Modern and Old Italian has to do with the span of verb movement, as generally assumed in any theory concerning the loss of the V2-like property in Old Romance, from Adams (1987) to Roberts (1993) onwards. The fact that in OI the verb has to raise to the criterial position while in Modern Italian this is not necessary blocks the past participle in the OP/Focus position in OI. This is actually the fundamental difference with respect to Modern Italian, i.e. the movement path of the past participle. This means that in modern Italian while the inflected verb moves less with respect to OI, the past participle moves more, i.e. OI had a bigger structural span between the inflected verb and the past participle with respect to the modern variety.

Since the structure of the two phases vP and CP looks identical with respect to the elements that can enter the Specifiers and the raising path of the verbal form, we now turn to the structure of the DP and discuss the possibility to extend the parallel between the vP and the CP seen above to the DP as well.

4. Scrambling to the DP left periphery

Suppose for a moment that the same V2-like property is replicated also in the DP phase, what type of phenomena should we expect to find in order to prove this idea? In the DP we should also find internal scrambling of the elements in the DP, both of PPs and of AdjPs and, if determiners are the nominal counterpart of complementizers, following the long tradition that the CP and the DP are parallel, we should also find cases in which the N raises up to the D domain and no article is present, which are not possible in modern Italian.5

The first prediction is actually born out, as there are cases of scrambling of a PP internal to the DP to the first position of the DP; the phenomenon is also found with PP6 (see Andreose 2010):

(14) Di dolor madre antica
   of sorrow mother ancient
   ‘The ancient mother of sorrow’ (VN 30)

5. Apart from rather special cases like those of proper nouns, as proposed by Longobardi (1991), whose movement is triggered by a different property.

6. I assume here that DPs and PP are similar in the sense that, since the nominal phase is complete when it has a KaseP, the P represents the case of the DP and hence, the phase is only closed when the P has been merged.
Ma molte genti di religione mettono a’ buoi innanzi il carro…

‘Many priests put the cart before the oxen…’ (Paternostro 101)

Notice that these cases of scrambling, which are rather infrequent in prose, are more common in poetry and with PPs with respect to DPs, never display a definite article, but either no article at all or the indefinite article.

The others who have nothing of love

‘The others who have nothing of love’ (C. Davanzati XI, 229)

They elect a captain of their people called Humility

‘Did you do it to make me an example for people?’ (VeV 4)

Crows have a long lifespan

‘Crows have a long lifespan’ (Tesoro b 175)

and provided of a very vast equipment on the carts

‘and provided of a very vast equipment on the carts’ (Pagani 42)

It is a well known fact that OI does not use definite determiners as regularly as modern Italian does (see Renzi 2010), as there are a lot of cases in which a definite determiner is
obligatory in modern Italian while it is not in OI. It clearly remains to be seen how the development of the definite article has evolved through time, and it is very probable that not all cases are alike. However, I will propose that the scrambling of a modified adjective or of a PP internal to the DP to the left periphery of the DP blocks the realization of the definite determiner since both of them reach the DP projection, one is sitting in the head, the other in the specifier, while this is not the case for the indefinite determiner, which remains much lower, actually in the lowest head of the left periphery.

If we want to draw a real parallel between the CP/vP phases and the DP phase, the cases of scrambling presented above should be analyzed either as Focus or as Topics: Giusti (2006) proposes for Modern Italian that in the DP there exist Topic positions (including a contrastive Topic position) but no Focus. I think that if we abstract away from the contrastive/corrective value of the CP Focus in Modern Italian, we can assume that in all phases there exists a lower Focus/Operator field and on top a Topic field, and that the exact value of the elements that can target the position in each field in each phase are variable both across phases and across languages: we have already seen an undebated case of this, since Modern Italian only has informational Focus in the vP, while OI also uses the CP to mark this particular type of Focus. Thus, if the left periphery of the DP is similar to the one of the vP and CP, we should have a Topic layer followed by a Focus/Operator layer, both of which are sandwiched between what corresponds to ForceP and what corresponds to FinP, which, following Giusti (2006), I will dub here D₀ and d₀.

(19) \[ \text{DP} \left[ \text{PP di me} \right] \left[ \text{D₀} \right] \left[ \text{TopP} \right] \left[ \text{OpP} \right] \left[ \text{dp esempio} \right] \left[ \text{fp e} \right. \text{esempio} \left. \right] \left[ \text{np \ exemplo} \left[ \text{pp di me} \right] \right] \left] \left] \left] \left] \right] \right] \right] \right] \right] \]

Here the preposed element *di me* 'of me' is located in the highest specifier of the DP. Any movement of this sort blocks the occurrence of the definite article by the well...

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8. There are also a few cases of the opposite pattern, for instance, as Renzi (2010) notes when the thematic function of the DP is the one indicating the stuff out of which money is made:

(i) contossi il fiorino dell’ oro
counted the florin of-the gold
’counted a florin made of gold’ (Libro del Guelfo 197)

9. As for a complex left periphery of the vP, I assume here Belletti (2004, 2014) who proposes that in Modern Italian there are a Focus and several Topic positions at the edge of the phase which are similar, though not identical to those of the CP. If I am correct here, OI is not different from the modern variety.

10. The fact that the left periphery of the DP is complex is widely accepted in the cartographic project (see Cinque 2002). Furthermore Giusti (2006) for Romance and Roehrs (2006, 2009 and 2014) for Germanic have proposed that there are different positions for determiners; Roehrs (2014) explicitly proposes that determiners move inside the DP.
known effect of the Doubly Filled Comp Filter (DFCF).\(^\text{11}\) I assume here Koopman’s (1997) extension of the DFCF to the DP, where head and specifier cannot be both lexicalized at the same time, which means that scrambling is always incompatible with definite articles. This is the same effect that generally blocks the occurrence of definite articles when the SpecD is occupied by a demonstrative pronoun, as Giusti (1997) discusses at length. As proposed by Koopman (1997) in her reformulation of the DFCF as a consequence of Kayne’s LCA applied to terminal nodes, the DFCF is to be extended to all projections (see Koopman (1999: 11) for a discussion of the violations to the filter, where she generally proposes that all the cases of apparent violations are actually cases in which the Spec and the head are not in the same projection).

It is to be noted that scrambling can co-occur with indefinite articles (17a) or within articleless nominals (17b). Since indefinite articles are located in the lower \(d^0\) position, there is no DFCF effect\(^\text{12}\) with the scrambled constituent because they never occupy the head and the Spec of the same projection. This alternation between bare nominals and indefinite DPs can be captured assuming that the head noun can raise to the lowest position in the left periphery of the DP, namely \(d^0\), in which case also the indefinite article is blocked. Alternatively, the head noun remains lower, in which case an indefinite article can occur.

\begin{center}
(20) a. \([D_P[PP di lor gente] [_{D^0}[TopP_{OpP}] [_{D_P un [FP_{F^0}capitano]... [NP_{N} capitano [PP di lor gente]]]])]]) c. \([D_P[PP di molto grande] [_{D^0}[TopP_{OpP}] [_{D_P vita [FP viva... [NP_{N} vita [PP di molto grande]]]]]])]
\end{center}

If the layering of the left periphery of the DP is the one in (19)/(20), then the fact that scrambling and the definite article are incompatible in OI does not necessarily mean that the target position of scrambling is SpecD, as I assumed in Poletto (2014). The incompatibility could also be derived simply by saying that adjectives modified by \textit{molto} are located in the Focus/Operator position, since \textit{molto} has a quantificational nature, and that the definite article is merged lower but cannot move through that position to reach \(D^0\), because of the DFCF, and that PPs rather target a Topic-like position, which again interferes with the movement path of the definite articles, though they are not directly located in SpecD. Crucially, in order to capture the distinction between definite and indefinite articles, it must be the case that definite articles are merged in a position higher than \(d^0\), where the indefinite article is sitting, but it could

\(^{11}\) The term Doubly filled comp filter (DFCF) refers here to the generalization that head and specifier cannot be filled at the same time and does not imply that the analysis is the one originally proposed in the 70s.

\(^{12}\) See Koopman (1997) for a restatement of the DFCF in minimalist terms.
still be the case the definite articles are merged lower than D⁰ and moved there. Hence, the effect noted concerning PP and molto+adjective scrambling could be derived by the particular combination of the movement path of the definite determiner with the general layering of the left periphery of each phase and not by a simple complementary distribution involving only SpecD and D⁰.

Up to now, the data clearly show that adopting some version of scrambling is unavoidable if we want to capture data like those in (14) to (18). What the data clearly reveal is that the first half of the V2-like property of OI also applies to the DP, in the sense that in OI it is possible to move constituents to the left periphery of the DP that cannot be moved any longer in Modern Italian, in the same way it was possible to move to an informational Focus position in the CP which is blocked in Modern Italian. What remains to be proved is the other half of the V2-like property, namely the possibility to move the N to the left periphery, in particular to the d⁰ position, as we have seen to be the case for the inflected verb and for the past participle in the CP and vP respectively. This is what I will show in the next section.

5. **Structural genitive and residual N to d**

In what follows I will show that N to d⁰ is possible in OI because it can cross over a structural genitive position, GenP, located immediately below d⁰.

Let us first show that GenP exists: the first phenomenon that indicates the existence of this position is the fact that in OI pronouns like costui/costei/costoro, 'this man here/this woman here/these people here' colui/colei/coloro 'that man there/that woman there/those people there' can either occur after the N and are generally preceded by the preposition di ‘of’ or a ‘to’, or they can occur between the definite article and the head noun. The structure is very frequent with the head noun ‘tempo’ ‘time’, but is also found with all possible Ns:

(21) a. alla potenza di costui  (Bono, Storie contra i pagani 93)
    to-the power of him-here
    ‘to the power of this person’

b. in casa a costui          (Bono, Fiore di rettorica 19)
    in house to him-here
    ‘in the house of this person’

(22) a. la costui anima      (Fiori e vita di Filosafi 203b)
    the him-here soul
    ‘the soul of this person’

13. The same is found with pronouns like 'altrui’ ‘of others'. See (44) below for cases like 'l'altrui miserie’ ‘the miseries of others'.
That the alternation between the two genitive positions is optional is attested by minimal pairs like the following one found in the same text:

(23) a. Al costui tempo (Paolino Pieri 15)
    At.the him-here time
b. Al tempo di costui (Paolino Pieri 16)
    at.the time of him-here
    ‘At the time of this person’

Interestingly the definite article plus the structural genitive can also be used with deletion of the head noun in a way similar to possessive pronouns like la sua ‘his’ or in a way similar to the English Saxon Genitive which can represent the whole DP in cases line ‘at the doctor’s’:

(24) che lla costui è da laudare
    that the him-here is to prize
    ‘that the one of this person is to be prized’
    (De Amore Andrea Cappellano 25)

One might think that there is some restriction with respect to the head noun, for instance that there could be an inalienable possession restriction here, but this is clearly not the case:

(25) la costui venuta
    the him-here arrival
    ‘his arrival’  (Boccaccio Filocolo 61)

These data suggest that the structure of the DP is even more similar to the one of the clause, because it also has a position for structural case for the external argument immediately lower than the left periphery just like SpecT is the structural subject position where nominative case is assigned: I will still refer to this structural case assignment position as GenP, although it might be identified with a position that has already been proposed in the literatur, for instance NumP or PossessorP.14

\[
\begin{align*}
&[\text{DP}[[\text{PP}[[\text{TopP}[\text{OpP}[[\text{dP}[[\text{GenP}[\text{Gen}0]...[\text{NP}[[\text{N}]]]]]]]]]]]]
\end{align*}
\]

14. Such a position was first proposed by Szabolcsi (1994) and then taken up by a number of authors. What is new here is the fact that OI could use such a position with a wider range of elements than Modern Italian, which probably only places there possessive elements, if ever.
Once we have established that such a position can be occupied by a specifier in OI, we have to show that the head noun can cross it.

A first argument that the noun can raise higher that GenP in OI is provided by the cases of enclitic possessives discussed in Giusti (2010), which today are rather widespread in the Southern Italian dialects, but which are only possible with intrinsically relational nouns, like kinship nouns both in OI and in the modern dialects:

(27) egli lo torrà al figliuolto
    he it will-take at-the son-your
    'he will take it to your son' (Novellino 138)

Since in the example above the definite article is present, this means that the head noun raises higher than GenP, but lower than D⁰ (see Cinque and Krapova 2013 for an analysis that shows that possessives correspond to the subject of the DP as assumed here).

Similar cases are found with a regular genitive of a proper noun:

(28) a. La figluola Guidi Tินaci d’ Aliana…
    the daughter Guido T. of A
    ‘The daughter of Guido Tinazzi of Agliana…’ (Streda 221)

b. le rede Guiglelmo Gitti…
    the heirs Guglielmo Gitti
    ‘the heirs of G.G.’ (Streda 243)

Again, here the structure must be something like (29):

(29) \[
\{DP \{la\} \{TopicP\{Opp\} \{dp figluola \{possP \{dp Guidi \}...\{poss_0 figluola \{NP \{n figluola \{dp Guidi\}\}\}\}\}\}\}\}\]

Another clear case that indicates movement of the head noun to the left periphery is provided by the construction analyzed as construct state by Longobardi (1991) where nouns like casa ‘home’ clearly move higher than the structural genitive position mentioned above:

(30) a. in casa i Frescobaldi
    in home the F.
    ‘in Frescobaldis’ home’ (GVillani b77)

b. In casa gl’ Orciolini
    in home the O
    ‘In Orciolinis’ home’ (CF 126)

Since all these cases are incompatible with the definite article, we have to assume that here the head noun raises up to the D⁰ position.

(31) \[
\{DP \{casa\} \{TopicP\{Opp\} \{dp \{genP \{dp gli Orciolini \} \{genP \{n casa \{dp gli Orciolini\}\}\}\}\}\}\]\]
The same type of construction is also found with other head nouns which imply inalienable possession, like mano 'hand', where we find again the same two alternatives found with cases, where both the structural genitive and the prepositional genitive occur in postnominal position, thus showing that the head noun can target the left periphery. Interestingly, also in these cases there is no article at all, either definite or indefinite, which suggests that the head noun moves through the left periphery blocking both d₀, where the indefinite article originates but also D₀ where the definite article is merged (or moved).

(32) per mano s(er) Ruggieri  
    for hand Sir Ruggieri  
    'by the hand of Sir Ruggieri'

(33) per mano di s(er) Rinieri Albertani  
    by hand of Sir Rinieri Albertani  
    'by the hand of Sir Rinieri Albertani'

This alternation between a non-prepositional genitive and a prepositional genitive can be readily explained by making reference to the subject positions in the CP, once again strengthening the parallel with the DP: as a subject can be either pre or postverbal in OI (and Modern Italian), the genitive can be in a higher GenP structural position or in a lower position where it does not get any structural case assigned and needs the preposition di to be licensed.

On the other hand, in structures like those in (32) and (33), the head noun mano moves through all the heads of the left periphery to reach D₀ blocking all intermediate positions:

(34) [DP [mano] [TopicP [mano] [OpP [mano]]] [dp [GenP Ser Ruggieri] [mano]  
    [NP [mano [DP Sir Ruggieri]]]]]]

Summing up, in OI there are constructions where we can clearly see movement to the head noun to the left periphery of the DP. However, it is not clear yet whether the parallel with the other two phases is really complete, since in the CP and vP phase the verb moves at least up to the Focus/OP head, while this is not clearly shown by the data I have discussed. All I could prove is that head nouns indeed move to the left periphery, but the exact position(s) of the scrambled elements and of the different classes of head nouns still remains to be pinned down.¹⁵

¹⁵. See Poletto (in press) for an analysis of cases of preverbal restrictive adjectives in terms of movement to the left periphery.
6. Scrambling in the AdjP

Still following the view that all phases are parallel, I will now show that a scrambling phenomenon similar to the ones described above for the vP and the DP is also found within complex AdjPs, which might be an indication that at least some complex AdjPs are phases on a par with the vP and the DP. The following examples illustrate the case in point:

(35) sono ne la fronte allegri e tristi nel cuore  
are in the front merry and sad in-the heart  
‘who look happy but are sad in their hearts’    (FF 145)

(36) a. uomo di cupidità pieno da non potersi saziare  
man of greed full to not can-himself satiate  
‘a man so full of greed that he cannot be glad with anything’  
(Bono Giamboni, Delle Storie contro i pagani 382)

b. uomo di fede e di sapienza pieno,  
man of faith and of knowledge full  
‘a very knowledgeable and faithful man’  
(Bono Giamboni, Delle Storie contro i pagani 457)

c. e di vanagloria pieno  
and of boastfulness full  
‘and full of boastfulness’  
(Bono Giamboni, Delle Storie contro i pagani 80)

d. Questo luogo era di cotali fellonie pieno  
this place was of such crimes full  
‘This place was full of such crimes’ (Lancia A., Eneide volgarizzata 304)

e. ch’io rimasi di paura pieno  
that I remained of fear full  
‘that I was full of fear’    (Dante, Rime 65)

(37) a. ed è d’ animo semplice, e di vile cibo contento  
and is of soul simple and of plain food happy  
‘and he is a simple person happy with plain food’  
(Bono Giamboni, Vegezio Arte della guerra 9)

b. Rimase Pandar di Troiol contento  
remained Pandar of Troyi happy  
‘Pandar was happy about Troyi’    (Boccaccio Filostrato 87)

c. e il nostro Giove è di tutte queste cose contento  
and the our Jove is of all these things happy  
‘and our Jove is happy about all these things’    (Boccaccio Filocolo 62)
The examples above all display the complement of the adjective in pre-adjectival position, an order which is impossible in modern Italian.\textsuperscript{16}

It is clear that all these cases are the result of a scrambling phenomenon, as they alternate with cases in which the complement is in post-adjectival position as it is obligatorily the case also in Modern Italian:

(38) a. ma non era pieno di grande senno  
but not was full of great intelligence  
‘but he was not very intelligent’ (Brunetto Latini, \textit{Rettorica} 94)

b. essendo ivi il re pieno di libidine,  
being there the king full of lust  
‘being the king full of lust’ (Bono Giamboni, \textit{Delle Storie contra i pagani} 71)

c. e contento di te medesimo  
being glad of you same  
‘being glad of yourself’ (An. Tesoro di Brunetto Latini c 331)

d. tu sarai contento di queste lagrime  
you will be glad of these tears  
‘you will be glad of these tears’ (An. Rime d’Amore di Ovidio 358)

Furthermore, there are cases where part of the complement is left on the right side of the adjective, thus showing that the base position of the complement is to the right of the adjective and not directly to the left as one would expect from OV languages:

(39) egl’ era di grande misericordia pieno verso i bisognosi.  
he was of big mercy full towards the needing-people  
‘he was full of great mercy for people in need’ (An., \textit{Storia del Santo Gradale} 36)

The scrambled complements can probably target various positions, as they can be located either before modifiers like \textit{tanto} ‘much’ or \textit{solo} ‘only’ but also after them:

(40) ch’ è tanto di valor pieno  
that is much of valor full  
‘who is really full of valor’ (Cavalcanti, \textit{Rime} 561)

(41) Fu di questo accidente tanto contento in se medesimo Tarolfo  
was of this event very glad in him self Tarolfo  
‘was himself very glad of this event’ (Boccaccio, \textit{Filocolo} 399)

(42) esser dovresti sol di ciò contento  
be should only of this glad  
‘you should only be glad of this’ (Boccaccio, \textit{Filostrato} 122)

\textsuperscript{16}. In modern Italian the only possible cases are fixed expressions with the adjective \textit{caro} ‘dear’ and a pronoun like \textit{a me caro} ‘to me dear’, which however have a high style flavor.
Furthermore, there is evidence that also the adjectival head moves, as it can be found on the left of modifiers which are typically pre-adjectival in Modern Italian:

\[(43) \text{perocché fu ricco maravigiosamente}
\]
\("because he was wonderfully rich"
\[(43)\)

Therefore, we can conclude that the scrambling operation feeds further movement of (a) the adjectival head (as in (44) ricco ‘rich’) or (b) the modifier (see (46) molto ‘very’) or (c) of the complement (see (45) ‘di poco’ ‘with few things’) to a higher position outside of the AdjP, which can be observed inside the DP of which the AdjP is a modifier or directly in the clausal spine (generally in the left periphery of the CP):

\[(44) \text{Ricchi sono degli altrui danni, ricchi de l’ altrui miserie}
\]
\(\text{‘They are rich of others’ damages, rich of the miseries of other people’}
\[(44)\)

\[(45) \text{Loda colui, che di poco è ricco, e che stima le}
\]
\(\text{Prize the one, who is rich with few things, and who evaluate wealth}
\[(45)\)

\[(46) \text{ma molto è piccola cosa dire dell’arte}
\]
\(\text{‘but it is a little thing to say about the art’}
\[(46)\)

These observations lend support to the idea that the same type of scrambling phenomenon observed in the vP and in the DP phases is also possible within AdjP. So far, I have analyzed scrambling in the same vein as I think the OI V2-like property should be analyzed, i.e. as movement of the verbal head to the left periphery triggered by a requirement related to the projections that encode information structure in the CP. Now, the fact that also the AdjP displays the same set of phenomena points towards the idea that also AdjPs are phases, since they have a left periphery similar to the one of the other phases.

7. Conclusion

In this work I have tried to pursue the idea that phases are built in a parallel fashion with respect to the left periphery they display at their edge and with respect to the
movements allowed to this area. In OI the left periphery is articulated in two sets of projections, a lower one for Operators/Focus, and a higher one for Topics. As first proposed by Rizzi (1997) we find a position related to the internal phase lower than the Focus/Operator field and a position related to the external structure on top of the Topic layer. I have shown that in all phases it is possible to move elements that cannot be moved in Modern Italian: in the CP we have movement due to Informational Focus, in the vP we can scramble any sort of constituent occurring within the vP, direct and indirect objects, passive subjects but also verbal modifiers. Crucially the scrambling phenomenon found in the vP has exactly the same distributional properties found in the CP: movement is optional, there can be more than one element moved, and the ordering of the moved elements is not fixed. I have also shown that in the DP it is also possible to observe optional scrambling phenomena to the edge of the DP, though it is more difficult to pin down exactly which projection in the left periphery is targeted in the various types of movements, since it is not clear in which position the definite article is merged, either $D^0$ or a lower position with subsequent movement to $D^0$, as recently proposed for complementizers like che ‘that’. In order for the hypothesis to be made more precise independent research is needed on the path of the definite article in OI. The DP presents also a striking similarity with the clausal and vP phases, as it has a structural genitive position similar to SpecT (and Specv where the subject is merged) immediately below the left periphery. Since scrambling phenomena are also found in the AdjP, I have proposed that AdjPs must also be phases with their own left periphery that is the target of these scrambling phenomena. If the view I have presented here is correct, then the type of V2-like property of OI is fundamentally different from the one of modern German and rather looks as the last step of a change that started in Latin and turned the basic word order of the constituents from OV to VO. The analysis proposed here is precisely a way to account for the fact that, although OI displays all typical features of a VO language, it does allow for OV orders. The fact that the phenomenon has disappeared in Italian (and in general in Romance except for Rhaetoromance) while it has stabilized in Germanic (other than English) indicates that the two phenomena should be kept distinct in terms of triggers and probably also in terms of target position for movement. Another interesting effect found is that in OI there was more structural distance between the past participle and the auxiliary than there is in modern Italian; this might also be a development related to the loss of scrambling, hence of V2, since they are two sides of the same coin. Furthermore, in the study of the progressive loss of V2 in Romance, we should also investigate the way scrambling has progressively decreased in the various phases (vP, DP and AdjP), since the loss of the V2-like property must be related to a general loss of movement to the left periphery of all the other phases. Future research will establish whether scrambling phenomena have been lost in different phases at the same speed (as the constant rate hypothesis put
forth by Kroch (1989) suggests), but in case we were to find slightly different developmental paths, they could be a precious indication of the differences found among the various left peripheries that must stem from the types of features each phase possesses.

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Parameter typology from a diachronic perspective

The case of Conditional Inversion*

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This paper considers the question of the nature of parameters from a diachronic perspective, focusing in particular on the case of Conditional Inversion (CI) in the history of English. The objective is to show that it is meaningful to think of parameters and their synchronic robustness and consequent diachronic stability in “size” terms. More specifically, we show that it is possible to discern a consistent, but ever more frayed parametric thread linking the availability of verb-movement operations in the history of English: while verb-movement at the earliest stages (Old and early Middle English) can be ascribed to the activation of a Verb Second grammar – conceived of as a grammar requiring verb-movement into the finite C-domain (Force or Fin) in matrix clauses (a mesoparameter) – verb-movement at the early modern stage was much more fragmented, triggered by a smaller class of finite Cs and also, as a result of the loss of V-to-T movement and the rise of a class of auxiliaries, affecting a smaller class of verbs (a microparameter); the situation in modern British and American English, where only had, should and certain uses of were trigger CI, is nanoparametric, a situation which is expected to be unstable, as various post-colonial varieties indeed show it to be. CI in the history of English, then, provides a window on parametric continuity and change.

Keywords: emergent parameters; parameter hierarchies; V2 constraint; diachrony of English

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1. Introduction

Building on the by now quite familiar idea that parameters may vary in “size” (cf. i.a. Baker 2008; Kayne (2005)) and the more novel proposal that parameters should be thought of as emergent entities (cf. i.a. Roberts 2012; Biberauer 2011, 2015a, 2016; Biberauer, Holmberg, Roberts & Sheehan 2014, to appear; Biberauer, Roberts & Sheehan 2014; Sheehan 2014; Biberauer & Roberts 2015a,b, in press for discussion), Biberauer and Roberts (2012b) propose a more articulated taxonomy of parameter-types of the kind set out in (1) and schematised in (2):

(1) For a given value \( v_i \) of a parametrically variant feature \( F \):
   a. **Macroparameters**: all functional \(^1\) heads of the relevant type share \( v_i \);
   b. **Mesoparameters**: all functional heads of a given naturally definable class, e.g. [+V], share \( v_i \);
   c. **Microparameters**: a small subclass of functional heads (e.g. modal auxiliaries) shows \( v_i \);
   d. **Nanoparameters**: one or more individual lexical items is/are specified for \( v_i \).

(2) Does P(roperty) characterise L(anguage)?

Does P(roperty) characterise L(anguage)?

- **NO**: **macroparameter**

- **YES**: **macroparameter**
  - **NO**: A natural-class subset of heads?
    - **YES**: **mesoparameter**
      - **NO**: A further restricted natural-class subset of heads?
        - **YES**: **microparameter**
          - **NO**: Only lexically specified items?
            - **nanoparameter**

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1. On the (Distributed Morphology) view that lexical categories consist of category-less roots, which become categorially specified via merger with categorisers like \( v, n, a, p \), etc., it is clear that the reference to functional heads here does not exclude lexical categories from being included in parameters of different sizes.
If we apply (2) to a property like verb movement, we can see that either the complete absence of verb movement (the initial NO option) or its association with all verb-related heads (the initial YES option) would constitute a macroparameter. That Verb Second (V2) is not a macroparameter is clear when one considers that it does not require all verbal heads to trigger verb movement (consider V2 languages that lack V-to-T movement, like the Mainland Scandinavian languages – Holmberg & Platzack 1995 – and West Germanic – Vikner 2005). V2 does qualify as a mesoparameter, however, as it affects all finite Cs, i.e. a natural-class subject of heads. Following the general view of parametric change as involving reanalysis of PLD through language acquisition (cf. Lightfoot 1979 et seq.), Biberauer and Roberts argue that macroparameters, for which there is evidence in all/most input structures, will be “easily” set (cf. also Tsimpili 2014 on this idea); hence they resist reanalysis and are strongly conserved, while meso- and microparameters are correspondingly less salient in the PLD and hence less resistant to reanalysis and less strongly conserved. Nanoparameters are, in principle, even less resistant to reanalysis and therefore more prone to change; however, frequency effects may be relevant here, with high-frequency lexical items likely to retain what become, over time, irregularities in the context of the system as a whole. This kind of nanoparametric setting is thus similar to what we see in the context of English irregular verbs, involving item-specific specifications which override the synchronic default (presumably by disjunctive ordering of the standard kind), where the synchronic irregularity may reflect an earlier regularity (as Modern English irregular verbs reflect formerly productive ablaut patterns, for example). They differ from irregular verbs, however, in that they remain active in the context of the present-day system, being manipulated by the computational system in the same way as the larger class of elements at earlier stages in the language’s history. In other words, they are distinct from parametric “fossils” like Believe you me.

2. In the context of the emergentist approach being outlined here, this is conceived of as a default option, arising where the input does not drive acquirers to pose a question about the relevant property P, with the result that there is no formal specification relating to it in the grammar. See the references quoted at the start of the paper for more discussion.

3. As highlighted in the work of Tsimpili (2014) and as pointed out to us by an anonymous reviewer, there is growing evidence from acquisition studies that “larger” parameters are stable even in bilingual and language-contact contexts, i.e. that we do not observe imperfect acquisition in the context of such parameters (in addition to Tsimpili 2014, see i.a. Meisel 2010 and Bidese & Cognola this volume for discussion and references). Cognola and Bidese (this volume) discuss the case of pro-drop in a heritage environment, noting that this parameter is successfully acquired, with the only observed variation being restricted to individual children for whom specific lexical items are affected, i.e. a nano-type phenomenon, from the perspective of the approach outlined in this chapter.
(although see Henry 1995 on this structure in Belfast English) and, indeed, ablaut, neither of which are constructed via syntactic derivation. Returning to the typology in (1): the proposed existence of a parameter typology along these lines has an important consequence for diachronically oriented studies since it implies that changes in the different types of parameter crucially involve taking into consideration what does not change, as much as what does.

A synchronic corollary of these degrees of resistance to change is that macroparameters are frequently observed to hold across large language families in a fairly uniform way. An example is rigid head-final order across categories in (almost) all attested Dravidian languages (Krishnamurti 2006). Mesoparameters are often characteristic of language families at the level of the main subgroupings of Indo-European, e.g. Germanic. Microparameters, in turn, characterise variation among more closely related systems, such as the individual Romance languages and dialects. Finally, nanoparameters are idiosyncratic properties of subsystems of individual languages and dialects. Further, we also expect to see linguistic systems featuring relatively “bigger” and “smaller” instantiations of parametrically regulated phenomena. Thus, for example, head-finality may hold of all heads, or only of [+V] or [−V] heads, or only of a smaller subset of [+V]/[−V] heads, or only of specific lexical items (cf. Biberauer 2008, 2015a).

In this paper, we will document a case of change from a mesoparameter to a microparameter to a nanoparameter. Our focus will be inversion in counterfactual conditionals in the history of English; henceforth Conditional Inversion (CI). The central aspect of this kind of inversion has arguably not changed since Old English, in that it involves movement of T-to-C where C has a feature marking the clause as irrealis. We take this to be one possible instantiation of a clause-typing feature associated with C, other options including interrogative, imperative, exclamative, and perhaps others. We argue that what has changed since Old English is the range of elements affected by this head-movement operation, and also how it relates to other forms of head-movement into the C-field. In Old English, CI was part of a general set of operations raising inflected verbs into the C-system, the Verb-Second (V2) system. It has

4. Whether OE was in fact a V2 system or not has been much debated in the generative literature (see Walkden 2014 for discussion and references). What is clear is that OE was not as rigidly V2 as familiar modern West Germanic systems (German and Dutch, for example): as Haeberli (1999), (2000), (2002) first showed, verbs do not always seem to raise to the same position in Old English, with the nature of the initial XP playing a role in determining how high the verb moves. Taking into account what has been learned since about the nature of the left periphery (Rizzi 1997 et seq.), the range of subject positions available in earlier English (cf. Biberauer & van Kemenade 2011 for discussion and references), and, no less importantly, the types of variation one might expect to find internal to V2 systems (cf. again Walkden 2014
commonly been said that English lost productive V2 in the 15th century (see Fischer, van Kemenade, Koopman & van der Wurff 2000 for overview discussion and references), with only various forms of “residual V2” in marked clause types having survived thereafter. Of course, the best-known case of this kind is interrogative inversion; but CI clearly also survived the loss of general V2. In the Early Modern period, movement of lexical verbs to T was lost (see Roberts 1985, 1993), and we find that from this period onwards, only auxiliaries undergo CI, again in line with interrogative and other kinds of inversion. The most interesting change to affect CI has taken place quite recently, though. According to the data presented by Denison (1998), CI applied to all modal auxiliaries, and additionally also have, be and do until the mid-19th century. In contemporary English, on the other hand, CI is restricted to had, should and were, the last of these only in certain contexts, and all of the options being characteristic of higher rather than everyday registers.

From the kind of parameter-typology perspective introduced above, V2 is a good candidate for a mesoparameter: it characterises all of Germanic except for post-15th-century English, and, in the relevant systems, it affects all finite verbs. On the other hand, the inversion processes of Modern English are somewhat idiosyncratic (no other Germanic language has a class of syntactic movement rules restricted to auxiliaries, for example) and limited to a particular subclass; hence these inversion operations would seem to represent microparameters. Finally, the contemporary situation looks nanoparametric as it affects one modal (should), and specific forms of have and be (the latter, as noted above, only in certain contexts).

So CI is an interesting example of an operation affecting a smaller and smaller set of elements, and hence changing its status in relation to the parametric typology in (1). In a certain sense, which we will elaborate, the core operation has not changed at all; what has changed is the rest of the “inversion system”, i.e. the classes of elements which undergo T-to-C movement in this particular clause type.

We now look at the different stages of English in more detail, going backwards in time. Hence we start with contemporary (British) English.

for an overview, and Wolfe 2015 for application to older Romance), the proposal that OE was nevertheless a type of V2 system is perfectly compatible with what Haeberli and others have shown about the variable heights to which verbs moved at this stage: where it might be the case that more “rigid” modern West Germanic V2 systems require the verb to move, invariably, to a single type of C-head (e.g. Force or Fin), OE may have permitted raising to different C-heads in different structures (cf. Westergaard 2009 who makes a similar claim for Northern Norwegian, which exhibits alternations between V2 and V3 ordering). We pick up on this point in Section 5.
2. CI in Contemporary English

As mentioned in the Introduction, there are well-known restrictions on CI in contemporary English, illustrated in (3):

(3)  a. *Had I been rich, everything would have been ok.
    b. *Should he do that, everything would be ok.
    c. *Did I do that, everything would be ok.
    d. Were I/he to do that, …
    e. Were I rich/a rich man/in London, …
    f. If I were rich, …

These examples illustrate the basic observation: the only auxiliaries clearly able to undergo CI are had and should, with were also possible in the modal be-to context of (2d), and in combination with a predicative AP, but somewhat more degraded with a predicative NP or PP, as in (2e).\(^5\) Denison (1998: 299) comments that “[o]nly should

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5. Both authors of the present paper felt (3e)-structures to be high-register structures, with non-AP predicative options being particularly restricted if not actually unavailable. An anonymous reviewer points out that the Corpus of Contemporary American English (COCA) contains various examples of (3e), including the following:

    (i) Were I younger, I would certainly quit … (1996)
    (ii) Were I local, I would know… (2006)
    (iii) Were I able, I would have fled Kyoto … (1996)

Further consideration of this resource reveals numerous additional examples where a predicative AP follows were and an inverted subject I, thus underlining the availability of this structure in contemporary American English. The fact that (iii) above involves a non-standard sequence-of-tense pattern is worth noting, though – Had I been younger would have been expected here – and this error recurs in other examples in the corpus, including:

    (iv) Were I twelve or thirteen at the time, I would have shut down … (2012)
    (v) Were I more interested in the products than the graffiti, I would have pointed out … (2015)

Predicative NPs and (of) PPs are attested to a much lesser extent in COCA, which also reflects our intuitions. A detailed study of the extent to which the various CI options involving were are attested in modern-day English grammars, in America, the UK and elsewhere, would facilitate a more fine-grained understanding of the fragmentation of the lexically rooted remnants of English’s initially productive CI option; but this is a matter we must at this point leave to future research.

6. Mittwoch, Huddleston & Collins (2002: 753) give the following as fully grammatical:

    (vi) Were that to happen we would be in a very difficult situation.
is at all common nowadays among the modals in this pattern”, although he does give recent examples with *could*.

Let us suppose, as already mentioned in the Introduction, that conditional protases feature an irrealis feature on C. Building on recent ideas in Holmberg (2013, 2016) and Biberauer (in press), we propose that this feature is in fact [Pol(arity)], which remains unvalued in conditional structures, as it does in (unbiased) interrogatives; this ensures that the clause has a non-veridical interpretation in the sense of Giannakidou (2000) and below. In the spirit of Ritter and Wiltschko (2009, 2014), we additionally assume conditional C (Force in Rizziian terms; cf. Rizzi 1997 and Section 4 below) to bear an initially unvalued T(ense)-feature. Tense, for Ritter and Wiltschko, is an anchoring feature, which may serve different functions in different domains: in the INFL-(=T-)domain, it signals whether the time of the vP situation (event, etc.) does or does not coincide with the time of the utterance; in the C-domain, which Ritter and Wiltschko (*ibid.*) associate with (speaker-mediated) Discourse-Linking, it signals whether the proposition expressed by TP does or does not coincide with the speaker’s

They comment that the construction “is found mainly with had and were, although a few other auxiliaries are possible”. They also note that *should* is not restricted to “remote” conditionals (those which “represent the condition as being satisfied in a world which is potentially different from the actual world” (p.748), and register the ban on contracted negation in contemporary CI (see Breitbarth 2014 for discussion of *should*, and the main text for further discussion of the negation property). Huddleston (2002:970) gives the following examples with other modals:

(vii)  

 a. *Dare* a woman have a child, she’s putting her job at risk.

 b. *Could* he have cast himself in the part of Mr. Copthorne, the villain and apostate, he would not have attempted to run away from his captors.

These examples are attested, but it is unclear where or when they are from. For us, they are ungrammatical (although (viib) seems slightly better than (viia)).

7. He also gives an example with *did* from 1993:

(viii) “I wish I had said that”, we might be tempted to say admiringly, *did we not of course remember* that this was how one legendary wit left himself open to perhaps the most famously crushing retort of all: “You will, Oscar, you will.” (“Centipede”, *The Guardian* 2, p. 11, 12/8/93; Denison (1998:299), emphasis his).

Again, we find this example ungrammatical.

8. See also Wiltschko (2014). More recently, Wiltschko and colleagues have proposed a specifically Speaker-Hearer-oriented Grounding Domain, distinct from and dominating the Discourse-Linking domain under discussion here (see i.a. Heim & Wiltschko 2015). We leave this elaboration aside here as it does not affect our key point regarding the speaker-mediated nature of epistemicity, which must therefore be located within the Discourse-Linking domain, however it is ultimately defined (see main text for further discussion).
here-and-now (see Bjorkman & Halpert 2012 for a very similar idea). When the T-feature on C is valued [past] – or has some non-present value more generally – we get a “non-coincidence” reading. This interpretation of the significance of [Tense:past] within the C-domain therefore allows us to understand why CI is synchronically associated with past-tense forms, i.e. why the auxiliaries able to undergo CI, *had*, *were* and *should*, are just those that are lexically endowed with [Tense:past], alongside [Pol:—] (and this also fits the observation that these elements, most clearly *were*, are historically past subjunctives): when [past]-marked *had*, *were* and *should* raise to C, they are spelled out in the C-domain, where [past] will necessarily be interpreted as signalling “non-coincidence” with the speaker’s here-and-now; this “non-coincidence” may take the form of a “fake past” in Ritter & Wiltschko’s terms – the irrealis meaning we most commonly associate with *had* and *were*-conditionals – or of hypotheticality, as in *should*-conditionals (see Breitbarth 2014).

More needs to be said about cases where these elements do not appear to raise into the C-domain, though. In *if*-conditionals, we may assume that the wider class of auxiliaries compatible with this structure are located in their usual unraised position, with *if* lexically encoding [Pol:—]-bearing C.\(^9\) Crucially, epistemic modals are plausibly located above the portion of the INFL/T-domain associated with (past) Tense (see Cinque 1999, 2006), while root modals are located below it (see Ramchand & Svenonius 2014, and the discussion to follow here). On the Ritter and Wiltschko-inspired assumption that [Tense] is interpreted relative to the domain in which it is located, combined with the more general assumption that the height at which a feature is introduced/represented determines its interpretive properties (i.e. that embedding is compositional),\(^{10}\) we can understand why past-marked epistemic modals will

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9. As will become clear in subsequent discussion (see Section 5), [Pol:—]-bearing C in the context of our discussion is essentially Rizzi’s (1997) Force. For the purposes of the characterization of V-movement options in English, it does not seem necessary to draw more fine-grained distinctions within the C-system. If Biberauer and Roberts (2015a, b) are correct, the absence of a fully articulated CP-domain, featuring a rich inventory of formally distinct C-heads, may constitute a major difference between English and Italian, the latter being a language for which it has, for example, been proposed that *se* (‘if’) associates with Int (cf. Rizzi 2001 for detailed discussion). That “the same” lexical item – here: *if* – may be formally distinct in different languages is today widely accepted, and it is particularly striking that complementisers may spell out “larger” and “smaller” formal structures in different systems (cf. i.a. Baunaz 2015, and Baunaz & Lander 2015 on this general idea, and again i.a. Saito 2012 and Kuwabara 2013 for specific discussion of the kinds of crosslinguistic variation observed in relation to interrogative complementizer elements).

10. Ramchand and Svenonius (2014) term this **Compositional Coherence** and define it as in (i):

    (i) Compositional Coherence: If X embeds YP, then the denotation of XP is a monotonically coherent elaboration of YP.
consistently be interpreted with the types of “non-coincidence” meanings highlighted above. Consider the partial clausal hierarchy in (4), taken from Cinque (1999: 81,130) (... signifies projections omitted for ease of exposition):

(4) \[ \text{Mood}_{\text{speechact}} > \text{Mood}_{\text{evaluative}} > \text{Mood}_{\text{evidential}} > \text{Mod}_{\text{epistemic}} > \text{Tense}_{\text{past}} > \text{Tense}_{\text{future}} > \text{Mod}_{\text{irrealis}} > \text{Mod}_{\text{necessity(alethic)}} > \text{Mod}_{\text{possibility(alethic)}} \ldots > \text{Mod}_{\text{volitional}} \ldots > \text{Mod}_{\text{obligation}} (>) \text{Mod}_{\text{ability/permission}} \]

Here it is clear that \text{Mod}_{\text{epistemic}} dominates \text{Tense}_{\text{past}}, and also that Mood-heads like \text{Mood}_{\text{speechact}}, \text{Mood}_{\text{evaluative}} and \text{Mood}_{\text{evidential}} would fall within Ritter and Wiltschko's (2014) CP-/Discourse-Linking domain. Importantly, numerous researchers, beginning with Tenny (2000), have argued that \text{Mod}_{\text{epistemic}} also belongs to this domain (for Tenny, this is the Speaker Deixis zone, which dominates the Temporal Deixis zone; cf. also Butler 2004, 2005 for quantification-oriented argumentation leading to a very similar overall partitioning). As such, epistemic modals will be first-merged within a speaker-oriented domain above TP, with the result that we can understand why any [tense]-specification they bear will not be interpreted as “genuine tense”, but instead in one of the CP-mediated ways proposed above. Regardless of whether epistemic modals move to C, as in CI, or remain in the first-merge position, as in if-clauses, then, we do not expect a “true tense” interpretation.

Root modals, and notably the obligation, permission and ability modals with which we are primarily concerned here, are dominated by the TP-projections within which “true tense” is represented. Strikingly, however, the root modals do not consistently exhibit the kind of “true tense” readings that a compositional approach to embedding (cf. also Notes 10 and 11) would lead us to expect. To see that this is the case, consider the following examples:

(5) a. She can speak really good French now that she's eighteen.
   b. He could speak French when he was six.

(6) a. You shall/may not pass through these gates!
   b. You should/(*)might not pass through these gates!

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11. Significantly, Tenny (2000:318) explicitly states a commitment to the kind of compositional-embedding perspective assumed here (cf. also the previous footnote) in saying the following of the 6 zones she divides Cinque's hierarchy into: “Each zone has something in its semantics not found in the zone below it, and as semantic units are composed in the clause, they become available to semantic composition higher up.”

12. As English lacks a central (i.e. non-periphrastic) modal expressing ‘desire’, \text{Mod}_{\text{volitional}} can be left aside here (cf. i.a. Krug 2000 for discussion). The absence of an independently lexicalized volitional root modal appears to have important consequences for the featural specifications attributed to the attested dynamic and deontic root modals, as will be shown in the main text.
(5) demonstrates the tense-change that arises in the presence of different forms of English’s single central dynamic modal: whereas (5a) expresses present ability, (5b) relates to past ability which may or may not still be in place. By contrast, the presently relevant permission reading in (6a) does not become previously existing permission in (6b): what at first sight appear to be “past-tense” forms of deontic shall and may do not express past-tense permission; in fact, might is not amenable to a permission reading, necessarily requiring an epistemic interpretation (‘There is a possibility that you will not pass through these gates’); should remains deontic, but introduces remoteness in a non-tense domain (see Huddleston & Pullum 2002 for discussion). Deontic must, in turn, lacks a past-marked counterpart. The question, then, is why dynamic (i.e. in modern English, ability) modals exhibit “real past” interpretations as in (5b), while deontic (i.e. permission and obligation) modals do not. This does not follow straightforwardly from Cinque’s hierarchy in (4), which would lead us to expect ability and permission modals to pattern identically in relation to Tense.

IJbema’s (2001) observation that Cinque’s hierarchy does not reflect the way in which ability and permission behave in Dutch provides the first clue in resolving this puzzle. While Cinque (1999:81) collapses these modal meanings under Modability/permission to signify the absence of a consistent ordering in the data he considered, IJbema (2001:48) shows, on the basis of examples like (7a), that the correct hierarchy in Dutch is that in (7b):

(7) a. Iedereen mag van mij kunnen lezen wat er staat.  
everybody may of me can-INF read what there stands  
‘Every is allowed (by me) to be able to read what it says.’

b. [Modvolitional][Modobligation] moeten ‘have to’ [Modpermission] mogen ‘be allowed to’ [Modability] kunnen ‘be able to’

Evidently, then, ability (i.e. dynamic modality) and permission (a species of deontic modality) are ordered in Dutch, with Modpermission dominating Modability, thus creating a deontic ‘field’ (cf. Biberauer & Roberts 2015a,b for discussion of this notion, which largely corresponds to Tenny’s ‘zone’; see Note 12, and see also Butler 2004, 2005 for further argumentation in this direction). The same seems true for German and Afrikaans, and also, strikingly, for Modern English. Consider the following Scottish-English double-modal (DM) structure by way of initial illustration:

(8) He may van mij tell you.  
‘He may be able to tell you.’ (Bour 2014:152)

That (8) involves a Modpermission > Modability sequence is clear from Bour’s (ibid.) observation that “if a speaker uses the DM structure in the sentence, … two senses must be put forward, viz. the root sense of permission expressed by may followed by the root sense of ability expressed by can” (highlighting ours – MTB/IGR). Assuming modern English, then, to reflect a wider West Germanic deontic vs dynamic modal
distinction, why would elements in the deontic ‘field’/‘zone’ not combine compositionally with \( T_{\text{past}} \)?

Here, we draw on recent advances in our understanding of phasal domains and their internal structuring. Following i.a. Poletto (2012), Cognola (2013), Biberauer (2013, in press), we assume the kind of discourse-oriented left periphery standardly associated with CP to define the edge of all phases. More specifically, we assume speaker-hearer-related information to be grammaticalised not just at the CP-edge, but also at the vP-edge. To the extent that permission and obligation modals encode meanings that are speaker- and hearer-oriented, they seem natural candidates as vP-edge elements (cf. also Alcázar & Saltarelli 2014 for an analysis of imperatives that explicitly appeals to grammaticalised speaker- and hearer-oriented vP-projections).\(^{13}\) Just as [Pol] – which marks the speaker’s commitment to/certainty about the proposition expressed\(^{14}\) – is associated with the C-domain, then, we expect this feature to be represented at the edge of the vP-domain

\(^{13}\) Harwood (2013, 2015) and Ramchand and Svenonius (2014) provide convincing argumentation in favour of the phasal status of Prog, which might at first sight contradict the speculations being presented here. Worth noting, however, is, firstly, the fact that Harwood adopts a dynamic approach to phases, in terms of which v-heads dominated by Prog could also be phasal wherever Prog is not present; given the incompatibility of the English modals with progressive aspect, this condition will always be met in the cases under consideration here. Secondly, Wiltschko (2014) argues that grammatical Aspect is an instantiation of Point-of-View, one of the four universally given functional projections defining the make-up of the clausal spine. Strikingly, her architecture, which is represented in (i), entails two peripheral speaker-oriented projections (Discourse-Linking and Point-of-View), which interact with two non-speaker-oriented projections (Anchoring and Classification, respectively); this reminds one of the phase-nonphase organization Richards (2011) proposes for phasal organization. Clearly, the details need to be worked out in future research.

\(^{14}\) An anonymous reviewer queries the idea that Pol, rather than, for example, Force, should be the locus of speaker commitment. The thinking here is simultaneously in line with Laka’s original take on \( \Sigma P \) as a locus of both affirmation and negation which may, subject to parametric variation be located above or below CP, and with much recent work showing that the domain above CP is speaker- and hearer-oriented (cf. the work of i.a. Peggy Speas, Carol Tenny, Halldór Sigurdsson, Alessandra Giorgi, Virginia Hill, Liliane Haegeman and Martina Wiltschko, and see Heim & Wiltschko 2015 for discussion and references).
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(cf. Batllori & Hernanz 2013; Duffield 2007, 2013; Kandybowicz 2013, and Biberauer 2013 for different types of empirical evidence pointing to this conclusion). In view of the above, we speculate that deontic modals, like the English modals more generally, lexicalise both [tense] (past and non-past) and [Pol]. Where epistemic modals are specified [Pol:—], however, (positive) root modals are specified [Pol: aff(irmative)], and negative root modals, like negative auxiliaries more generally, are specified [Pol: neg(ative)].

What distinguishes deontic from dynamic modals is the fact that structures containing deontic modals feature not just the standardly present [Pol]-bearing C, but, additionally, a [Pol]-bearing v (=lower phase head) (cf. Duffield 2007, 2013 for argumentation that English can be shown to permit what one might think of as two [Pol]-oriented phase-edges; cf. also Butler 2004, 2005). Deontic modals are either first-merged in or obligatorily undergo movement to the lower [Pol]-domain, with the result that a [past]-specification can only receive the “non-coincidence” reading associated with this type of inherently non-temporal domain (cf. (6b) above). Dynamic modals, by contrast, remain in situ in their low first-merge positions, interacting with INFL/T in the same way as any other “root”/lexical verb in English; where they are specified [Pol: aff], [Tense: past], we therefore expect the “real past” interpretation illustrated in (5).

We leave to future research the details of the first-merge position of CI-compatible had, were and should (though see Breitbarth 2014 on the latter). What is crucial for our purposes is, firstly, that there are three forms that can still undergo CI in modern English, one of which introduces counterfactuals (had), while the other two (were and should) introduce hypothetical conditionals (were), with should additionally becoming possible in open conditionals (see Breitbarth 2014); and secondly, that their featural make-up – [Pol:—] and [Tense: past] – renders them defective goals in the sense of Roberts (2010) in relation to C, i.e. the formal features of these elements are included in those of C, and so head-movement/inciporporation takes place. In fact, if Breitbarth (2014) is correct, and should is in the process of grammaticalising into a conditional marker, (the conditional instantiation of) this element may be even more defective than had and were in synchronically lacking [past].

A further point, observed by Pesetsky (1989) and Mittwoch, Huddleston and Collins (2002: 753) is that contracted negation is impossible in CI-structures:

15. As their semantics clearly show, [Pol:—] is not a possible Pol-value for root modals. This removes the possibility of dynamic modals ever being embedded under [Pol:—], which could contribute to a temporal non-coincidence reading.

(9) a. *Hadn't I done that, everything would have been fine.  
     b. Had I not done that, everything would have been fine.  
     c. If I hadn't done that, everything would have been fine.

(10) a. *Shouldn't he do that, it will be a shame.  
     b. Should he not do that, it will be a shame.

(11) a. *Weren't he to do that, it would be a shame.  
     b. ?Were he not to do that, it would be a shame.  
     c. ??If he weren't to do that, it would be a shame.

There is no counterpart to (9c) and (11c), and shouldn't cannot appear in conditional protases, a factor which may again connect to Breitbarth's proposals regarding the grammaticalisation of should as a new, featurally impoverished conditional marker. Note that there is also a dispreference for contracted negation with uninverted were in (10c): If he were not to ... is better than (11c).

Contracted negation is of course perfectly grammatical with interrogative inversion:

(12) a. Hadn't he finished when you got back?  
     b. Shouldn't he have finished when you got back?  
     c. Weren't they to have finished when you got back?

So this constraint is peculiar to CI. In terms of the featural analysis we have proposed here, the discrepancy follows straightforwardly from the fact that [Pol] on C in CI structures must be [Pol:—], whereas [Pol] on contracted negation forms is [Pol:neg(ative)]. Contracted negative auxiliaries could therefore in principle undergo raising to C, but the negative [Pol]-specification that Agree with these elements would produce would disqualify the resulting structure from being interpretable at the LF interface as a conditional. By contrast, Agree and movement of such forms in interrogative structures would produce a well-formed interrogative, albeit one with a negative bias (cf. again Holmberg 2013, 2016).

Crucially for us, then, contemporary English had, should and (modal) were have the features [Pol:—] and [Tense:past]. Because of this, they are able to undergo CI. Technically, we are dealing with the formal feature-specifications of heads, and hence, in terms of the Borer-Chomsky Conjecture (Baker 2008) maximally broadly interpreted, with parametric variation. Since just these three lexical items manifest the parametric specification required to give CI, this is a nanoparameter. CI is, however, not the only inversion-related nanoparameter in contemporary English; optative inversion only applies to may in most contemporary varieties:

(13) a. May you rot!  
     b. May all your dreams come true!  
     c. May you be very happy!
Here too, contracted negation is impossible, but this may be due to the fact that *mayn’t* is independently absent, as we observed above. To the extent that the examples in (13) are not in fact fixed expressions in contemporary English, we could postulate that C is able to probe some form of optative-related feature (here, for expository convenience, [optative]) on T. *May* is then the only auxiliary which can be inserted into a T bearing this feature (see Grosz 2012 for detailed discussion of the featural specifications of optative structures). Clearly *may’s* tense specification is [-Past], which means that it cannot surface in a well-formed CI structure.

What we have seen in this section, then, is that modern English seems to permit a restricted form of CI, alongside a comparatively unrestricted form of interrogative inversion and a possibly fossilized or, at best, maximally restricted form of optative inversion. In the following section, we will consider how the period leading up to the 20th century was similar and different.

3. Pre-20th-century Modern English (1700 onwards)

Denison (1998:298–300) gives examples of CI affecting auxiliaries other than those discussed above from 19th- and early 20th-century English (as well as the example of CI of *did* from 1993 mentioned in Note 7):

(14) a. My dear friend, *did* I want your aid I would accept it.

   b. And *could* I read yours [sc. face], I’m sure I should see.
      (1863 Hazlewood, *Lady Audley’s Secret* I.i p. 241)

   c. And *were* she a little less giddy than she is …

Denison presents the results of a survey of the frequency of inverted protases (i.e. CI) from the “more informal genres” of British texts in the ARCHER corpus (Biber & Finegan 1994) in his Table 3.11 (Denison 1998:300). We reproduce this table as Figure 1.

The survey covers 50-year periods from 1650–99 to 1950–1998. Significantly, Denison (ibid.) observes that the overall figures for *did* (2), *would* (3), *might* (1) and *must* (0) “were not worth tabulating”. In the earliest period, the percentage of CI was 57% for *had*, 41% for *were*, 38% for *should* and 25% for *could*. For the latest period, the percentages were, respectively, 7%, 5%, 0% and 0%. The clear point of inflection is 1850.17

17. Commenting specifically on the use of *were* preceding *I, he, she, it, this* and *that* in CI structures in four corpora of present-day English (Frown, F-LOB, the Wellington corpus of written New Zealand English, and the Australian Corpus), Leech, Hundt, Mair and Smith (2009:61) record only 15 *were* CI-structures: 7 American, 6 British and 2 Australian.
Combining Denison’s results for informal genres with the evidence from literary genres above indicates that CI changed in roughly the 19th century (with informal registers perhaps changing earlier and literary ones somewhat later, giving rise to a few examples of CI with *did* in the 20th century). CI became restricted to certain auxiliaries, having earlier applied to most auxiliaries, including “dummy” *do*. Moreover, Denison’s evidence seems to indicate that individual auxiliaries lost the capacity to undergo CI on an item-by-item basis. We can account for this by saying that, at the earlier stage, all (semantically plausible) auxiliaries specified [Pol:—] or [Pol:aff] and [Tense:past] (i.e. epistemic and dynamic modals, alongside past-tense forms of *have* and *be*), and, more marginally, uninflected *be*) could potentially undergo CI. In practice, however, three auxiliaries were becoming specialised, alongside default *if*, to cover the three core conditional types (counterfactual, hypothetical and, to a lesser extent, open conditionals; see Section 2 above), with the result that the extra options were lost. Here are some examples of *would*, *could* and *might* in conditional inversion from the 18th and 19th centuries:

(15)  

a. *Would* you be really … a man of honour.. you would … restore that parchment to Lord Evandale.  
(1816, Scott, Old Mortality (Tauchn.) 435; Visser 1963–73, III: 1730)  
b. This was a very prudential resolution, *could* he have kept it.  
c.  *Might* I kiss those eyes of fire, A million scarce would quench desire.  
(1807, Byron, Hours of Idleness: To Ellen; Visser 1963–73, III, 1778)

This earlier system in which CI is generally available to auxiliaries instantiates a microparametric option, since it applies to all auxiliaries, while, as we saw earlier, the contemporary system reflects a nanoparameter.

4. Early Modern English (mid-15th to 18th century)

Here we try to establish two things: first, that CI applied to all auxiliaries at some point in the Early Modern period, and, second, that it ceased to apply to main verbs during this period. In both of these respects, CI fully parallels interrogative inversion, which underwent similar changes during the same period.

Rissanen (1999:308) gives examples relevant to both of these points, when he observes that “in Early Modern English the selection of verbs is more varied [sc. than in Present-Day English]”. He gives the following examples, one with a lexical verb and with the auxiliary *would*:

(16) a.  *Wist* I that it were trewe.. I woulde well thynke, that.. he hanged himselfe. (More, *Heresies*, 327; Rissanen 1999:308)

b.  *Would* I haue my flesh Torne by the publique hooke, these qualified hangmen Should be my company. 
(Ben Jonson, *Sejanus* II.ii; Rissanen 1999:309)

Rissanen also gives the following example of inversion in a concessive clause (where in contemporary English *though* would appear, presumably in the C position):

(17)  For how can that subject please his Liege Souerain, *kepe* he neuer so well his laws, *observe* he neuer so exactly his statutes, if with all this he acknowledg him not for his Prince (Stapleton 5v; Rissanen 1999:309)

Concessives are semantically close to conditionals; in conditionals the truth of the main clause depends on the truth of the subordinate clause, while in concessives it does not and indeed there is often an implicature of contrast between the two (e.g. *(even)* though it’s raining, I haven’t got my umbrella); see Munaro (2010) for a proposal concerning the relation between concessives and conditionals.

Denison (1993:451), in a discussion of the development of negation, gives the following example with *do* from 1664:

(18)  *for did* I not consider you as my Patron, I have little reason to desire you for my Judge 
(1664 Dryden, *Dedic. to Rival Ladies* VIII 96.13; Denison 1993:451)
Of course, it is well known by now that V-to-T movement was lost in Early Modern English (cf. i.a. Roberts 1985, 1993, 1999; Pollock 1989; Warner 1997; Haeberli & Ihsane 2016). One of the classic diagnostics of this is that interrogative inversion became restricted to auxiliaries; where no auxiliary is otherwise present, “dummy do” is used (although the 17th-century distribution of do differs in some respects from the Modern English situation; see Denison 1985; Kroch 1989a, b; Han & Kroch 2000). It has usually been thought this change took place in the decades around 1600 (but see Haeberli & Ihsane 2016, whose corpus-based study suggests that things are more complex, and that there may have been more than one change in V-movement in the Early Modern period). Hence we find both patterns of interrogative inversion in this period, that with lexical verbs and that with do:

(19) a. What didst thou loose Iacke?
   (Shakespeare 1HenryIV III.iii; Rissanen 1999: 244)

   b. What do you call him?
   (Shakespeare HenryV III.vi; Rissanen 1999: 244)

(20) a. Alas wherefore lyghteth me the sonne … [?]
   (1503–5 Val. & Orson (W) 24.23; Denison 1993: 462)

   b. Of whom receyueteth the sonne his course?
   (1509–21 Fisher English Works 195.16; Denison 1993: 462)

Similarly, we find both patterns of CI at this period:

(21) a. he hath sworn there by his god/come ye not/or brynge I yow not with me for tabyde suche right and sentence as shal be there gyuen/it shal coste you your lyf
   (CMREYNAR, 13.237)

   b. Can he that subtylte in suche wise that he stamer not in his wordes/and may thenne be herde/neuew/this man may doo wonder
   (CMREYNAR, 61.689)

   c. Do he what somever he wyll, no man doth blame hym.
   (CMINNOCE, 5.64)

Rissanen (1999: 244) gives the following example of inversion of do and of a lexical verb in the same sentence:

(22) what became of the kynge of Castell … made he ony recovery, or dyd he close hymselfe in ony of his townes.
   (Berners Froissart IV 282; Rissanen 1999: 244)

The evidence from (19–21) shows that CI patterns with interrogative inversion at this period: there is a conservative grammar (perhaps predominant in the 16th century, certainly in the earlier decades) which allows lexical verbs to invert, and an innovative
grammar (predominant in the 17th century) which restricts inversion to auxiliaries, and which features a form of “do-support” when no auxiliary is independently present. (21c) illustrates “do-support” with CI. As we saw above, this situation persisted until around 1850, perhaps later in more literary registers.

We can straightforwardly and rather standardly analyse this situation by taking both interrogative inversion and CI to involve T-to-C movement. In the conservative grammar, lexical verbs raise to T and thus feed inversion. In the later grammar, they do not. Auxiliaries are first-merged in T and hence always undergo this process (this is essentially the analysis put forward in Roberts 1985). Of course, if we assume a more elaborate functional structure for the clause, it may be that auxiliaries are first-merged in lower positions than T (see the discussion in Section 2); the crucial difference is that there must be a position P from which movement to T is possible and to which auxiliaries may move or in which they may merge, while in the course of the Early Modern period P became inaccessible to lexical verbs. The merit of this account is that the inversion process remains the same throughout the changes; it is the “lower” operation affecting lexical verbs which changes. (Of course, the auxiliaries themselves changed, probably in their first-merged position(s), during this period too, but that is tangential to our main point here – see i.a. Lightfoot 1979; Roberts 1985, 1993; Warner 1983, 1997; Han & Kroch 2000; Roberts & Roussou 2003; Biberauer & Roberts 2008, 2010 on this).

At this period, then, there is no reason to treat interrogative and conditional inversion differently. In both cases, we have T-to-C movement. One difference is that interrogative inversion is a root phenomenon, while CI takes place in a subordinate clause. However, following Rizzi & Roberts (1989), we observe that conditional protases are unselected environments. The generalisation regarding root phenomena appears to be that they are banned in selected contexts (e.g. indirect questions, though see McCloskey 2006 for an important qualification suggesting, like much other work, that complement-clause size is crucial here; see Heycock 2006 for an overview of root-embedded phenomena). This is quite easy to formulate as a distinction between selected and unselected C, the former lacking the inversion-triggering features of the latter in systems where a root-embedded asymmetry is observed (something further needs to be said in order to account for the fact that relative clauses do not, for the most part (though see Rizzi 1997), act like root environments, but are not, on standard views, selected; see Rizzi & Roberts 1989: 27–28 and Jimenez-Fernandez & Miyagawa 2014 on this). The other difference is clearly semantic: conditionals and interrogatives are different clause types, canonically related to different kinds of illocutionary force. However, they share a general notion of non-veridicality, which we can define as follows, following Giannakidou (2000):

\[(23) \quad \text{A propositional operator } F \text{ is veridical iff } F p \text{ entails } p: F p \rightarrow p; \text{ otherwise } F \text{ is nonveridical.} \]
Both conditionals and interrogatives can be thought of as propositional operators (this can be seen as the denotation of C with the relevant interpretable features), and both are clearly non-veridical, unlike standard positive declaratives, which are veridical, and negated sentences, which are typically anti-veridical, in that \( \neg p \) entails the falsity of \( p \).

So we can provide a technical analysis of inversion in Early Modern English along the following lines: C is a non-veridical operator in virtue of being specified [Pol:—], or, in more descriptive terms, as [Interrogative] or [Irrealis]; additionally, it bears a [Tense]-probe. T and the elements that raise to it, by contrast, bear just a [Tense] feature; the [Pol]-specifications characteristic of the modern system had not yet become established at this stage (hence the possibility of what Jespersen (1949) termed the “exuberant” use of do in neutral affirmative declaratives). As such, T constituted a defective goal in relation to C and, in accordance with Roberts’ (2010) system, incorporated into it. As we saw, the conservative Early Modern grammar allows lexical verbs to raise to T, with the consequence that they will raise further to C in these contexts,\(^\text{18}\) while the innovative one does not. In C terms, what changed between the Early Modern and the Modern period was that the featural specification of the two types of verb-attracting non-veridical (i.e. [Pol:—]) C diverged in that conditional C developed an additional [Tense]-requirement, namely that verbs undergoing raising be specified [past]; interrogative C remained compatible with all [Tense] specifications. Significantly, the introduction of the [Tense]-requirement on conditional C meant that CI structures like (23), with uninflected (subjunctive) be, had to be reanalysed as a special case:

\[
\begin{align*}
(24) & \quad a. \quad \text{Brief is the word; not without significance, be it true or untrue} \\
& \quad \quad \text{(Carlyle, The French Revolution 1837)} \\
& \quad b. \quad \text{… and, although the rapidity of these vibrations varies immensely, they are recognisable in all our acts, be they voluntary or involuntary} \\
& \quad \quad \text{(Poore, Nervous Affections of the Hand and Other Clinical Studies, 1876)}
\end{align*}
\]

What we see, then, is that one type of non-veridical C started to behave differently from the others. The parameters connected to inversion became more precisely specified, with microparameters (in terms of the definitions in (1)) distinguishing conditional and interrogative inversion, and further differentiation within the CI microparameter.

\(^{18}\) On the assumption that lexical roots are featureless (see de Belder & van Craenenbroeck 2015 for discussion and references) and that theta-roles are not features (pace Hornstein 1999 et seq.), English lexical verbs can plausibly be viewed as featurally defective in relation to higher clausal functional heads.
If it is correct that all kinds of inversion were initially triggered by a single, undifferentiated non-veridical (Pol:—) C in Early Modern English, then we expect the situation with optative inversion to be the same as that with CI and interrogative inversion. So we expect to find examples of optative inversion with all auxiliaries (including do) at later stages, and examples of this kind of inversion with lexical verbs in the earlier stages, certainly in the 16th century. This prediction is correct, as the following examples, all from Shakespeare, show:

(25) a. *Would* that he were gone!
   
   *(Shakespeare, A Midsummer Night’s Dream, II, i, 45)*
   
   b. Though not by Warre, but by Surfet *dye* your King,
   As ours by Murther, to make him King.
   Edward thy Sonne, that now is Prince of Wales,

19. Exclamative inversion is veridical, in that the content of the proposition is presupposed to be true, as in:

   (ix)  a. Such a nice guy is John that..
   b. So nice is John that..

   (Thanks to Silvio Cruschina, p.c., for pointing this out to us, and see i.a. Grimshaw 1979 and Zanuttini & Portner 2000, 2003 for discussion). In fact, the same is true for negative inversion and for wh-interrogatives:

   (x)  a. Never in my life have I seen such a place.
   b. Which boy did you see?

It seems, then, that inversion involving obligatory XP-movement to SpecCP is triggered by a veridical C. It is also true of a recently-innovated form of exclamative inversion, as in (xi) (see McCready 2008):

   (xi)  a. Man, is that weird!
   b. Boy, do I need a drink!

This further supports the general idea that modern English C has a range of distinct featural properties, and that both veridical and, to a much lesser extent, non-veridical C trigger auxiliary-raising.

20. Possible examples of *do* with optative inversion are hard to distinguish from the imperative use of *do* found at this period (as in *Ah mercie, Sir! Doe me not slay* Spencer, F.Q. VI, I, 39; Visser 1963–73, III, 1519), especially where the subject is second person. Here are some possible cases of this use of *do*, though:

   (xii) … *do þan send wee Efter þaa ilk preistes three*
   
   (13. 17741; Visser 1963–73, III:1520)

   (xiii) *do dresse we therefore, and byde we no langere*
   
For Edward our Sonne, that was Prince of Wales,

*Dye* in his youth, by like untimely violence.

Thy selfe a Queene, for me that was a Queene,

*Out-live* thy glory, like my wretched selfe.

(Shakespeare, *Richard III*, I, iii, 199)

Worth noting, though, is that Rissanen (1999: 228) notes that “the optative subjunctive [in Early Modern English – MTB/IGR] is largely restricted to formulaic contexts, such as *God forgive him, Lord help our understandings, Heaven grant, God save, long live, etc.*”, although it does also surface in less formulaic wishes of various kinds. Strikingly, the (25b), lexical-verb-containing variant of this structure has also survived into contemporary English in fixed expressions like *Suffice it to say, Far be it from me, and Long live the king*.

5. Old and Middle English (450-1150CE and 1150 to 1550CE)

At these earlier stages, we expect to find lexical verbs undergoing inversion of all kinds, as indeed we do. In (26), we give some Old and Middle English examples of CI and interrogative inversion:

(26) a. *Gewite* þæt ungeswenlice ut þonne fylð adune depart.*subj* that invisible (soul) out then falls down

þæt geswenlice

that visible (body)

‘If the invisible soul departs, then the visible body falls down.’

(*AEHom* I, 10: 123–4)

b. don ða yfelan þæt þæt hi don, …

do.*subj* the evil that that they do

‘Though the evil ones do what they do.’

(Boethius (Cardale) 292, 18; Visser 1963–73, II: 908)

c. Bi this maner, with good lyuyng and greet trauel, men moun come to trewe and cleer translating, and trewe vndurstonding of holi writ, *sene* it neuere so hard at the bigynnyng.

(*CMPurvey* I: 60.2366)

d. *wenst* þu þat ic ne cumne singe?

‘Do you think that I can’t sing?’

(*The Owl and the Nightingale* l.47)

But of course the issue at these periods is Verb Second (V2). It is well known that Old English had an alternation between the possibility of V3 orders in declaratives, where the verb is (typically) preceded by a topic and a subject, and “true V2” order, where the initial element is negative *ne*, a *wh*-phrase and one of a small set of discourse adverbs (van Kemenade 1987; Pintzuk 1991; Haeberli 1999). Following the proposal
in Roberts (1996), we assume that, in the former case, V raises to Fin (cf. Rizzi 1997), while in the latter, it raises to Force. In these terms, then, what was lost with the loss of “full V2” was verb-movement to Fin, and the later changes described in the previous sections affect the feature-content of Force.

It is usually said that English was productively “V2” until about 1450 (Fischer et al. 2000). Biberauer and Roberts (2008) propose that general Germanic V2 involves direct raising of v into the C-system, “skipping” T (see Roberts 2010 on the absence of the Head Movement Constraint and a general account of the locality conditions on head-movement which is compatible with this analysis). They propose that this was the case for English until the 15th century, when many cases where a lexical verb moved to C in this way were reanalysed as V-to-T, and hence V-to-T was innovated at this point (only to die out less than two centuries later; see also Biberauer & Roberts 2010). This analysis of course implies that auxiliaries were at this period again not first-merged in T; in fact, following van Kemenade (1987), Biberauer and Roberts propose that the modals at this period were verbs which were clause-union (verb-(projection) raising) triggers, like their counterparts in the other modern West Germanic languages.

In the period of fully productive V2, there are two differences with Early Modern English. First, triggering of V-movement is quite general and need not involve T at all. Second, we might think that there are no differences between veridical and non-veridical C, and that therefore this feature (i.e. [Pol] in our terms) was not a Probe at all at this stage. In fact, though, there is some reason to think there was a difference between veridical and non-veridical C, in that, as (26) shows, interrogative inversion, CI and optative inversion were all V1 constructions, or at least not obligatorily V2. This suggests that non-veridical C, or, more precisely, Force, did not obligatorily have the feature triggering XP-movement to its specifier (which, for concreteness, we will refer to as an EPP-feature). However, there are no differences between veridical (Fin) and non-veridical C (Force) regarding the triggering of V-movement. So it seems correct to think that a veridical feature was not a probe for a clausal (i.e. verbal) head, although the value of that feature ([Pol:—] versus [Pol:aff] and [Pol:neg]) might have been associated with differing EPP features (obligatory for veridical/[Pol:aff] and [Pol:neg] C, optional for non-veridical/[Pol:—]).

This is the situation we find elsewhere in Germanic too. (27) illustrates from German:

(27) a. Wäre Hans gekommen, dann wäre Susanne abgefahren
   were Hans come then were Susanne off.driven
   ‘If Hans had come, Susanne would have left’

b. Kommt Hans, dann geht Susanne
come Hans then go Susanne
   ‘If Hans comes, Susanne will leave’
CI is V1 in German too and so, as in earlier English, non-veridical C may lack the EPP-feature veridical C obligatorily has in non-selected contexts. We will not speculate here on whether this similarity between German and Old/Middle English reflects an inherited system (see Walkden 2014 on the historical reconstruction of Germanic V2).

Around 1450, Fin lost the general capacity to attract v/V and (finite) T gained this feature. But at this point, Force (non-veridical C) continued to attract lexical verbs. Since T had the capacity to attract v/V in this new, non-V2 system, locality conditions prevented Force from directly attracting v/V: a V-feature in the C-system could no longer ”see” a V-feature on v/V owing to the intervening V-feature on T. At the earlier general V2 stage, T was featurally defective and so was unable to act as a goal for Fin/Force; v/V, on the other hand, was able to act as a (defective) goal for Fin/Force and hence the non-local v-movement to Fin/Force had been possible. This, then, gave rise to the conservative Early Modern English situation.

6. Summary and conclusions

What we have seen in the foregoing, and what is of particular interest for the theory of parametric change, is that the formal-feature specifications of the C-system appear to fragment over time, gradually becoming more specific. At the earliest stage (which has survived fairly robustly almost everywhere else in Germanic), V-movement into the C-system was generally triggered, although Fin and Force (veridical and non-veridical C respectively) do differ in their feature specifications; as far as V-movement is concerned, then, polarity specifications were not relevant during the Old English stage. From 1450 onwards, polarity is relevant, however: only a [Pol:—] C – or Force, in our terms – triggers movement, and this is now movement of T. The change here, then, is from the initial mesoparametric setting, which references finite C, independently of any polarity specification, to a microparametric setting, where the [Pol]-specification of the C-head becomes relevant, thus narrowing down the class of C-heads that may trigger V-raising; or, in the terms outlined in Section 1, a mesoparametric property (V-movement) that initially applied to “all functional heads of a given

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21. We use the shorthand “v/V” to designate a v-position to which the lexical verb has moved, an operation we take to be generally available, at least at this period of English. Since modals were lexical verbs at this period, they too underwent this movement.

22. There are differences amongst the other Germanic languages regarding which of Fin and Force triggers V-movement under which conditions. We cannot go into the details of this here (see Walkden 2014 on older Germanic, and Holmberg 2015 and Biberauer 2015b on contemporary varieties).
naturally definable class” (finite C) became restricted to small subclass of functional heads ([Pol:—]-bearing C, i.e. Force), thus giving a microparameter. In the modern period, C[Pol:—]/Force is no longer a uniform movement trigger; we must distinguish conditional C/Force from interrogative C/Force, and also, possibly, from optative C/Force. Again the movement-triggering features have become more specific and the parameter(s) involved correspondingly more micro. At the last stage, CI represents a nanoparameter, as it is restricted to just three auxiliaries. The constructions have become more marked, typologically more unusual (no known language shares the Modern English auxiliary-inversion system), more subject to microvariation (this is apparent from the remarks in Notes 3 and 4 above) and, presumably, harder to acquire, although we are unaware of any work on the acquisition of CI.23 Both the trigger for movement and the class of elements able to undergo movement have become more restricted: while the different kinds of C diverge, the feature specifications of the auxiliaries also change in such a way that finally only the three elements we observe are able to undergo CI. It is important to stress, though, that the basic mechanism giving rise to inversion is the same throughout: movement of v/V (T) into the C-system. This same operation can give rise to a mesoparametric property such as V2, a microparametric property such as interrogative inversion, or a nanoparametric property such as CI.

It is also worth pointing out that certain “advanced” World Englishes have entirely lost CI (e.g. South African English), and some have lost inversion altogether (e.g. Singlish). Consider the Singlish examples below:

\[
\begin{align*}
\text{(28)} & \quad \text{a. You put there, then how to go up?} \\
& \quad \text{b. Disturb him again, I call Daddy to come down. (}= If \text{ you disturb him again ...)} \\
& \quad \text{c. I sit here talk, can hear also. (}= If \text{ I sit here and talk, the microphone can still hear my voice)} \\
& \quad \text{d. You take pink flower is more nicer. (child. 5:11) (}= If \text{ you take the pink flower ...)} \\
& \quad \text{e. You tell me earlier I can find so many people for you. (}= If \text{ you had told me earlier, then I could have found so many people for you).}
\end{align*}
\]

\(\text{\[Gupta 1994\]}\)

23. As an anonymous reviewer rightly points out, CI is a formal-register construction and thus not the kind of structure one would expect children to acquire without formal instruction. This means that it is likely to be one of the structures that native-speakers effectively acquire as L2 structures (cf. Meisel, Elsig & Bonessen 2011), which need to be integrated in some way with an already-existing parametric system. Given the existence of an alternative which does not require “special syntax” – if-containing structures – it is not surprising either that CI takes on the character of a nanosystem, attached to specific lexical items, or that it is readily lost from grammars acquired by speakers in contact situations.
Strikingly, Singlish also only features optional past-marking, with [Tense:past]-bearing auxiliaries being omissible (cf. (29a,b)). Consider the following examples:

(29) a. You go where? (= Where did you go?)
   b. Got so many car! (= He had so many cars!)
   c. Then bicycle go first ah. (= So the bicycle went first)
   d. What happen yesterday? (= What happened yesterday?)

In terms of the present analysis, then, Singlish lacks both the [Pol:—]-bearing auxiliaries required for (non-veridical) CI-related raising and, more generally, the kind of systematically [Tense:past]-bearing verbal system that would allow auxiliaries to be targeted for (veridical) interrogative raising into the C-domain. The Singlish system, then, represents a situation where even the nanoparametric version of inversion has disappeared, giving rise to a system which is fundamentally simpler than the standard modern English one by virtue of the fact that inversion is entirely absent. In the kind of parametric terms introduced at the outset, Singlish can thus be thought of as having taken a simplifying “leap” away from the ever more nano-systems that define modern Englishes. In schematic terms, we can think of the change as depicted, in simplified form, in (30), a specific manifestation of (2) above (cf. Ledgeway 2015 for discussion of similar “leaps” in the history of Romance):

(30) Does head-movement characterise L(anguage)?

<table>
<thead>
<tr>
<th>NO: macroparameter</th>
<th>YES: Do all heads move?</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES: macroparameter</td>
<td>NO: Do all verbal heads move?</td>
</tr>
<tr>
<td>YES: mesoparameter</td>
<td>NO: Do all verbal auxiliary heads move?</td>
</tr>
<tr>
<td>YES: microparameter</td>
<td>NO: Do specific auxiliaries move?</td>
</tr>
<tr>
<td>nanoparameter</td>
<td></td>
</tr>
</tbody>
</table>

If Huang (2015) is correct, Chinese represents a language exhibiting the NO-macroparametric setting of (30): according to Huang, heads consistently fail to undergo movement in Chinese (though see Cheng 2007 and Hu 2015 for an alternative perspective). Branigan (2012), in turn, presents evidence that Algonquian languages may instantiate the YES-macroparametric option: all heads in these languages can
incorporate. Strictly speaking, the following parametric choice-point represented in (30) – Do all verbal heads move? – represents the next option to be considered by acquirers of languages in which verbal heads exhibit movement; for acquirers encountering a system in which nominal heads move, the question would be Do all nominal heads move? Simplifying still further for the purposes of the present exposition, we will take Do all verbal heads move? to refer to finite verbal heads, thus giving us the result that V2 is a mesoparametric setting (see Biberauer & Roberts 2012b for further discussion of this idea). By hypothesis, Old English most closely approximated this type of setting, though note our observations about the differences between veridical and non-veridical C, which were already discernible at this stage in the history of the language. To the extent that these refinements of the C-system – i.e. which CP-field/zone (cf. again Section 2 above) head, Force or Fin, constitutes the target of verb movement – are capturable by sub-parameters associated with a system in which the finite verb must nevertheless always move into the C-domain when there is no lexical item (e.g. a complementiser) blocking this movement, thinking in terms of an overarching V2 parameter here seems justified. For languages, like later Middle English and early Modern English, which no longer involve full V2 of the kind that can be captured by the mesoparametric setting just described, a microparametric refinement of some kind will be needed, one necessitating the postulation of further formal features to delimit the domain of verb movement; as noted in Section 4, this is also the stage at which the initial constraints on the type of XP-fronting associated with head-movements to specific CP-internal heads (Force and Fin) become more restrictive, but we leave this matter aside here, noting only that it is interesting that more fine-grained XP-fronting options emerge as the head-movement operation becomes more fragmented. The nanoparametric option indicated at the bottom of the hierarchy

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24. Branigan in fact describes the Algonquian facts as involving incorporation. If Roberts (2010) is correct in viewing head-movement as involving the incorporation of a defective goal into a probing head, the two phenomena converge. For expository purposes, we will assume a convergence of this kind.

25. Viewed in typological terms, then, the head-movement parameter hierarchy is underspecified relative to the parameter hierarchy that we might construct to represent an acquisition path for a child acquiring a system featuring some kind of head-movement: a parameter hierarchy representing typological distributions would represent the mesoparametric choice between verbal and nominal head-movement as equivalent options in hierarchical terms – Do all [±Verbal] heads move? or Do all [± nominal] heads move? – whereas an emergent parameter hierarchy representing acquisition paths would feature only the option actually suggested to the child by the data (see Biberauer 2014, 2015a for further discussion). For ease of exposition, we will in the main text focus only on the data that a child acquiring a verb-movement system might consider in establishing the “size” of the parameter regulating the distribution of verb movement in the system (s)he is acquiring.
in (30) no longer permits a formal-feature-based delineation of the class of elements that may undergo verb movement, meaning that this parametric option is unlikely to be learned by “going down” the hierarchy, with the learner postulating an ever more featurally constrained class of target elements; instead, the nano-option rests on item-by-item learning of a kind familiar from the acquisition of irregular verbs (cf. Marcus et al. 1992), depending on the frequency of the irregular items. In the CI case, this clearly poses a difficulty as CI has, in modern English, effectively become a learned construction. In varieties like Singlish, which is viewed as a basilectal variety, clearly distinct from the formal registers of English that are taught in school, it is therefore readily understandable why CI would have disappeared as a parametric component of the system. Significantly, this means that Singlish acquirers, unlike their standard modern English counterparts in many parts of the world, do not have to engage with the head-movement parameter hierarchy in (30) at all, rendering their system simpler in this domain than other varieties of English. We intend to examine the implications of this kind of “instantaneous simplification” more closely in future work.

For the moment, we conclude with the observation that the general perspective provided by consideration of the historical development of CI in English is consistent with the conception of different kinds of parameters, as put forward in the introduction and the references given there. These too, then, seem to us to merit more detailed future work.

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PART THREE

On the relationship between language variation and language change in bilingual settings
Attrition at the interfaces in bilectal acquisition (Italian/Gallipolino)

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The aim of this study is to investigate whether native speakers of Gallipolino, bilectals who have acquired Gallipolino as L1 (together with standard Italian) in their childhood, who have left Gallipoli after puberty and currently use standard Italian as their primary language, display effects of attrition with respect to subordinate clauses embedded under the complementizers ku and ka. Our hypothesis is that complementizer selection in Gallipolino exhibits emergent optionality (that leads to ungrammaticality) due to influence of standard Italian. To test this hypothesis, a grammaticality judgment task has been designed and administered to 14 participants.

Keywords: post-puberty migration; L1 attrition; the Interface Hypothesis; Gallipolino; the complementizer system in Gallipolino

1. Introduction

The aim of this paper is to explore potential first language (L1) attrition in native speakers of Gallipolino who have left Gallipoli after puberty (henceforth post-puberty migrants). Gallipolino is a dialect spoken only in Gallipoli in the province of Lecce (population: 21,148). Even though Gallipolino is not officially a “language”, it has its own identity, which is clearly distinguished from standard Italian. By attrition,

1. Here, the term ‘migrant’, is not used in the sense of ‘one’s leaving his/her town/region/ (country) to find a job somewhere else’ but rather in the sense of ‘one’s moving far from his/ her town/region/(country)’. On different migration typologies, see Chini (2004:19).

2. As Loporcaro (2009:5) points out, Italian dialects are not variants of standard Italian. Rather, they are Italo-Romance varieties that evolved from Latin independently of the Florentine dialect (which later developed into standard Italian). In this sense, although Italian dialects are sociolinguistically subordinate to standard Italian, they are rather in a relation of “sisterhood” with standard Italian: “Derivando indipendentemente dal latino, i dialetti come
broadly defined by Freed (1982: 1) as “loss of any language or any portion of a language by an individual or a speech community”, we mean a change in the L1 that is influenced by a second language that has become the primary, that is, the most frequently used language (see also Weltens et al. 1986; Seliger 1991; Sorace 2000a, b, 2005, 2011; Tsimpili et al. 2003; Tsimpili et al. 2004; Montrul 2008; Rothman 2009).

Research in bilingualism has shown that adult bilinguals often differ from monolinguals in some aspects of their language. It is not always clear, however, whether these differences are the result of fossilization during early language development, or whether these speakers had once been indistinguishable from monolinguals before their language started to change. The relevant distinction has often been referred to as that between “incomplete learners” and “attriters” or “forgetters” (Polinsky 1995: 398), and it has been proposed that incomplete learning is more common in second generation immigrants, while attrition is more common in first generation immigrants though not excluded in the second generation either (see Polinsky 1995; Montrul 2008; Schmid 2011). The present study investigates potential change in bilectal speakers who, following this distinction, may fall under the category of “forgetters”. In other words, it is possible that our speakers had attained native-like knowledge of Gallipolino, but that this knowledge has subsequently changed due to lack of contact with Gallipolino.

Language attrition has been studied predominantly as second language (L2)-induced L1 attrition, that is, L1 attrition in L2 learners who have changed environments due to migration to another country (expatriation). In the present study, language attrition will be investigated in a bilectal context, where the dialect can be considered the L1 and the standard variety another L1 or an early L2. Specifically, we look at simultaneous and early sequential speakers of Gallipolino and standard Italian who have moved from Salento to Northern Italy after puberty,3 and for whom standard Italian has become the primary language over time.4

3. Our participants moved to different towns in Northern Italy: seven to Milano (Lombardia), two to Roma (Lazio), one to Genova (Liguria), one to Padova (Veneto), one to Siena (Toscana), one to Torino (Piemonte), one to Udine (Friuli Venezia Giulia).

4. Of course, our participants were also exposed to the dialects spoken in the cities/regions to which they had moved. However, they all claimed that standard Italian was the most natural option when communicating with the local people in their new environments.
We refer to them as ‘simultaneous bilectals’ if the age of onset in Italian happened before the age of three years, and as ‘sequential bilectals’ if the age of onset in Italian happened after the age of three years. During their early childhood (AoO: 0–3), simultaneous bilectals have spoken both Gallipolino and standard Italian at home and have thus acquired both languages simultaneously (simultaneous, or 2L1 bilectals). Early sequential, or eL1 bilectals, by contrast, have spoken only Gallipolino at home, though growing up in a society where standard Italian was the official language. For all these speakers, standard Italian was the only language of instruction at school. Standard Italian had become their primary (i.e. mostly used) language after puberty and remained the primary language for the subsequent 40–50 years. Our goal is to find out whether bilectal speakers are affected by attrition in the same way as has been claimed for (late bilingual) L2 speakers moving to another country, and, moreover, whether simultaneous and sequential bilectal speakers are affected differently.

Potential effects of attrition will be investigated with respect to a phenomenon that is typical for Gallipolino and other Salentine dialects, namely the lack of the infinitive in clauses embedded under the complementizers ku and ka in contexts where standard Italian allows infinitival clauses. There are several reasons why this phenomenon may be problematic for speakers of Gallipolino. As noted by Köpke (2004:17), language influence is the most likely cause for attrition in bilingual settings: “L1 is replaced by L2 in most communication domains, and L2 is thus generally thought to strongly influence the attrition process” (see also Sharwood Smith 1983:229).

Research in bilingualism has led to proposals of specific conditions under which cross-linguistic influence (the process potentially leading to attrition) takes place, and there has been a long discussion about which of these conditions are necessary (e.g. Hulk & Müller 2000; Platzack 2001; Sorace 2011). One of these conditions is that the phenomenon in question must show partial syntactic overlap between the two languages in contact. Specifically, one language has two different constructions to express a certain property, while the other language allows only one of them. The general assumption is then that the property common to both languages will be overused at the expense of the property that is present in one language only. Another condition is that the phenomenon involves the interface between syntax and pragmatics. The relationship between syntactic choices that are delimited by the discourse context has been investigated for decades in language acquisition research, especially based on the null subject parameter (e.g. Sorace 2004). It is by now clear from a large body of research that the syntax-discourse/pragmatics interface conveys difficulties and delays across all learner groups, more than other interfaces, a position

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5. The distinction between eL2 and 2L1 is inspired by recent claims about sensitive periods in bilingual speakers (see Meisel 2011).
which is formally argued for by the Interface Hypothesis (Sorace 2011; Chamorro et al. 2015). Accordingly, bilingualism results in an increased processing burden that differentially affects interfaces. External interfaces are more affected by the managing of more than one linguistic system since the relevant integration of information obtains between one (or more) linguistic sub-module(s) and a system that is not domain-specifically linguistic. Our conception of the locus of syntax-discourse/pragmatics interface follows a proposal of Platzack (2001), who postulated a generalized vulnerability of the C-domain. Subordinate clauses introduced by ku/ka have been associated with the left periphery of the clause (CP), specifically the COMP position (Calabrese 1993: 42). Our study is thus relevant to the generalization that linguistic phenomena at particular interfaces show a major tendency to undergo attrition. A third factor considered by some as a driving force for cross-linguistic influence is language dominance. In other words, the language that speakers use and hear less and in which they are generally less proficient will be affected by language influence (e.g. Kupisch 2014).

Independently of these proposals, though relevant to them, we expect to find that the selection of the complementizers ku and ka exhibits emergent syntactic optionality. Syntactic optionality is defined by Sorace (2000b: 93) as “the coexistence within an individual grammar of two or more variants of a given construction, which: (i) make use of the same lexical resources; (ii) express the same meaning.” In our case, properties of the primary language (here: Italian) might be adopted in the secondary language (here: Gallipolino), leading to an L1-grammar that diverges from the native norms of monolingual speakers. For the present study we expect that post-puberty migrant speakers of Gallipolino will not judge sentences in Gallipolino in the same way as speakers of Gallipolino who have never left Gallipoli. If this expectation is borne out, this could be taken as evidence that these speakers’ grammars have been influenced, and possibly changed, under the influence of standard Italian, which has become their primary language.

6. In our understanding, Sorace’s view is slightly different from this, as it takes the syntax/pragmatics interface to be external to syntax (see White 2011 for discussion).

7. Other interfaces may be involved as well. According to Calabrese (1993), ku is both an inflectional affix attached to the verbal head and a complementizer base-generated (like ka) in COMP (1993: 42). He explains the absence of infinitival clauses in Salentino by assuming that this variety lacks the feature [+ anaphoric] in AGR. Following these ideas, there are good reasons to assume that complementation in Salentino represents a multiple interface also involving interaction with semantics. Our experiment, however, will be geared towards testing use of the left periphery of the clause, that is, we will not test knowledge of complement sentences with respect to the matrix verb.
The paper is structured as follows: Section 2 introduces the complementation system in Gallipolino. Section 3 presents the experiment with post-puberty migrants from Gallipoli. Section 4 presents the results. We discuss the results and conclude with Section 5.

2. The double complementation system in Gallipolino

The restricted occurrence of the infinitive is a characteristic feature of Gallipolino and all other dialects of the Salento peninsula below the Taranto-Ostuni isogloss (Rohlfs 1969, 1972; Calabrese 1993; Ledgeway 2000, 2003, 2005, 2006, 2010, 2011; Simone 2002). In cases where standard Italian matrix predicates select an infinitival clause, Gallipolino makes use of finite constructions introduced by two different complementizers: $ka$ and $ku$.

(1) a. 'U Mimìnu dice $ka$ stae bbonu. [Gall.]
   Det Mimìnu says $ka$ stays fine

b. Cosimino dice di stare bene. [It.]
   Cosimino says prep stay-$\text{inf}$ well
   Cosimino, says that he, is fine.

(2) a. 'U Mimìnu ole $ku$ stae/stescia bbonu. [Gall.]
   Det Mimìnu wants $ku$ stay-$\text{ind/sbjv}$-3sg fine

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8. This line (geographically known as the ‘Messapic threshold’) draws the linguistic boundary between Apulian dialects, that belong to the group of Intermediate Southern dialects, and Salentine dialects, that belong to the group of Extreme Southern dialects (Rohlfs 1937; Pellegrini 1975).

9. The Gallipolino data presented in the background section of the present paper were collected in a previous study (Colonna Dahlman 2011) based on the grammaticality judgments of 12 native speakers of Gallipolino (average age: 65 years). The following abbreviations are used in this paper: [Gall.] = Gallipolino; [It.] = Standard Italian; [Eng.] = English; det = Determiner; prep = Preposition; inf = Infinitive; ind = Indicative; sbjv = Subjunctive; 1, 2, 3sg = First, Second, Third Person Singular; aux = Auxiliary; poss = Possessive; refl = Reflexive; pros = Present tense; pst = Past tense; ptcp = Participle; dat = Dative; neg = Negation; ger = Gerund; imp = Imperative.

10. Some informants preferred the use of the Subjunctive mood, although they do not consider it to be obligatory. The complementizer $ku$ can select both the Subjunctive and the Indicative mood, and the choice of mood does not have any effect on the semantics of the clause. Our sentences were constructed with the Subjunctive after $ku$ (if existing in the verbal inflection), but we would have expected no relevant differences had we used Indicative instead. In the following examples, the respective forms are glossed as third person singular (x-3sg) without specification of mood. On the Subjunctive mood in Salentine dialects, see Bertocci & Damonte (2007).
b. Cosimino vuole stare bene. [It.]
Cosimino wants stay-INF well
Cosimino wants to be fine

It has been previously argued that the distribution of the two complementizers in Gal-
lipolino mostly depends on the semantics of the matrix verb (Rohlfs 1969; Ledgeway
2003; Colonna Dahlman 2011). The ka-clause occurs as a complement of verbs (and
nouns) denoting belief, claim, etc. (so-called declarative verbs) (3a-b):

(3) a. 'U Pici se crite ka mangia ciacore e
   det Pici refl believes ka eats chicory and
   'mbece staci mangia rape.
   instead aux.ci eats turnip
   Luigi, thinks that he_\textsubscript{i} is eating chicory, but he_\textsubscript{i} is eating turnip.

b. 'U Mimino tice ka stae fiaccu.
   det Mimino says ka stays bad
   Cosimino_\textsubscript{i} says that he_\textsubscript{i} is not fine.

The ku-clause occurs as a complement of verbs that denote will, pleasure, ordering,
request, hope and fear (4a–g) (so called desiderative verbs) and of verbs that denote an
ability (5a–b):

(4) a. 'A Cia ole ku bbascia alla chiazza.
   det Cia wants ku go-3SG-PRS to.the market
   Lucia wants to go to the market.

b. 'A Cia 'nd' ave ciarcatu a mmaritusa ku
   det Cia dat-him aux ask-pst-pctp to husband-poss ku
   'nde puli\textsubscript{3}a lu pesce.
   dat-her clean-3SG the fish
   Lucia asked her husband to clean the fish.

c. Iddhu nu' ttania filu spilu ku ppuli\textsubscript{3}a lu pesce.
   he neg have-pst at.all desire ku clean-3SG-PRS the fish
   He really did not want to clean the fish.

d. Alla Maria 'nde piace ku scioca cu
   to.the Maria dat-her likes ku play-3SG-PRS with
   lle cumpagne.
   the friends
   Maria likes to play with her friends.

11. The ku-construction also occurs as a complement to aspectual verbs (start/stop/keep
   (doing something)) and to causative verbs (make/let (someone to do something)). However, in
   these cases, it is possible to use the infinitive as well.
e. Allu Giuva’ ‘nde dispiace ku bbinda la casa  
   to.the Giuva’ DAT-him dislikes ku sell-3SG-PRS the house 
   a ccampagna.  
   in countryside 
   Giovanni regrets selling his house in the countryside.

f. Speru ku bbegnu krai.  
   hope-1SG-PRS ku come-1SG-PRS tomorrow 
   I hope to come tomorrow.

g. ‘A vagnuna time ku essa.  
   the girl fears ku go.out-3SG-PRS 
   The girl is afraid of going out.

(5) a. ‘U Cosi sape ku ppuliʒʒ a lu pesce.  
   det Cosi is.able ku clean-3SG-PRS the fish 
   Cosimo is able to clean fish.

b. ‘U Cosi ave ‘mparatu lu Pici ku puliʒʒ a  
   det Cosi aux teach-PST-PTCP the Pici ku clean-3SG-PRS 
   lu pesce.  
   the fish 
   Cosimo has taught Luigi to clean fish.

There is a crucial difference between *ka-* and *ku-*constructions in Gallipolino. This 
difference becomes evident when Gallipolino is compared to Italian: *ka-*constructions 
in Gallipolino can correspond to finite constructions in standard Italian introduced by 
the complementizer *che* ‘that’ (cf. (6a) and (6b)). However, unlike Gallipolino, stan-
dard Italian allows the infinitival construction as well, as in (6c):\(^\text{12}\)

(6) a. ‘U Miminu tice ka vae alla chiazza.  
   det Miminu says ka goes to.the market 
   b. Cosimino dice che va al mercato.  
   Cosimino says che goes to.the market 
   c. Cosimino dice di andare al mercato.  
   Cosimino says PREP go-INF to.the market
   *Cosimino, says that he, goes to the market.*

\(^{12}\) The option in (6b) is ambiguous between a co-referential reading (the subject says that 
he goes to the market himself) and a non-coreferential reading (the subject says that someone 
else goes to the market). This ambiguity may explain why (6c) is preferred. A counterargu-
ment to this analysis, however, is that (6c) is also ambiguous between ‘Cosimino, dice di PRO\(_i\) 
andare al mercato’ (‘Cosimino, says that he\(_i\) goes to the market’) and ‘Cosimino, dice di PRO\(_i\) 
andare al mercato’ (‘Cosimino says (to someone else) to go to the market’).
Ku-constructions in Gallipolino also have finite counterparts in standard Italian, but only in cases where the subject of the main clause and the subject of the subordinate clause are not co-referential, as illustrated in (7):

(7) a. Cosimino vuole che Lucia vada al mercato. [It.]
   Cosimino wants che Lucia go-3SGPRS to.the market
b. 'U Miminu ole la Cia ku bbascia alla chiazza. [Gall.]
   DET Miminu wants the Cia ku go-3SGPRS to.the market
   Cosimo wants Lucia to go to the market.

In cases where the subject of the main clause and the subject of the subordinate clause are co-referential, Gallipolino requires finite complement clauses, while Italian disallows them, requiring an infinitival clause instead, as shown in (8):

(8) a. *Cosimo vuole che pro vada al mercato. [It.]
   Cosimo wants che go-3SGPRS to. the market
b. 'U Miminu ole ku pro bbascia alla chiazza. [Gall.]
   DET Miminu wants ku go-3SGPRS to.the market
   Cosimo wants to go to the market.

The difference between standard Italian (primary L1/eL2) grammar and Gallipolino (secondary L1) grammar with respect to the complementation system is summarized in Figures 1 and 2. Information on co-referentiality is lacking in Figure 2, representing Gallipolino, since co-referentiality does not determine the type of clause in this variety.

![Figure 1. Complementation system in standard Italian](image1.png)

![Figure 2. Complementation system in Gallipolino](image2.png)

As Figure 1 and Figure 2 show, from the perspective of syntactic structure, the two systems overlap partially. Standard Italian allows finite and non-finite constructions, while Gallipolino allows only finite constructions. Under that perspective, not Gallipolino but Standard Italian should be subject to cross-linguistic influence.
3. Study on ku- and ka-constructions in migrant speakers of Gallipolino

3.1 Stimuli

We created a grammaticality judgment task with 40 sentences. The sentences were kept grammatically simple in order to avoid problems of cognitive control (see Schmid 2011:65). Moreover, we included expressions (mostly culinary words) that refer to the everyday-life of a fishing town like Gallipoli as well as to Gallipolean traditions. 20 sentences targeted participants’ knowledge of ku-constructions. Of these sentences, 10 were grammatical, containing finite complement clauses (see 9a) and 10 were ungrammatical, containing infinitives instead of finite verbs (see 9b). The ungrammatical constructions are literal translations from Italian. Importantly, the infinitival forms used here are possible in Gallipolino, as infinitival forms do exist in all dialects from Salento (Calabrese 1993:29), but they are ungrammatical in the constructions in which they were presented.

(9) a. ‘A Cia ole ku bbascia alla chiazza.
   det Cia wants ku go-3SG-PRS to.the market
   Lucia wants to go to the market.

   b. *’U Miminu nu’ mbole scire a Cutrufianu.
      det Miminu neg wants go-INF to Cutrufianu
      Cosimo does not want to go to Cutrofiano.13

These sentences were constructed with 5 different verb types in the main clause, including (i) verbs expressing will (9), (dis)pleasure (10), request (11), fear (12) or ability (13).

(10) a. Alla Maria ’nde piace ku scioca cu
    to.the Maria DAT-her likes ku play-3SG-PRS with
    lle cumpagne.
    the friends
    Maria likes to play with her friends.

    b. *Alla Cia ’nde piace fumare.
       to.the Cia DAT-her likes smoke-INF
       Lucia likes to smoke.

(11) a. ’A Cia ’nd’ ave ciarcatu a mmaritusa ku
    det Cia DAT-him AUX ask-PST-PTCP to husband-POSs ku
    ’nde puliʒʒa lu pesce.
    det-her clean-3SG-PRS the fish
    Lucia asked her husband to clean the fish.

13. Cutrofiano (LECCE) is a small town in Salento.
b. *Percé sta’ ‘nde tici te ccattare
    why AUX DAT-him tell-2SG-PRS PREP buy-INF
    ‘ddhu purpu?
    that octopus

Why are you telling him to buy that octopus?

(12) a. 'U Totò time ku ccascia intr’all’ acqua.
    det Totò fears ku fall-3SG-PRS into.to the water
    Salvatore is afraid to splash into the water.

b. *Fijama nu’ ttime te ssire te sula.
    daugther-POSS NEG fears PREP go.out-INF PREP alone
    My daughter is not afraid to go out alone.

(13) a. 'U Giuva’ nu’ ssape ku nnata.
    det Giuva’ NEG is.able ku swim-3SG-PRS
    Giovanni is not able to swim.

b. *'Fijuma sape ballare ’a pizzaca.
    son-POSS is.able dance-INF the pizzaca
    My son is able to dance ‘pizzica’.  

Another 10 items contained sentences with the complementizer ka. These sentences control whether speakers of Gallipolino have problems with complementizer constructions in contexts where Italian and Gallipolino pattern alike, that is, instances where both languages allow finite constructions. Again, half of the sentences were grammatical and contained finite verbs (see 14a), and half were ungrammatical and contained infinitival forms (see 14b). In the case of grammatical ka-sentences, Gallipolino and standard Italian pattern alike, as Italian also allows finite constructions here (see (14a) and (15a)), although Italian also allows infinitival complement clauses (15b).

(14) a. 'U Pici se crite ka mangia ciacore e ’mbecce staci mangia rape.  
    det Pici REFL believes ka eats chicory and instead aux.ci eats turnip

    Luigi, thinks that he, is eating chicory, but he is eating turnip instead.

b. *'U 'Ntoni tice te stare bbonu, e ’mbecce stae tuttu rruvinatu.
    det ’Ntoni says PREP stay-INF good and instead stays all messed.up

    Antonio, claims that he, is fine, but he is totally messed up.

14. “Pizzica” is a traditional Salentine dance.
(15) a. Luigi pensa che stia mangiando cicorie, ma non è vero. [It.]
Luigi thinks that he is eating chicory but that is not true.

b. Luigi pensa di mangiare cicorie, ma non è vero
Luigi thinks that he is eating chicory, but that is not true.

There were 10 additional items, five grammatical (e.g. 16a) and five ungrammatical, testing a variety of constructions, including auxiliary selection and morphological errors, as illustrated in (16b–d, with the potentially problematic aspects given in bold print). These were intended as fillers to distract the participants’ attention from the complementizer constructions, but they are also indicators of the relative difficulty of ku and ka-constructions compared to other phenomena thus reflecting the speakers’ overall proficiency in Gallipolino.

(16) a. Famme 'nna beddha pitta te patate!
Please, make a "pitta di patate" for me!15

b. *Li turisti mangene bbene a Caddhipuli.
The tourists eat well in Gallipoli.

c. *Lu trenu è partuta tardu.
The train left with some delay.

d. *'U 'Ntoni ave sciutu alla chiazza te lu pesce.
Antonio went to the fish market.

3.2 Participants

14 post-puberty migrant speakers of Gallipolino participated in the experiment, aged between 60 and 85 years (average age: 76 years), and a control group of 6 native speakers of Gallipolino who have never left Gallipoli to live somewhere else (age range 53 to 80; average age: 67 years). The experiment was carried out in Gallipoli, where the migrant participants were spending their summer vacation.

Prior to the test, all participants filled out a biographical questionnaire with background questions, including (i) how much time they spent in Gallipoli before taking part in the experiment, (ii) whether they speak Gallipolino when they are back in Gallipoli, (iii) whether during their childhood they used exclusively Gallipolino at

15. *Pitta di patate is a traditional Salentine dish.
home or Gallipolino and Italian, (iv) whether they stopped using Gallipolino when moving to Northern Italy.

With respect to (i), the participants had spent between 6 days and three months in Gallipoli before taking part in the test. As for (ii), only 2 reported that they did not use Gallipolino when back in Gallipoli, 1 reported to use it sometimes and all others used mostly dialect in Gallipoli. In terms of exposure during childhood (iii), 5 participants spoke both Gallipolino and standard Italian at home (simultaneous bilectals, 2L1s), while 9 spoke only Gallipolino at home and then acquired standard Italian successively as early L2 (sequential bilectals, eL2s). As for the sequential bilinguals, it is impossible to reconstruct the exact amount of standard Italian they had been exposed to during their early childhood. However, the situation of Gallipolino during those times was very different from that of ‘heritage languages’ in today’s sense (see Rothman 2009: 156). In other words, Gallipolino was not a minority language within a majority language environment. Even though standard Italian had already been the official language of the larger national society in those years (between the 30s and the 40s), Gallipolino was the predominant language in Gallipoli. In this sense, it is very plausible to assume that our participants did not have a lot of exposure to standard Italian in their early childhood and acquired it only successively (mostly at school) as an early L2.

Regarding continued use of Gallipolino (iv), 4 participants had stopped speaking Gallipolino after moving to Northern Italy (passive bilectals), while 10 did not stop speaking Gallipolino (active bilectals) when living in Northern Italy.

The following table summarizes the information about the participant groups, divided by type of childhood exposure.

<table>
<thead>
<tr>
<th>Table 1. Participants</th>
<th>Simultaneous bilectals (2L1s)</th>
<th>Sequential bilectals (eL2s)</th>
<th>Control group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>5</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>Age, mean (range)</td>
<td>73,6 (range 60–84)</td>
<td>77,4 (range 65–85)</td>
<td>67 (range 53–80)</td>
</tr>
<tr>
<td>No. of active bilectals</td>
<td>3</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>No. of speakers using Gallipolino when being in Gallipoli</td>
<td>4</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Days spent in Gallipoli before testing</td>
<td>29,8 (range 12–89)</td>
<td>18,5 (range 6–53)</td>
<td>–</td>
</tr>
</tbody>
</table>

16. This distinction also occurs in the control group, where 4 participants can be categorized as sequential bilectals and 2 as simultaneous bilectals.
3.3 Procedure

The grammaticality judgment task was presented by means of PowerPoint, with one test sentence on each slide. The stimuli were previously recorded by a native speaker of Gallipolino, inserted randomly into the PowerPoint presentation and presented to the participants orally and written. The participants were asked to listen to the recorded sentences, one by one, and to repeat them as they have heard them, if they thought the sentences sounded correct in Gallipolino and/or to correct them, by proposing their own version instead of what they had heard, if the sentences sounded wrong or unnatural. The responses were recorded.

4. Results

4.1 Results for grammatical and ungrammatical sentences

For the analysis, grammatical and ungrammatical sentences were considered separately. Only relevant corrections were taken into consideration. Irrelevant corrections were treated as if no correction had been made. For instance, some participants pointed out that the form patite ‘potatoes’ and fanescia ‘window’ are more dialectal than patate and finestra. Cases where participants accepted grammatical sentences by simply saying ‘Yes, it’s correct’ without repeating them were counted as appropriate responses. We did not force them to follow our instructions because we wanted them to feel comfortable with the task.

The analysis of the 20 grammatical sentences indicated that these were repeated 99% of the time and thus can be said to be accepted by the participants as they were. Crucially, correct sentences with ku were never replaced by infinitival constructions, although the corresponding constructions in Italian are formed with an infinitive. Similarly, grammatical ka-sentences and the 5 items containing other dialect-specific features were consistently accepted. Since grammatical sentences did not yield any differences across item-types, we will not consider them any further.

The results for ungrammatical sentences are shown in Table 2. The percentage shows the number of times a relevant correction has been made. There is a clear contrast between the migrants and the controls in all three conditions (condition “ungrammatical ku-sentences”: t = −4.78, df = 14.57, p-value = 0.0002624; condition “ungrammatical ka-sentences”: t = −5.55, df = 13, p-value = 9.367e-05; condition “ungrammatical distractors”: t = −2.57, df = 17.86, p-value = 0.01). Given ceiling performance of the controls, we will focus on the results for the migrant groups now.

When judging ungrammatical sentences, the 14 migrant participants perform similarly with respect to ku-sentences and ka-sentences. They are comparatively
more successful when correcting ungrammatical distractors, indicating that they are generally aware of the grammatical properties of Gallipolino.\textsuperscript{17}

4.2 Sequential bilectals vs. simultaneous bilectals

We next divided the migrant group into sequential bilectals and simultaneous bilectals. As shown by the comparison in Table 3, sequential bilectals are more accurate than simultaneous bilectals.\textsuperscript{18} However, the comparison does not yield significance (condition “ungrammatical \textit{ku}-sentences”: $t = 1.84$, $df = 10.49$, $p$-value = 0.09; condition “ungrammatical \textit{ka}-sentences”: $t = 1.75$, $df = 7.93$, $p$-value = 0.11; condition “ungrammatical distractors”: $t = 1.93$, $df = 4.97$, $p$-value = 0.11”).

Table 3. Sequential bilectals vs. Simultaneous bilectals: Corrections (in absolute numbers and %) with ungrammatical sentences

<table>
<thead>
<tr>
<th></th>
<th>\textit{ku}-sentences (n = 10)</th>
<th>\textit{ka}-sentences (n = 5)</th>
<th>distractors (n = 5)</th>
<th>overall (n = 20)</th>
</tr>
</thead>
<tbody>
<tr>
<td>migrants</td>
<td>5.5/10 (55%)</td>
<td>2.7/5 (54%)</td>
<td>4.1/5 (82%)</td>
<td>12.3/20 (61.5%)</td>
</tr>
<tr>
<td>controls</td>
<td>9.6/10 (96%)</td>
<td>5/5 (100%)</td>
<td>4.8/5 (96%)</td>
<td>19.5/20 (97.5%)</td>
</tr>
</tbody>
</table>

4.3 Passive bilectals vs. active bilectals

We finally compared passive and active bilectals, namely migrants who had stopped using Gallipolino after moving to Northern Italy and migrants who continued to use the variety. As shown in Table 4, passive bilectals exhibit a slightly higher proficiency than

\textsuperscript{17} For individual results, see Table 5 in the Appendix.

\textsuperscript{18} For individual results, see Tables 6 and 7 in the Appendix.
active bilectals, but the difference is not statistically significant (condition “ungrammatical ku-sentences”: t = -0.36, df = 7.94, p-value = 0.72; condition “ungrammatical ka-sentences”: t = -0.06, df = 10.34, p-value = 0.94; condition “ungrammatical distractors”: t = -1.40, df = 9.76, p-value = 0.19).  

Table 4. Passive bilectals vs. Active bilectals: Number of corrections (in absolute numbers and %) with ungrammatical sentences

<table>
<thead>
<tr>
<th></th>
<th>ku-sentences (n = 10)</th>
<th>ka-sentences (n = 5)</th>
<th>distractors (n = 5)</th>
<th>overall (n = 20)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passive (n = 4)</td>
<td>5.75/10 (57.5%)</td>
<td>2.75/5 (55%)</td>
<td>4.5/5 (90%)</td>
<td>13/20 (65%)</td>
</tr>
<tr>
<td>Active (n = 10)</td>
<td>5.4/10 (54%)</td>
<td>2.7/5 (54%)</td>
<td>4/5 (80%)</td>
<td>12.1/20 (60.5%)</td>
</tr>
</tbody>
</table>

5. Discussion and conclusions

In summary, the migrant bilectals’ performance was significantly different to that of the non-migrant controls with respect to ku- and ka-clauses. Moreover, they did not show any differences in performance between the two types of sentential complementation, that is, ku- and ka-clauses, although the former pattern differently from Italian complement clauses, while the latter have equivalent Italian constructions.

There was a visible difference between simultaneous bilectals and sequential bilectals, but the comparison did not yield significance, possibly due to the relatively small number of participants in each group. Despite being non-significant, the comparison appears to indicate that it makes a difference whether standard Italian was acquired as a 2L1 or as an early L2, which would be in line with recent claims in research on heritage bilinguals, according to which simultaneous bilinguals are more at risk than subsequent bilinguals since they have been in contact with the dominant majority language for the longest possible time (Montrul 2008).

No noticeable difference was found between passive and active bilectals, which seems to suggest that it makes no difference whether Gallipolino is actively used or not. This result might call into question the Activation Threshold Hypothesis (Paradis 2004), which postulates a relation between the frequency of a linguistic item/structure and its activation and cognitive availability to the language user. According to this hypothesis, the acquisition of a linguistic item/structure is facilitated by its frequency in the input.

19. For individual results, see Tables 8 and 9 in the Appendix.

20. Cognola and Bidese (this volume) show this for the heritage context of the Fersina valley, where Mòcheno is spoken along with Trentino and Regional Italian.
hypothesis, the more an item/structure is activated, the lower is its activation threshold. The threshold of activation rises if the item/structure is inactive (i.e. disused). With respect to bilingual environments, the assumption is that when one language is selected, the other language (its competitor) is simultaneously inhibited, that is the activation threshold of the unselected language is raised. Thus, language attrition is considered to be a result of insufficient language use (see Köpke 2007; Gürel 2004, 2007). According to this model, passive bilectals should be disadvantaged, contrary to what we found.

At the beginning of this paper, we raised the possibility that our migrant speakers of Gallipolino might be subject to attrition, meaning that they might exhibit loss of certain syntactic/semantic properties of Gallipolino. We have indeed shown that they allow for more variability compared to non-migrant speakers of Gallipolino, allowing for two alternative ways of constructing complement clauses in Gallipolino, with finite verbs and infinitives. At the same time, the results do not appear to support the conclusion that the constructions are “lost”, because migrant speakers accept ka- and ku-sentences when these occur in grammatical sentences. Admittedly, we do not know whether this optionality has always existed in their grammars or whether it developed under intensive exposure and use of standard Italian only after these speakers had left Gallipoli. Comparison with non-migrant speakers suggests the latter, but we could only be sure if we had collected longitudinal data.

As for theories on the occurrence of cross-linguistic influence, our results indicate that language dominance is a crucial factor because Standard Italian had become our speakers’ primary language and it influences their Gallipolino. The interface condition, too, appears to play a role, as the phenomenon we investigated can be associated with the syntax-pragmatics interface. The overlap condition, argued for e.g. by Hulk and Müller (2000), would have predicted that Italian but not Gallipolino is subject to cross-linguistic influence because Italian has two possible ways of expressing complementation, of which only one is shared in Gallipolino. We did not investigate the speakers’ Italian, but our results show that a system with only one syntactic option can be vulnerable too, contrary to what the overlap condition would predict.21

Finally, as we outlined above, using the complementizers ka/ku requires taking into account the type of verb and co-reference. In this respect, the complementation system of Gallipolino might be seen as a multiple interface that also involves lexical

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21. This does not invalidate Hulk & Müller’s claims because they were formulated with respect to developing bilinguals, while we investigated bilectal adults and it may well be that the two types of populations are subject to different mechanisms (see also Kupisch 2014 for differences between child and adult bilinguals).
information and sentence semantics. In our experiment, we have not manipulated choice of verbs (e.g. whether \(ka\) is accepted with complement of verbs that denote will, pleasure, etc. which normally require \(ku\)-clauses as complements) or co-reference relations. Co-reference relations should not result in optionality in Gallipolino, where finite clauses occur independently of co-reference relations, but they may be vulnerable in Italian when Italian is in contact with Gallipolino, because in Italian whether or not a finite verb can be used depends on co-reference relations between the subjects of the main clause and the subordinate clause. Follow-up research could therefore focus on (i) comparative vulnerability of Italian and Gallipolino when they are in contact and (ii) comparative vulnerability of lexical vs. syntax-pragmatic properties in the complementation systems of these two varieties.

Acknowledgments

We wish to express our gratitude to our participants for taking part in this study and for their hospitality; Antonio Ardito for his enthusiasm and help in finding participants (grazie, zio Tonio!); Laura Cortese for recording the Gallipolean stimuli; Fernando Stefani for providing rooms at the Ristorante “La terrazza” at Lido S. Giovanni in Gallipoli when running the experiment; Anna Lia Proietti Erguen and Joost van de Weijer for comments and help with the statistics; Dianne Jonas for very useful editing comments; the audiences of the SILL (Seminario Italiano di Linguistica e Letteratura) and the Language Acquisition Seminar at Lund University; the audiences of the IGG40 (Italian Generative Grammar Meeting 2014 in Trento) and the GSCP International Conference “Parlare le Lingue Romanze” (Stockholm and Uppsala Universities in April 2014). Many thanks to Stefan Lindgren and Lukas Gödke for their help when preparing the experiment. The first author acknowledges funding by the “Emanuel Walbergs resesppendiefond” supporting participation at IGG40 in Trento. Finally, our sincere gratitude goes to two anonymous reviewers for their very useful comments.

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**Appendix**

The following Tables summarize the individual results for the migrant participants with respect to ungrammatical sentences. They show that deviant judgments were produced by all speakers except one (M12).

**Table 5. Individual results for Migrant participants’ (in absolute numbers and % of appropriate corrections) with ungrammatical sentences**

<table>
<thead>
<tr>
<th>Migrants</th>
<th>Ungrammatical <em>ku</em>-sentences (n = 10)</th>
<th>Ungrammatical <em>ka</em>-sentences (n = 5)</th>
<th>Ungrammatical distractors (n = 5)</th>
<th>Overall (n = 20)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1</td>
<td>5 (50%)</td>
<td>4 (80%)</td>
<td>3 (60%)</td>
<td>12 (60%)</td>
</tr>
<tr>
<td>M2</td>
<td>3 (30%)</td>
<td>2 (40%)</td>
<td>4 (80%)</td>
<td>9 (45%)</td>
</tr>
<tr>
<td>M3</td>
<td>1 (10%)</td>
<td>1 (20%)</td>
<td>2 (40%)</td>
<td>4 (20%)</td>
</tr>
<tr>
<td>M4</td>
<td>2 (20%)</td>
<td>0 (0%)</td>
<td>4 (80%)</td>
<td>6 (30%)</td>
</tr>
<tr>
<td>M5</td>
<td>4 (40%)</td>
<td>2 (40%)</td>
<td>4 (80%)</td>
<td>10 (50%)</td>
</tr>
<tr>
<td>M6</td>
<td>9 (90%)</td>
<td>4 (80%)</td>
<td>5 (100%)</td>
<td>18 (90%)</td>
</tr>
<tr>
<td>M7</td>
<td>7 (70%)</td>
<td>3 (60%)</td>
<td>4 (80%)</td>
<td>14 (70%)</td>
</tr>
<tr>
<td>M8</td>
<td>1 (10%)</td>
<td>1 (20%)</td>
<td>4 (80%)</td>
<td>6 (30%)</td>
</tr>
<tr>
<td>M9</td>
<td>8 (80%)</td>
<td>5 (100%)</td>
<td>4 (80%)</td>
<td>17 (85%)</td>
</tr>
<tr>
<td>M10</td>
<td>3 (30%)</td>
<td>3 (60%)</td>
<td>4 (80%)</td>
<td>10 (50%)</td>
</tr>
<tr>
<td>M11</td>
<td>7 (70%)</td>
<td>2 (40%)</td>
<td>5 (100%)</td>
<td>14 (70%)</td>
</tr>
<tr>
<td>M12</td>
<td>10 (100%)</td>
<td>5 (100%)</td>
<td>5 (100%)</td>
<td>20 (100%)</td>
</tr>
<tr>
<td>M13</td>
<td>9 (90%)</td>
<td>4 (80%)</td>
<td>5 (100%)</td>
<td>18 (90%)</td>
</tr>
<tr>
<td>M14</td>
<td>8 (80%)</td>
<td>2 (40%)</td>
<td>5 (100%)</td>
<td>15 (75%)</td>
</tr>
</tbody>
</table>
Table 6. Individual results for Sequential bilectals (in absolute numbers and %) with ungrammatical sentences

<table>
<thead>
<tr>
<th>Sequential bilectals</th>
<th>Ungrammatical ku-sentences (n = 10)</th>
<th>Ungrammatical ka-sentences (n = 5)</th>
<th>Ungrammatical distractors (n = 5)</th>
<th>Overall (n=20)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M2</td>
<td>3 (30%)</td>
<td>2 (40%)</td>
<td>4 (80%)</td>
<td>9 (45%)</td>
</tr>
<tr>
<td>M6</td>
<td>9 (90%)</td>
<td>4 (80%)</td>
<td>5 (100%)</td>
<td>18 (90%)</td>
</tr>
<tr>
<td>M7</td>
<td>7 (70%)</td>
<td>3 (60%)</td>
<td>4 (80%)</td>
<td>14 (70%)</td>
</tr>
<tr>
<td>M8</td>
<td>1 (10%)</td>
<td>1 (20%)</td>
<td>4 (80%)</td>
<td>6 (30%)</td>
</tr>
<tr>
<td>M9</td>
<td>8 (80%)</td>
<td>5 (100%)</td>
<td>4 (80%)</td>
<td>17 (85%)</td>
</tr>
<tr>
<td>M10</td>
<td>3 (30%)</td>
<td>3 (60%)</td>
<td>4 (80%)</td>
<td>10 (50%)</td>
</tr>
<tr>
<td>M12</td>
<td>10 (100%)</td>
<td>5 (100%)</td>
<td>5 (100%)</td>
<td>20 (100%)</td>
</tr>
<tr>
<td>M13</td>
<td>9 (90%)</td>
<td>4 (80%)</td>
<td>5 (100%)</td>
<td>18 (90%)</td>
</tr>
<tr>
<td>M14</td>
<td>8 (80%)</td>
<td>2 (40%)</td>
<td>5 (100%)</td>
<td>15 (75%)</td>
</tr>
</tbody>
</table>

Table 7. Individual results for Simultaneous bilectals (in absolute numbers and %) with ungrammatical sentences

<table>
<thead>
<tr>
<th>Simultaneous bilectals</th>
<th>Ungrammatical ku-sentences (n = 10)</th>
<th>Ungrammatical ka-sentences (n = 5)</th>
<th>Ungrammatical distractors (n = 5)</th>
<th>Overall (n = 20)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1</td>
<td>5 (50%)</td>
<td>4 (80%)</td>
<td>3 (60%)</td>
<td>12 (60%)</td>
</tr>
<tr>
<td>M3</td>
<td>1 (10%)</td>
<td>1 (20%)</td>
<td>2 (40%)</td>
<td>4 (20%)</td>
</tr>
<tr>
<td>M4</td>
<td>2 (20%)</td>
<td>0 (0%)</td>
<td>4 (80%)</td>
<td>6 (30%)</td>
</tr>
<tr>
<td>M5</td>
<td>4 (40%)</td>
<td>2 (40%)</td>
<td>4 (80%)</td>
<td>10 (50%)</td>
</tr>
<tr>
<td>M11</td>
<td>7 (70%)</td>
<td>2 (40%)</td>
<td>5 (100%)</td>
<td>14 (70%)</td>
</tr>
</tbody>
</table>

Table 8. Individual results for Passive bilectals (in absolute numbers and %) with ungrammatical sentences

<table>
<thead>
<tr>
<th>Passive bilectals</th>
<th>Ungrammatical ku-sentences (n = 10)</th>
<th>Ungrammatical ka-sentences (n = 5)</th>
<th>Ungrammatical distractors (n = 5)</th>
<th>Overall (n = 20)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1</td>
<td>5 (50%)</td>
<td>4 (80%)</td>
<td>3 (60%)</td>
<td>12 (60%)</td>
</tr>
<tr>
<td>M5</td>
<td>4 (40%)</td>
<td>2 (40%)</td>
<td>4 (80%)</td>
<td>10 (50%)</td>
</tr>
<tr>
<td>M6</td>
<td>9 (90%)</td>
<td>4 (80%)</td>
<td>5 (100%)</td>
<td>18 (90%)</td>
</tr>
<tr>
<td>M11</td>
<td>7 (70%)</td>
<td>2 (40%)</td>
<td>5 (100%)</td>
<td>14 (70%)</td>
</tr>
</tbody>
</table>
Table 9. Individual results for Active bilectals (in absolute numbers and %) with ungrammatical sentences

<table>
<thead>
<tr>
<th>Active bilectals</th>
<th>Ungrammatical <em>ku</em>-sentences (n = 10)</th>
<th>Ungrammatical <em>ka</em>-sentences (n = 5)</th>
<th>Ungrammatical distractors (n = 5)</th>
<th>Overall (n = 20)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M2</td>
<td>3 (30%)</td>
<td>2 (40%)</td>
<td>4 (80%)</td>
<td>9 (45%)</td>
</tr>
<tr>
<td>M3</td>
<td>1 (10%)</td>
<td>1 (20%)</td>
<td>2 (40%)</td>
<td>4 (20%)</td>
</tr>
<tr>
<td>M4</td>
<td>2 (20%)</td>
<td>0 (0%)</td>
<td>4 (80%)</td>
<td>6 (30%)</td>
</tr>
<tr>
<td>M7</td>
<td>7 (70%)</td>
<td>3 (60%)</td>
<td>4 (80%)</td>
<td>14 (70%)</td>
</tr>
<tr>
<td>M8</td>
<td>1 (10%)</td>
<td>1 (20%)</td>
<td>4 (80%)</td>
<td>6 (30%)</td>
</tr>
<tr>
<td>M9</td>
<td>8 (80%)</td>
<td>5 (100%)</td>
<td>4 (80%)</td>
<td>17 (85%)</td>
</tr>
<tr>
<td>M10</td>
<td>3 (30%)</td>
<td>3 (60%)</td>
<td>4 (80%)</td>
<td>10 (50%)</td>
</tr>
<tr>
<td>M12</td>
<td>10 (100%)</td>
<td>5 (100%)</td>
<td>5 (100%)</td>
<td>20 (100%)</td>
</tr>
<tr>
<td>M13</td>
<td>9 (90%)</td>
<td>4 (80%)</td>
<td>5 (100%)</td>
<td>18 (90%)</td>
</tr>
<tr>
<td>M14</td>
<td>8 (80%)</td>
<td>2 (40%)</td>
<td>5 (100%)</td>
<td>15 (75%)</td>
</tr>
</tbody>
</table>
Little v and cross-linguistic variation
Evidence from code switching and the Surinamese creoles*

Tonjes Veenstra & Luis López
Zentrum für Allgemeine Sprachwissenschaft / University of Illinois at Chicago

The main claim of this paper is that little v is responsible for a range of grammatical properties of the predicate phrase that it selects for. Bilingual light verb constructions in several code-switching varieties provide strong evidence for this claim. It allows us to broaden the empirical scope and deepen the theoretical insights of the Borer-Chomsky Conjecture concerning parametric variation, and provides a new insight into the clause structure of creole languages.

Keywords: little v; roots; cross-linguistic variation; word order; copulas

1. Introduction

This paper is a contribution to the ongoing discussion of the functional spine above the lexical verb (cf. D’Alessandro et al. 2016). Our specific claim is that the little v is to be held responsible for a range of grammatical properties of the predicate phrase that it selects for. We show that (bilingual) light verb constructions in code-switching

* This paper has first been presented at the IGG in Trento. We like to thank to the audience for critical questions, comments and suggestions, in particular Irene Franco, Ian Roberts and Theresa Biberauer. This paper has also greatly benefited from comments by Pieter Muysken, Silvia Kouwenberg, Volker Struckmeyer, Artemis Alexiadou, and Chris Wilder at different presentations (FACS Paris, SPCL Graz, GGS Konstanz, ZAS Berlin) of the material reported on here. We further want to thank two anonymous reviewers for their astute remarks, and the editors for their valuable input. Of course, we are solely to blame for any inaccuracies and inconsistencies still remaining. Financial support for this research came from the Federal Ministry of Education and Research (BMBF) of Germany (grant number 01UG0711), which is hereby gratefully acknowledged.
provide strong evidence for this claim.¹ The example in (1) illustrates the phenomenon we are interested in. In (1) a German verb phrase Bericht schreiben is combined with a light verb yapıyor from Turkish. This gives rise to a structure that is absent in either of the source languages:

(1) **Turkish/German**

\[
\text{Berişt-i şrayb'n yapıyor.} \quad \text{report-acc write do.prog 'He is writing the report.'}
\]

This project thus allows us to broaden the empirical scope and deepen the theoretical insights of the Borer-Chomsky Conjecture (Baker 2008; Adger 2014) concerning parametric variation, according to which all parameters of variation are attributable to differences in the features of the functional heads in the lexicon. In other words, parameters concern the presence and distribution of formal features on such heads, e.g. phi features on v and T. In this we follow González-Vilbazo and López (2011)’s claim that these light verb constructions are a UG-driven solution to merging mismatching features from different languages into one grammatical structure (see Boeschoten & Huybregts 1997, and MacSwan 1999 for earlier formulations). Although their claim is primarily based on one particular case of language mixing (i.e. German/Spanish code-switching), we show in this paper that it holds for a range of different language pairs as well, and it involves grammatical properties that they did not discuss in their work, thereby strengthening the argument. The properties that we will bring into the discussion are (accusative) Case-assigment, passivization, transitivity, stativity, and subcategorization.

In many bilingual communities there are ‘bilingual light verb constructions’, which seem to consist of a lexical verb from language X and a light verb from language Y (Moravcsik 1975, 1978). Muysken (2000: 184) rightly observes that the process of code-mixing, due to its innovative nature, often leads to structural configurations not present in either of the languages in the contact situation. Although there is a rich variety of different bilingual light verb constructions, it seems possible to categorize them in some broadly defined types. Muysken (2000) comes up with the following typology of bilingual verbs, which we take as a starting point of our discussion:

(2) a. the new verb from language X is inserted into a position corresponding to a verb native to language Y, in adapted form or not;

b. the new verb from language X is adjoined to a helping verb from language Y;

---

¹ Code-switching is defined as a change from one language to another in the same utterance or conversation by bilingual speakers. It is a common phenomenon in bilinguals’ speech production. See Grosjean (2008), Bullock & Toribio (2009), and Isurin et al. (2009) for recent overviews.
c. the new verb from language X is a nominalized complement to a causative helping verb from language Y in a compound;
d. the new verb from language X is an infinitive and the complement of an auxiliary from language Y.

The different options are illustrated in (3), respectively:

(3) a. Hakka/Dutch  
    Trudy opnam-dao boen ngai.
    Trudy record-res for 2sg
    ‘Trudy has recorded it for me.’

b. Sarnami/Dutch  
    koffer pak kare
    suitcase pack do
    ‘to pack a suitcase’

c. Portuguese/English  
    fazer o find out
    do det find out
    ‘to find out’

d. Moroccan Arabic/Dutch  
    Ka-ndir-ha elke keer uitstellen.
    1sg-do-3sg every time postpone
    ‘I postpone it every time.’

Leaving aside the first option (2a), which seems to reduce to (insertional) switching or borrowing, the following parameters are involved: (i) parataxis (e.g. modification or adjunction) vs hypotaxis (e.g. selection or complementation); (ii) noun vs verb. The constructions we focus on in this paper consist of what appears to be two verbs (light + lexical) standing in a hypotactic configuration – what is exemplified in (3b).²

The first issue we address is what kind of entity the light verb actually is. We consider three possible hypotheses: the light verb is: (i) a lexical verb; (ii) an inflectional auxiliary; (iii) an instance of little v. The first hypothesis boils down to squaring light verb constructions with serial verb constructions, as in Aboh (2009)’s restructuring analysis of such clause series. There are several problems with such an approach, however. We refer the reader to Seiss (2009), and Veenstra & Muysken (in press) for some of these problems and rebuttal of this sort of approach.

Following the second hypothesis, a light verb from language Y is merged as an auxiliary to host the inflectional morphology from language Y. Although most analyses of this construction so far have assumed that the major role of this light verb is to

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² We leave a full treatment of the other types of bilingual verbs to future research.
carry the inflection (e.g., Moravcsik 1975, 1978), we argue this cannot be the case in general. Evidence against this type of analysis is presented by the simple fact that the light verb can co-occur with an auxiliary that actually carries the inflection. Consider the examples in (4). In (4a) the Bhojpuri light verb co-occurs with the auxiliary hain, which inflects for tense and aspect. Likewise, in (4b) the Spanish verb hecho, acting here as the light verb, is a participle selected by the auxiliary ha, which inflects for tense, aspect, person and number:

(4) a. Bhojpuri/Mauritian Creole (Domingue 1971)
Ham diblee plant karat hain
1sg wheat plant do pres.pr
‘I am planting wheat.’

b. Spanish/German (González-Vilbazo & López 2012)
Ha hecho kaufen ein Buch.
have.3sg do.part buy.inf det book
‘She/he has bought a book.’

The last option is that the light verb is in fact a spell-out of little v, the functional category postulated by Chomsky (1995) to introduce an external argument, assign accusative Case to its complement and delimit a Phase. The little v is situated between the INFL-domain and what is traditionally called the VP. The proposal that the light verb is a spell-out of little v in code switching has been argued for by González-Vilbazo & López (2011, 2012) for their analysis of light verbs in German/Spanish code-switching. This is also the analysis we argue for in this paper.

In recent research, it has been hypothesized that the complement of little v is not a VP but a category-less lexical category, a Root (Arad 2003, 2005, Marantz 1997, 2000). Thus, little v has the function of providing a label to a syntactic structure. In this family of approaches that includes the ‘exo-skeletal research program’ (Borer 2003, 2005a, 2005b, 2014) or the Root Hypothesis (see Alexiadou et al. 2014, Harley 2014 (and commentaries) for recent overviews), it is the little v that determines the category of its sister, and the constituent that is standardly labelled VP is strictly speaking a category-less Root(P) (√(P)) at the outset. Let’s assume this framework of analysis. The resulting structure then boils down to the following:

3. In the remainder of the paper we refer to Root(P) as V(P), as in most cases nothing important hinges on the distinction. In the cases that it does matter, we will use the term Root(P).

4. In current theoretical work, the functions of little v have been distributed among several heads, giving rise to a “field” (Sundaesan & McFadden forthcoming, among others). If this line of research holds, our hypothesis can be adapted accordingly, and state that the light verb spells-out the relevant (part of the) field.
In the code-switching examples shown above, little v spells out as a light verb. The complement may show up as a bare root or may adopt some default (verbal) morphology. Taking the structure in (5) then to be the correct understanding of the bilingual light verb construction, we pursue the hypothesis that little v, as a Phase head, determines the grammatical properties of the Phase, the Root(P).

González-Vilbazo and López (2012) have adduced initial evidence for this hypothesis with respect to word order, prosody, and information structure, in particular the expression of Givenness. In the next section we show that the same effects on word order are also found in a number of typologically different language pairs (Bhojpuri/Mauritian Creole (Domingue 1971); Sranan/Dutch (Bolle 1994); Tamil/English (Annamalai 1971), among others), which strengthens the argument. In addition, we show that the light verb in the bilingual light verb construction is involved in (or sensitive to) grammatical features that have been attributed to little v in minimalist theories, in particular (accusative) Case-assigment, passivization, transitivity, stativity, and subcategorization. The upshot is that in all different language pairs, the light verb displays properties that are attributed to the featural make-up of little v. We argue that this is not a coincidence, but follows from the main hypothesis of this paper.

Furthermore, González-Vilbazo and López (2012:40) explicitly state, ‘[w]e are not aware of any code-switching pairs that do not have a light verb structure, so it might be a universal property of code-switching.’ If we take this to be the case, then the following examples are of particular interest:

(6) Sranan/Dutch (Bolle 1994:74)
   a. Now kawna ben besta altijd.
      now kawna TNS exist always
      ‘Now, kawna has always existed.’
   b. A man e lucht en ati
      DET man ASP air 3sg heart
      ‘The man speaks his mind.’

In these examples we do find code-switching between the INFL and the VP, with the inflectional element taken from Sranan and the VP constituents taken from Dutch. But this switching seems not to be mediated via an overt light verb in the little v position. Even more intriguingly, the order of the elements in the VP is head-initial, as in Sranan, and not head-final (as is Dutch, modulo Verb Second). From our hypothesis, it follows that the little v in these structures should come from Sranan. The question that we want to address in Section 4 is why we do not find an overt light verb in the little v position in the Sranan/Dutch material and how the word order obtains.
2. Evidence of the light verb’s grammatical roles

In this section we show that the light verb in this construction is involved in (or sensitive to) grammatical features that have been attributed to little \( \nu \) in minimalist theories. We focus the discussion on the following five features:

(7) a. (accusative) Case-assigment;
    b. passivization;
    c. transitivity;
    d. stativity
    e. subcategorization

First, Chomsky (1995) explicitly links little \( \nu \) to (accusative) case-assignment of the object of \( V \). In light verb constructions, case-marking of the object depends on the light verb, and not on the lexical verb.

Consider the examples in (8a-b) below. We see that the Dutch nouns \( \text{taal} \) and \( \text{kamer} \) in their direct object function bear morphological accusative case. This case cannot have come from the Dutch verb, which has no morphological case to assign, Dutch being a language virtually without case morphology (except in the pronominal system). So it must have come from the Turkish light verb:

(8) a. Turkish/Dutch (Backus 1996:278)
    \[ \text{bir s"uru t"aal-lar-i beheersen yap-iyor-ken} \]
    INDEF many language-PL-ACC know do-PROG-while
    ‘while he knows many languages.’

b. Turkish/Dutch (Backus 1992)
    \[ \text{ben \textit{kamer-im-i opruimen yap-ar-ken}} \]
    1sg room-1sg-ACC tidy do-AOR-while
    ‘while tidying my room.’

This is not just a particular quirk of the Turkish/Dutch or the Turkish/German material (see example (1) above), as the same pattern has also been documented for Japanese/Brazilian Portuguese mixing. The case affixes borne by the Brazilian nouns \( \text{segunda-feira} \) and \( \text{telegrama} \) are drawn from the grammar of Japanese:

(9) Japanese/Brazilian Portuguese (Kato 2003)
    \[ \text{Segunda-feira-ni telegrama-o manda shimashita.} \]
    monday-on telegram-ACC send do.PST.POL
    ‘He/she sent the telegram on Monday.’

For Japanese, code-switching with English provides evidence that this process is productive:

(10) Japanese/English (Kazuko Yatsushiro, pers. comm.)
    \[ \text{object-o incorporate shimashita} \]
    \[ \text{object-ACC incorporate do. PST.POL} \]
    ‘He/she incorporated the object.’
This pattern has further been documented for Tamil/English, Hindi/English, and Punjabi/English (see the examples in (14–15) below).

Second, little \( \text{v} \) has been analyzed as the locus of passivization (Chomsky 1995; Harley 2013). In some varieties of Greek/English code-switching (Tamis 1986) the light verb exhibits a Voice-split, in that there are two different light verbs: one for active (\( \text{káno} \)) constructions and one for passive constructions (\( \text{jínome} \)):

(11) Greek/English (Tamis 1986)

a. \( \text{káno} \) \( \text{káni} \) cover her body.
   ‘do/make’ ‘She covered her body.’

b. \( \text{jíno} \) \( \text{jínete} \) affect.
   ‘be/become’ ‘He is not affected.’

Third, little \( \text{v} \) has also been thought of as the locus of transitivity. Harley (1995) in her discussion of the typology of the little \( \text{v} \) projection proposes that little \( \text{v} \) comes in two different flavors, namely an active type for external arguments and transitive constructions and a non-active type for passives and unaccusative intransitives. Both in Popoloca/Spanish and Navajo/English code switching pairs the light verb exhibits a Transitivity-split (Muysken 2000: 193), so that a form of the light verb is used for canonical transitive predicates and a different form is used for intransitive predicates and some non-canonical transitives. For instance, in Popoloca/Spanish the light verb \( \text{tú} \) combines with intransitive (or experiential) verbs, as in (12a), whereas the light verb \( \text{čʔe:} \) combines with transitive (or agentive) verbs, as in (12b):

(12) Popoloca/Spanish (Veerman-Leichsenring 1991)

a. \( \text{tú yuda} \) help
   \( \text{tú mantene} \) maintain oneself
   (Sp. ayudar)
   (Sp. mantenerse)

b. \( \text{čʔe: kasa} \) hunt
   \( \text{čʔe: kompone} \) repair
   (Sp. cazar)
   (Sp. componer)

The same split is also found in Navaho/English code-switching. In this case a light verb corresponding to \textit{do} occurs with intransitive verbs (13a), whereas with transitive verbs another light verb surfaces, which corresponds to \textit{make} (13b):

(13) Navaho/English (Canfield 1980: 219)

a. \textit{swimming} \( \text{asht’i} \)
   1:do/be
   ‘I am swimming’

b. \textit{Nancy} \( \text{bich’í} \) \textit{show} \( \text{ánílééh} \)
   3:to 2:make
   ‘Nancy shows me.’

Fourth, little \( \text{v} \) has been argued to encode inner aspectual (Aktionsart) information (Ramchand 2008; Travis 2010). Panjabi/English (Romaine 1989) exhibits a stativity-split
in the light verb construction, phrased in terms of a general preference (*hona* for statives, *kərna* for non-statives). Examples are given in (14):

(14) Panjabi/English (Aghinotri 1987; Romaine 1989)

a. guilt feel *hona* ‘to feel guilty’

b. exam pass *kərna* ‘to pass an exam’

The final property we want to discuss in this context is subcategorization (or c-selection) as a particular case of syntactic dependencies (Fromkin 2000). Chomsky (2008) put forth the idea that all the features that trigger syntactic dependencies originate in the Phase heads *v* and C (although a mechanism of inheritance ensures that T and V do the actual job of setting up dependencies). We think that light verb constructions provide initial evidence for such an approach. Consider the examples in (15). In English the verb *admit* subcategorizes for a direct object and a *to*-PP, and not for a locative, as it would in Tamil. The light verb construction follows the Tamil case marking pattern and the semantic import of these case markers does not conform to English, but to Tamil:

(15) Tamil/English (Annamalai 1971:22)

a. naan *jaan-*e *school-*le *admit* pannuneen

1SG John-ACC school-LOC admit do.1SG.PST

*I admitted John in the school.*

b. *naan *jaan-*e *school*-ukku *admit* pannuneen

1SG John-ACC school-DAT admit do.1SG.PST

*I admitted John to the school.*

Thus, it is clear that subcategorization or c-selection depends on the Tamil system. Since the light verb is from Tamil, we argue for the claim that c-selection is determined by little *v*.

The conclusion we draw from the discussion in this section is that in all different language pairs that we considered, the light verb displays properties that have been attributed to the featural make-up of little *v*. This is not a coincidence, but follows from the main hypothesis of this paper.

3. Linearization

As mentioned in the introduction, González-Vilbazo and López (2012) adduced initial evidence for the hypothesis that little *v* determines the grammatical properties of

5. See Alexiadou (2014) for a recent version of the approach in which Roots (or lexical verbs) do not take complements. Although we will not dwell on this issue here, the data presented here go towards such a proposal.
the predicate phrase that it embeds. Their show-cases are word order, prosody, and information structure. In the remainder of this section we take a closer look at the linearization issue as it sets the stage for the next section.

Word order variation has traditionally been captured in terms of a macroparameter (e.g. Chomsky 1981; Travis 1984; Baker 1996), with its settings largely coinciding with the main typological classes. Furthermore, the parameter was stated as a general rule of grammar, not as the features of a lexical item (let alone functional ones). But the overall correlations were shown not to be perfect: there are too many languages that are not uniformly head-initial or head-final, Persian being an example of a language with a head-final VP but with a head-initial PP, the Gbe languages examples of a language with a head-initial VP but with a head-final PP. Hence, there is no general setting of the parameter for a language, but the parameter is set within subparts of the grammar, the verbal domain, the adpositional domain, etc. As such, the focus shifted to a microparametric view on (word order) variation. This style of doing syntax is strongly associated with the Borer-Chomsky Conjecture (Baker 2008: 353), according to which “all parameters of variation are attributable to differences in the features of particular items (e.g., the functional heads) in the lexicon.” Concentrating on the verbal domain, the locus of the parameter seems to be the verb. Under the Root Hypothesis, however, what traditionally is seen as a verb is actually the combination of a little v and a Root. The question then boils down to where the information concerning linearization is stored: little v or the Root.

For our purposes, we thus investigate linearization solutions in code-switching when the source language of the little v and the source language of the VP/RootP have different word order settings: (i) little v taken from a VO language and VP/RootP from an OV language and (ii) little v taken from an OV language and RootP from a VO language. The solutions adopted in these apparently conflicting sites are the most interesting for linguistic theory. In short, the little v is the one that determines the linearization of its complement.

Let us start with option (i). Spanish/German code switching presents a clear example: The light verb is taken from Spanish, a VO-language while the VP constituents may be drawn from the German lexicon. The prediction is that, since the light verb (i.e. the little v) is drawn from Spanish, the VP constituents will have to be head initial. In fact, this is what happens as shown in example (16):

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6. Baker (2008), on the basis of Dryer (2005), comes to the count of 38 “inconsistent” languages of the Persian-type, and to 10 of the Gbe-type. He draws a much more optimistic conclusion for the macroparametric view than we do. In our view, the macroparametric effects that Baker observes should ultimately be construed as the surface effect of aggregates of microparameters acting in unison. See Roberts (2012) and Roberts and Holmberg (2010) for more discussion of these issues.
(16) Spanish/German

\[
\text{Juan ha hecho verkaufen die Bücher.}
\]

Juan have.3sg do.PART sell.INF det.book

‘Juan has sold the books.’

In order to exemplify option (ii), we draw from Japanese/Portuguese and Korean/English code switching. In both instances, the light verb is drawn from the head final language (Japanese or Korean) while the VP constituents are drawn from the head initial language (Portuguese or English). In examples (17), we see that the light verb determines the order of the VP constituents:

(17) Japanese/Brazilian Portuguese (Kato 2003)

\[
\text{Segunda-feira-ni telegrama-o manda shimashita.}
\]

monday-on telegram-ACC send do.PST.POL

‘He/she sent the telegram on Monday.’

Example (18) adds an interesting twist to the story. (18a) confirms that the little v determines the word order of its complement, since the object precedes the verb. (18b) looks like a counterexample. However, it can be argued that drink cha is in fact a compound. The contrast between (18c) and (18d) confirms this intuition. When we have a heavier VP/RootP in which a compound analysis is not possible, only the OV order is possible:

(18) Korean/English (Seunghun Lee, p.c.)

a. cha drink -ha-go sip-ta.

\begin{align*}
\text{tea} & \text{ drink -do-CONJ want-DECL} \\
\text{‘want to drink tea.’}
\end{align*}

b. drink cha -ha-go sip-ta.

\begin{align*}
\text{drink tea -do-CONJ want-DECL}
\end{align*}

c. three cups of cha drink -ha-go sip-ta

\begin{align*}
\text{three cups of tea drink -do-CONJ want-DECL}
\end{align*}

d. *drink three cups of cha -ha-go sip-ta

\begin{align*}
\text{drink three cups of tea -do-CONJ want-DECL}
\end{align*}

Additional language pairs that display the pattern of option (ii) are Bhojpuri/Mauritian Creole as in (4a), Japanese/English as in (10), Panjabi/English as in (14), and Tamil/English in example (15). Needless to say, we take this to constitute a typologically very robust pattern.

Thus, linearization inside the VP depends on the features of the light verb that selects for it. Crucially, it does not depend on the V/Root itself. Nor does it depend on the features of INFL/TMA (as proposed by Nishimura and Yoon 1998, as well as Chan 2008). This can be shown by looking at Korean/English material in which the VP is from Korean. Here the strategy is to use the auxiliary system of English instead of a light verb. In this case the order of the VP remains head-final:
(19) English/Korean (Chan 2008:798)

a. Can I *nigeru*?
   escape
   ‘Can I escape?’

b. Don’t *tamba pyo*.
   cigarette smoke
   ‘Don’t smoke cigarettes.’

The example in (19a) shows that the modal in the code-switched material is in the INFL-domain, as it is still able to undergo inversion (i.e. I-to-C-movement). Moreover, we are certain that the English inflection does not incorporate a light verb because we know that the English inflection does not accept V-to-T (Emonds 1976; Pollock 1989). Example (19b) shows that the VP/RootP in this case is Korean-like head-final. If the word order of the VP/RootP constituents depended on INFL, then the English auxiliary should trigger VO order in its complement – but this is not the case. This conclusion turns out to be crucial for our analysis of the Sranan/Dutch switching patterns in the next section.

The general conclusion we draw from the discussion in this section is that the solutions bilingual speakers come up with as to how to linearize their utterances when they code-switch points towards the importance of the functional part of the lexicon in determining word order, in accordance with the Borer-Chomsky Conjecture. It is the featural make-up of little $v$ that determines the linearization of its complement.

### 4. Sranan/Dutch switching

Having established the crucial role that little $v$ plays on the linearization of its complement, let us return to the examples of Sranan/Dutch switching from the introduction, repeated here for convenience:

(20) Sranan/Dutch (Bolle 1994:74)

a. *Now kawna ben besta altijd.*
   now kawna TNS exist always
   ‘Now, kawna has always existed.’

b. *A man e lucht en ati.*
   DET man ASP air 3SG heart
   ‘The man speaks his mind.’

In these examples, the INFL-element is drawn from Sranan, a head-initial language while the constituents in the VP/RootP are drawn from Dutch, a head-final language. The order of the VP/RootP constituents is head-initial, as in Sranan but unlike Dutch. Therefore there is a pattern that resembles German/Spanish code-switching. However,
there is an important difference: there is no apparent light verb in the structure (an unusual state of affairs in code-switching, as pointed out by González-Vilbazo and López 2012).

Where does the head initial order in the VP/RootP come from? We have already argued on the basis of the examples in (19) that the I-domain cannot be the source of VO/OV order. Additionally, we also know that the lexical verb itself plays no role in linearization. Our discussion of (16)–(18) leads to the conclusion that there must be a little v in the structure that decides the word order of the VP/RootP constituents even if we do not see it. Traditionally, the Tense, Mood and Aspect (TMA) markers of the Surinamese creoles in general, and Sranan in particular, are analyzed as belonging to the I-domain (Muysken 1981). This no doubt is true, but the word order datum leads to the conclusion that the TMA markers in Sranan, and the Dutch/Sranan code-switching material, are not like run-of-the-mill INFL-elements.

So far, the literature on little v has described two possible states of affairs: either the Root incorporates into v (cf. 21a) or the latter spells out independently as a light verb ([lv]) (cf. 21b):

\[ \text{(21)} \]
\begin{align*}
\text{a. } & [vP \; v+\text{Root} \; [\text{VP/RootP} \; \langle \text{Root} \rangle ]] \\
\text{b. } & [vP \; v \; [\text{VP/RootP} \; \text{Root}]] \\
& \quad | \\
& \quad [lv]
\end{align*}

Our proposal is that Sranan represents a third option: the little v incorporates into the I-domain in Sranan (and the Surinamese creoles in general).

\[ \text{(22)} \]
\[ [IP \; v+T/M/A \; [vP \; \langle v \rangle \; [\text{VP/RootP} \; \text{Root}]]] \]

The underlying assumption is that the little v head cannot survive on its own in the structure. There are exactly three logical possible ways in which it can be made to survive or licensed, either by incorporating a lower Root (21a), by being lexicalized by a light verb (21b), or by being incorporated into a higher (inflectional) head (22).

The idea that little v is incorporated into the I-domain provides for an account of the head initial order in the VP/RootP. It is commonly assumed that code-switching within the word is not possible – or at least, subject to very strong restrictions (cf. MacSwan 1999). If so, the little v that we find in (22) must be Sranan. If little v is Sranan, the grammatical properties of the VP/RootP must be those of Sranan.

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7. The motivation for the idea that little v cannot survive by itself is that in general there can be no phase head without there being a phase below. In other words, the phase head is a sort of wrapping up element that closes off a domain. If there is no domain, there is no wrap up. Thanks to one of the reviewers for bringing up this issue.
The analysis in terms of v-incorporation does not only get the word order facts right. There are additional consequences: it is well-known that Sranan does not exhibit overt light verbs. Now we have an account of this: if the light verb is a spell-out of the little v and the latter in fact obligatorily incorporates into T, it follows that there cannot be a light verb in Sranan.

An additional interesting consequence of our proposal is that the incorporation of little v makes the TMA markers less canonical INFL-elements in the sense that they are more verbal in nature. In other words, the I-domain in Sranan has been “enriched.”

An indication that this is on the right track and that the TMA domain in Sranan has been enriched stems from the observation that the Tense marker can be predicate-clefted (Adamson & Smith 1995). This is illustrated in (23):

(23) [Na ben] a ben suku a buku.
cop tns 3sg tns look for det book
‘He had looked for the book.’

Predicate Cleft is a focus construction (in terms of contrastive Focus, indicated here by small caps in the free translation), and the possibility to participate in this construction has been regarded as one of the hallmarks of the verbal status of syntactic elements in the Suriname Creoles (ever since the seminal work of Jansen, Koopman & Muysken 1978). Thus, this example strongly suggests that the Tense marker is (more) verbal in nature. From the proposal we make it follows that this is due to v-incorporation into the I-domain.

5. Creole clause structure

In the remainder of this paper we want to focus on one of the consequences that the Root Hypothesis has for the proper analysis of the clause structure of the Surinamese creoles.

As is well-known, the lexical items in the Surinamese creoles are highly multifunctional (Voorhoeve 1981). Due to the sparseness of morphology in these languages, almost all lexical items can belong to different categories (Veenstra 2006: 77 even goes as far as suggesting that only the copulas have a fixed categorial status). We will illustrate this with the Root [siki] historically deriving from the English adjective sick, on the basis of data from Saramaccan. It can appear as an intransitive verb/adjective (24a), a transitive verb (24b), as well as a noun (24c):

(24) a. Mi sa woóko bûnu ẹi mé siki nóo.
   1sg mod work good if 1sg.neg sick narr
   ‘I can work well if I’m not sick.’ (de Groot 1977: 368)
b. De síki hen u feée dí taatá f’én.
3PL sick 3SG fu fear DET father fu.3SG
‘They sickened him to scare his father’.

c. Síki tá butá sembe kó malénge-ma,
sickness IMP put someone come miserable-ma
nóó i tá disá i-seéi dá dí síki,
narr 2SG IMP leave 2SG-self give DET sickness
a bi wini i kaa.
3SG pst win 2SG already
‘Sickness makes someone feel miserable and if you concede to it, you’re already lost.’ (de Groot 1981: 368)

The question that has been controversially discussed over the last thirty years or so is the following: is the property item síki in (24a) a verb or an adjective (Seuren 1986; Sebba 1986; Winford 1993; Kouwenberg 1996; Winford 1997; Migge 2000, etc.)? We are not going to evaluate the different proposals put forth in the literature here. Instead, we will propose a new and different outlook on this issue.

In our proposal to account for the word order patterns in the Dutch/Sranan code-switching material, we argue that little v in Sranan has been incorporated in the I-domain. This is not only the case in code-switching contexts, however. Little v-incorporation takes place across-the-board. This means that all clauses are intrinsically verbal. This relates to an observation already made by Alleyne (1980) that creoles are in some sense much more verby than the European languages that they are lexically related to. Thus, síki in (24a) from this perspective is a Root dominated by a little v, thereby ‘inheriting’ its categorization as a verb. In this context it thus has all the relevant verbal characteristics. It can be preceded by TMA markers (25a), and it can undergo predicate cleft (25b):

(25) a. A bi síki.
3SG TNS sick
‘He was sick.’

b. Síki a bi síki.
sick 3SG TNS sick
‘He was really sick.’

It does not come as a surprise then that it is not possible to have a copula de inserted in front of these property items, as in (26):

(26) A liba (*de) bradi. (Arends, Muysken & Smith 1995)
det river DE wide
‘The river is wide.’

In other contexts, however, the copula has to be there. Two of these contexts are given in (27):

a. De síki hen u feée dí taatá f’en.
3PL sick 3SG fu fear DET father fu.3SG
‘They sickened him to scare his father’.

b. De síki hen u feée dí taatá f’en.
3PL sick 3SG fu fear DET father fu.3SG
‘They sickened him to scare his father’.
(27) a. A liba *(de) so bradi.
   det river de so wide
   ‘The river is so wide.’

   b. U bradi a liba *(de)?
   how wide det river de
   ‘How wide is the river?’

In (27a) the property item is accompanied by a degree adverb so, and by a wh-adverb in (27b). The question is why the copula has to surface in just these contexts.

Degree words are analyzed as heading a functional Degree Phrase (DegP), taking the aP as its complement. As such, this analysis has its roots in the so-called Degree Phrase Hypothesis (going back to Abney 1987; Corver 1991):

\[ [\text{DegP} \text{Deg} [a \text{P} [\text{Root}(P) \text{Root}]]] \]

Thus, Degree phrases signal the presence of an adjectival projection. However, the clauses in Sranan are verbal in nature as the result of little v-incorporation. To account for the patterns in (26–27), we propose that the copula is inserted to prevent a clash of categorical features. The way in which this idea is executed is as follows: little v always selects for a Root(P). It, therefore, cannot select for any constituent that has already been categorized. The aP in (27) is an instance of such an constituent. Thus, little v cannot (directly) select the aP. The solution to this state of affairs is to insert an element that is both selectable by little v and able to select an aP. This element is de in Sranan, which is traditionally analysed as a copula (Arends 1989). As such, Veenstra (2014) proposes it is a last resort Root to avoid a categorial conflict between little v and the aP:

\[ [IP v+T/M/A [vP \langle v \rangle [aP a [\text{Root}(P) \text{Root} ... ]]]] \]

↑

DE

This proposal leads to the somewhat surprising result that copulas are not necessarily functional heads, which is the standard way of analyzing such elements in the literature (cf. den Dikken 2006 for overview).

Interestingly, the same pattern is also found in the Dutch/Sranan code-switching material. In cases where it is clear that from a morphological point of view the Dutch constituent is non-verbal, the copula de appears. This is shown in (30) for the adjective merkbaar ‘noticeable’:

(30) Verdeeldheid ben de duidelijk merk-baar tussen
   division pst de clearly notice-able between
   Hindustani nanga a blakaman.
   Hindustani conj det black.man
   ‘Divisions were clearly noticeable between Hindustani and the black people.’

(Bolle 1994: 82)
6. Conclusions

In this paper we have presented solid evidence that the following claims hold. First, the light verb in (bilingual) light verb constructions are instantiations of little \(v\). Second, little \(v\) is responsible for a range of grammatical properties of the predicate phrase that it selects for. Phrased in the most general terms, our claim boils down to the following:

\[(31) \text{little } v \text{ as a Phase head determines the properties of the Phase.}\]

In addition to the evidence adduced by Gonzalez-Vilbazo and Lopez (2011) concerning linearization, prosody and information structure, we have shown that the light verb in this construction is sensitive to the following grammatical features that have been attributed to little \(v\) in minimalist theories: (i) (accusative) Case-assigment; (ii) passivization; (iii) transitivity; (iv) stativity; (v) subcategorization or c-selection. We argued that this is not a coincidental fact, but that it follows from the main hypothesis of this paper.

Third, we made a proposal on how little \(v\) can cross-linguistically be licensed. The claim we made is that little \(v\) cannot survive in the structure on its own, and argued that there are exactly three ways in which it can be licensed, either by incorporating a lower head (which is the standard option in theories of little \(v\)), by being lexicalized by a light verb (as evidenced in bilingual light verb constructions under discussion), or by being incorporated into a higher (inflectional) head (an option shown to be taken by the Surinam creoles):

\[(32) \text{structural configurations in which little } v \text{ is licensed}\]

\[a. \left[ vP \; v^+\; \text{Root} \left[ \left[ \text{VP/RootP} \; \langle \text{Root} \rangle \right] \right] \right]

\[b. \left[ vP \; v \left[ \left[ \text{VP/RootP} \; \text{Root} \right] \right] \right] \]

\[c. \left[ \text{IP} \; v^+\text{I} \; \left[ vP \; \langle v \rangle \left[ \left[ \text{VP/RootP} \; \text{Root} \right] \right] \right] \right] \]

Finally, we discussed some of the ramifications that the analysis has for the general clause structure of the Surinamese creoles, thereby concentrating on the syntax of property items and the distribution and analysis of copulas in these languages.

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8. See Veenstra (2014) for more details on the syntax of copulas in the Surinamese creoles.
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On language acquisition and language change

Is transmission failure favoured in multilingual heritage contexts?

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Whether multilingual heritage settings can lead to imperfect language acquisition and language change is debated in the literature (Lightfoot 1991; Meisel 2010; Montrul 2004; Montrul & Potowski 2007; Pascual Y Cabo & Rothman 2012; Silva-Corvalán 1994; Sorace 2004). By investigating the syntax of subject pronouns and the pro-drop parameter in pre-school children (aged 4.7–6.5) in one such context, this paper provides evidence that they do not. It is shown that all considered children acquired the pro-drop parameter target-like in both languages. The reduced system of subject pronouns instantiated in the heritage language by two children is shown not to follow from imperfect acquisition, but from their being simultaneous bilinguals, who have been exposed to less input in the heritage language than successive bilinguals. On this basis, we conclude that language acquisition in heritage contexts follows the general mechanisms of successive and simultaneous bilingual language acquisition and does not automatically lead to transmission failure (Meisel 2007, 2010).

Keywords: null-subjects; subject pronouns; imperfect acquisition; parameter resetting; diachronic change

1. Introduction

In generative work on diachronic syntax, it is generally assumed that language change results from a process of reanalysis of the parents’ grammar by children who introduce
a series of innovations (to be possibly explicable in terms of the resetting of parameters, see Battye & Roberts 1995; Lightfoot 1991; Roberts 1985; Pintzuk 1999; van Kemenade 1987), that are carried into subsequent generations (Andersen 1973; Hale 1998; Lightfoot 1979, 1991, 1999; Mc Mahon 1994; Roberts 2007; Walkden 2012; among many others). Since converging results have shown that L1 language acquisition cannot alone lead to language change as intergenerational transmission failure, given that children’s Language Making Capacity is extraordinarily robust and allows perfect acquisition of a target grammar even in the presence of ambiguous, contradictory and reduced input (see Meisel 2010: 138; Weerman 2010 and references cited there; Westergaard 2009), some other factors are assumed to play a role. Lightfoot (1991) suggests that these are: (i) changes in the frequency of use of particular constructions, (ii) structural ambiguity of constructions, and (iii) exposure to conflicting evidence in situations of language or dialect contact.

Meisel (2010: 127–129) discusses these three possible causes assumed to lead to incomplete language acquisition from the perspective of contemporary research in (bilingual) language acquisition starting from the idea that “in order to maintain the hypothesis according to which the language learning child is the main agent of grammatical reanalysis in diachronic change, acquisition research must demonstrate that transmission failure is indeed a likely phenomenon to happen” (Meisel 2010: 130). Research in language acquisition has clearly shown that transmission failure/incomplete acquisition never happens in monolingual L1 and simultaneous L2 acquisition, but can take place in child and adult L2 language acquisition (Meisel 2010; Weerman 1993; Weerman 2010, among others). For theories of diachronic change, Meisel (2010) takes this to imply that early monolingual and simultaneous bilingual language acquisition can never be the locus of language change and that incomplete acquisition is only possible if children are exposed mainly to input by L2 speakers, i.e. if L2 speakers become the majority of a linguistic community (see Kroch & Taylor 2000; Lightfoot 1991; Weerman 1993). This requires specific sociolinguistic conditions and must be prompted by some language-external event.

anonymous reviewers, for comments and useful feedback. We also thank our main Mòcheno informant, LT, and the participants to the course in Mòcheno syntax held in November 2013 in Palù del Fersina. Many thanks to Rachel Murphy for editing the English of the paper. Federica Cognola’s work is part of the project MOCHENO-IN-BETWEEN funded by the Autonomous Province of Trento (BANDI-POST-DOC-PAT-2011); Ermenegildo Bidese’s work is part of the project Atheme funded by the European Union’s Seventh Framework Programme for research, technological development and demonstration under grant agreement no. 613465. All errors are our own. Federica Cognola takes responsibility of Sections 3, 4, 5 and 6; Ermenegildo Bidese takes responsibility of Sections 1 and 2.
More controversial is whether contexts where heritage and minority languages are spoken can favour incomplete acquisition of the non-dominant language. Montrul (2004), Montrul & Potowski (2007) and Silva-Corvalán (1994) discuss the case of heritage Spanish in the USA and suggest that the non-dominant language is incompletely acquired in this heritage context. That heritage contexts can be seen as specific acquisitional scenarios where acquisition failure is likely to happen is challenged in Meisel (2010), who discusses specific arguments that suggest that what is considered incomplete acquisition may be due to other factors, such as attrition or the removal of the target language (see also Sorace 2004; Pascual y Cabo & Rothman 2012).

This paper is intended to contribute to our understanding of the mechanisms of language acquisition in heritage settings by investigating the syntax of subject pronouns in relation to the pro-drop parameter (Rizzi 1982, 1986) in pre-school children from the Fersina valley (Northern Italy), where the Germanic heritage language Mòcheno is spoken along with the Trentino dialect and Regional Italian in a situation of triglossia. Through an investigation of a language combination (Mòcheno-Regional Italian) so far neglected in the literature, the paper first aims to provide an answer to the question of whether language acquisition in heritage multilingual settings differs from simultaneous and successive bilingual acquisition (Montrul 2004; Meisel 2010). The paper also attempts to clarify the relationship between language change and language acquisition, by establishing whether or not heritage settings are scenarios where incomplete acquisition systematically takes place, then leading to a change in the parameter setting in the children’s grammar that may be passed on to subsequent generations (Lightfoot 1991).

These two perspectives on heritage contexts lead to two hypotheses that are tested in the paper. If heritage contexts universally favour transmission failure, we can expect all the Mòcheno children included in the study to exhibit signs of incomplete acquisition. We can also expect this to correlate with the presence of unbalanced bilingualism, with Mòcheno being the significantly weaker language. If, however, heritage
contexts do not favour transmission failure, children can be expected to develop the two languages in contact following the general mechanisms of simultaneous and successive bilingual language acquisition; in other words, to exhibit a similar proficiency in both languages, possibly with slight differences between simultaneous and successive bilinguals. These two opposite acquisitional scenarios lead to two opposite predictions for language change. In the first scenario, the children can be seen as participants in language change, since their imperfect acquisition of the target grammar may lead to parameter resetting to be passed on to future generations. If this process involves parameter resetting in the direction of the parameter of the contact grammar Italian/Regional Italian in all children, this may indicate that language contact plays a crucial role in language change (Lightfoot 1991; Thomason 2001; Thomason & Kaufmann 1988). The investigation of the pro-drop parameter in Mòcheno preschool children is particularly revealing in this respect, because Mòcheno and contact Romance differ from each other: the former is a non-null subject language (Rowley 2003; Cognola 2013, 2014) and the latter is consistent pro-drop language (Frascarelli 2007; Rizzi 1982).3 If the second hypothesis on heritage settings is confirmed, on the other hand, language acquisition cannot be considered the locus of language change, which implies that the adult grammar is acquired target-like by all children, possibly with individual differences between simultaneous and successive bilinguals.

The paper is organised as follows. In Section 2, we describe the sociolinguistic situation of the Fersina valley and the syntactic and discourse properties of subject pronouns in Mòcheno and in the contact varieties. Section 3 covers the data collection and the child population. Section 4 illustrates the results, and Section 5 discusses their relevance for the research questions outlined in the introduction. Section 6 is the conclusion, in which the relevance of the present study to theories of language change is discussed.

2. The adult grammars: An overview

In this section we give a brief overview of the socio-linguistic situation of the valley and describe the syntax of the subjects in the three varieties in contact. Unless explicitly indicated, all generalizations are to be considered valid for all varieties, i.e. no significant conflicting evidence is present within the dialects of the language.

3. As discussed in Cognola (2013, 2014), subject clitics always license pro in Spec,TP in Mòcheno, as in Northern Italian and Southern German dialects (Brandi & Cordin 1981, 1989; Poletto 2000; Weiß 2005, 2013). However, subjects must always be overt in the language, hence its classification as a non-null subject language.
2.1 The socio-linguistic context

The Fersina valley is a multilingual, triglossic setting. Regional Italian (henceforth: RI) is the prestigious, written language, since it is the language of education (from kindergarten on) and of the media, and is spoken, with the Trentino dialect, in all the villages near the valley. Both Môcheno and Trentino, in contrast, are non-prestigious, oral varieties. Cognola (2011: 3) therefore speaks of bidialectalism (Berruto 1995; Mioni 1988) to describe the status of Môcheno and Trentino within the Fersina valley. There are three Môcheno varieties corresponding to the three villages of the valley: Fierozzo, Palù and Roveda. They all differ from each other at the lexical, morphological (Rowley 1986) and syntactic (Cognola 2013) levels, but these differences do not preclude communication. Further micro-diatopic differences are found within single varieties in the villages of Fierozzo and Palù. As far as we know, no diatopic differences are present in the valley as far as Trentino and RI are concerned, but this aspect has never been investigated.

With the exception of some families in Fierozzo who do not speak Môcheno (Alber 2010; Cognola 2011, 2013; Rowley 1986), all the inhabitants of the valley are trilingual, and the three languages are present in their everyday life. RI is mostly spoken outside the valley in all formal situations; Môcheno and Trentino are almost exclusively used within the home and in informal and public situations in the valley, with frequent cases of code-mixing and code switching. The linguistic community includes speakers with different linguistic backgrounds: successive bilinguals, i.e. speakers who have been exposed overwhelmingly to Môcheno between age 0 and 3 and to Romance languages after 3; simultaneous bilinguals, i.e. speakers who have been exposed to both Romance and Môcheno between 0 and 3; and L2 speakers, i.e. people who learned Môcheno as adults. There are no studies investigating whether this three-way distinction corresponds to differences in proficiency in Môcheno: the present study is the first that attempts to establish whether differences are found between successive and simultaneous bilingual children.

It is clear from this sociolinguistic description that the Fersina valley is a particularly interesting multilingual setting, because it exhibits several factors which might

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4. There have been recent attempts to introduce a standardised orthography and start a process of codification and standardisation for Môcheno, see Rowley (2003).

5. Note, that there are no cases of simultaneous bilinguals who have been exposed to Môcheno after age 3. This is a consequence of the socio-linguistic situation of the valley, where from kindergarten on education is in the major language (RI).

6. This category includes both people who were born in, and who moved to, the Fersina valley, and learned the language as adults. Whether these two groups of L2 speakers of Môcheno differ has never been investigated and cannot be discussed in this paper.
favour transmission failure “[…] e.g. the status of the minority language in the society, scarce use of the minority language in the home, lack of a minority speech community outside the home and schooling in the majority language […]” (Meisel 2010: 137). As mentioned in the introduction, there is no consensus in the research in bilingual language acquisition about the exact role of these socio-linguistic factors in incomplete language acquisition: one of the aims of the paper is therefore to see whether they play a role in the case of Mòcheno-speaking children.

2.2 Subject pronouns and pro-drop

2.2.1 Subject pronouns in Mòcheno: A three-way classification

The function of subject pronouns is realised by both pronominal elements and by D-pronouns in Mòcheno (see Cognola 2013; Rowley 2003; and Nübling 1992 for the idea that demonstratives have to be included in the paradigm of subject pronouns in German dialects). According to Rowley (2003:179ff), both pronouns and D-pronouns exhibit two morphologically and phonologically distinct forms: strong (stressed, morphologically richer) and weak (unstressed, morphologically reduced) – as is typical in Southern German dialects (Weiβ 2013 among others). By relying on the data collected in intensive fieldwork with 48 informants from all localities of the valley selected according to sociolinguistic criteria (age, gender, scattered farm of residence, Cognola 2013:1–8), Cognola (2013:79ff) proposes a novel classification of Mòcheno subject pronouns and D-pronouns. This classification, which has been reached through the application of the classic syntactic tests (going back to Kayne 1975; Vanelli, Renzi & Benincà 1985 and summarised in Cardinaletti & Starke 1999), differs from that offered by Rowley (2003) in two respects: (i) D-pronouns are not treated as a separate class with a two-way distinction, and (ii) “weak” is used in a less restricted meaning, indicating a subclass of unstressed elements also including clitic pronouns. This has led to the tree-way classification of Mòcheno subject pronominal elements given in Table 1.

Table 1. Mòcheno subject pronominal forms. P = Palù; F = Fierozzo; R = Roveda

<table>
<thead>
<tr>
<th></th>
<th>Strong forms</th>
<th>Clitic forms</th>
<th>Weak forms</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. SG</td>
<td>i</td>
<td>e</td>
<td>i/e</td>
</tr>
<tr>
<td>2. SG</td>
<td>du</td>
<td>o (P)</td>
<td>de (R/F)</td>
</tr>
<tr>
<td>3. SG-masc.</td>
<td>er</td>
<td>er</td>
<td>der (R/F), ar (P)</td>
</tr>
<tr>
<td>3. SG-fem.</td>
<td>si</td>
<td>se</td>
<td>de</td>
</tr>
<tr>
<td>1. PL.</td>
<td>bir/biar (P)</td>
<td>ber/bar (P)</td>
<td>ber (F,P), bar (P), der (R)</td>
</tr>
<tr>
<td>2. PL.</td>
<td>ir</td>
<td>er</td>
<td>–</td>
</tr>
<tr>
<td>3. PL.</td>
<td>sei</td>
<td>sa</td>
<td>de</td>
</tr>
</tbody>
</table>
Strong forms correspond to the strong (stressed) forms identified by Rowley (2003), which are also syntactically strong (Cardinaletti & Starke 1999), since they can be (i) fronted, (ii) focused, (iii) coordinated, (iv) separated by the finite verb and (v) can appear in isolation (Cognola 2013: 79–89). The weak (unstressed) forms in Rowley’s sense have been split up in two categories: clitic and weak. Clitic pronouns correspond to the class that Rowley calls “weak”. These unstressed elements do not exhibit any of the properties of the strong forms, i.e. they cannot be (i) fronted, (ii) focused, (iii) coordinated, (iv) separated by the finite verb nor (v) appear in isolation. D-pronouns are shown to consistently behave as weak elements in the sense of Cardinaletti and Starke (1999) in all syntactic positions, i.e. they cannot be (i) focused, (ii) coordinated, (iii) separated by the finite verb, (iv) appear in isolation, but (v) can be fronted, unlike clitics. Note, that there is some diatopic variation in the subject pronominal forms (already noted in Rowley 2003). For instance, the clitic form for the second singular o is only attested in the village of Palù, whereas the form der for the first person plural is a typical trait of the Roveda variety. As shown in Cognola (2013: 234–319, Appendix) the specific forms are used consistently by all the speakers according to the spoken variety.

7. An anonymous reviewer finds uncommon that demonstratives are weak elements in Mòcheno and wonders what happens in deictic and stressed contexts. As discussed in Cognola (2013a: 59ff, Chapter 3), only D-prouns (corresponding to German der-die-das) are weak elements in all Mòcheno varieties. In deictic and stressed contexts, the demonstrative forms der doi, de doi, s doi (corresponding to German dieser, diese, dieses) are used (Rowley 2003: 157). Why D-prouns and demonstratives differ in Mòcheno and German varieties is an issue that cannot be dealt with here.

8. An anonymous reviewer wonders why we find variation in the second person singular, in particular why (i) the Palù dialect exhibits a clitic form for the second person singular (o), which is missing in the other varieties that exhibit instead the weak form (de), and (ii) there are gaps in the paradigm (either clitic or weak missing) depending on the dialect. Starting with the latter issue, the presence of gaps in the morphological paradigm of pronouns is what is expected. Italian distinguishes morphologically between weak and strong forms only in some forms (typically third forms, see Cardinaletti & Starke 1999); in Bavarian dialects clitic forms are missing for the second persons (where complementiser agreement takes place, see Gruber 2008; Weiß 2005); in Northern Italian dialects, subject proclitic pronouns are found with some persons of the paradigm, typically the second singular and the third persons (Vanelli 1987; Vanelle, Renzi & Benincà 1985; Poletto 2000). The former issue, i.e. why the Palù dialect exhibits the form o and lacks the form de present in the other dialects (which lack a clitic), is one of the morphological traits distinguishing the three Mòcheno dialects, which, as discussed in Footnote 2 above, result from three different settlements involving different German-speaking populations moving to the valley at different times. It is reasonable to assume that the clitic form o has developed from the reduction of a weak pronominal form do (found in Cimbrian, Panieri et al. 2006), but this is only proved indirectly, since historical data documenting older stages of Mòcheno are missing (see Cognola 2013). Such development has not taken place in the Fierozzo and Roveda varieties, which exhibit the weak form de.
Syntactic and discourse properties of subject pronominal forms

The subject forms do not only differ from each other for the above mentioned properties, but also display remarkable syntactic properties. Cognola (2013) shows that each pronominal form has specialised for a specific syntactic configuration involving the subject. Clitic forms have specialised for the realization of the subject in all inversion contexts. As shown in (1), in fact, both weak (1b) and strong (1c) forms are ruled out from inversion contexts (see Cognola 2013: 89–95):

(1) a. Gester hòt=se kaft s puach
    yesterday has=cl. she bought the book

b. *Gester hòt de kaft s puach
   yesterday has.weak bought the book

c. *Gester hòt si kaft s puach
   yesterday has.strong bought the book

   ‘Yesterday she bought the book.’

Conversely, weak (2a) and strong (2b) pronouns have specialised for the expression of the subject in preverbal contexts, where they can precede the finite verb – an option unavailable for clitics (2c).

(2) a. (Gester) de hòt kaft s puach
    yesterday she.weak has bought the book

b. (Gester) si hòt kaft s puach
    yesterday she.strong has bought the book

c. *(Gester) se=hòt kaft s puach
    yesterday she.cl=has bought the book

   ‘Yesterday she bought the book.’

The distribution of the forms belonging to three classes of referential subject pronouns is ruled not only by syntactic, but also by discourse and information-structure constraints. Like Italian pro, the distribution of Mòcheno weak and clitic subject pronouns is ruled by discourse; in particular these forms are licensed by an Aboutness topic (3 ps) or by an anaphoric operator (1–2 ps, see Frascarelli 2007, to appear). Conversely, Mòcheno strong forms are restricted to emphatic contexts involving contrast or focus, or are used to avoid ambiguities when two potentially co-referent antecedents are present in the discourse. Therefore, they behave like Italian overt pronouns (Frascarelli 2007).

The fact that weak and clitic pronouns can only be co-referential with a topic is evidenced by the examples in (3). In (3a) de mama ‘the mum’ is the subject of an object

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9. We only focus on the distribution of subject pronouns in main declarative clauses, since they are the most relevant for the present paper’s aims, but see Cognola (2013a, 2014) for an analysis of subject pronouns in embedded clauses.
wh-main interrogative clause, and from the point of view of the discourse, it must be considered given topic (see Frascarelli & Hinterhölzl 2007 among many others). In the answer to the question in (3a), the subject pronoun co-referential with the DP subject *de mama* must be either a clitic (3b) or a weak (3c), but not a strong form (3d).

(3)  
a. Bos hôt=se gatun **de mama**j gester?
what has=she.cl done the mum yesterday
‘What did the mum do yesterday?’
b. Gester hôt=sej s puach kaft
yesterday has=she.cl the book bought

c. **De**j hôt s puach kaft
she.weak has the book bought

d. #**Si**j hôt s puach kaft
she.strong has the book bought

‘Yesterday she bought the book.’

As discussed by Cognola (2013:85ff), Mòcheno strong forms have specialised for the realisation of focussed or contrasted subjects, i.e. they have emphatic value (Frascarelli 2007; Rizzi 1982; Roberts & Holmberg 2010; Vanelli, Renzi & Benincà 1985). Evidence for the fact that contrasted subject pronouns must be realised by the strong forms are given in (4), where a contrastive topic is involved (see Frascarelli & Hinterhölzl 2007, among many others).10 In these examples it can be seen that when a contrast on the subject pronouns is involved, only the strong forms (4b) and not the weak ones (4c) are grammatical.

(4)  
a. Bos hòn=se gatun **de Maria**j ont der **Luca**j?
what have=they.cl done Mary and Luca
‘What did Mary and Luca do?’
b. **Si**j hôt a puach kaft ont **er**k ist ka
she.strong has a book bought and he.strong is to
Persn gònngn
Pergine gone

c. *De**j hôt a puach kaft ont **der**j/ **ar**k
she.weak has a book bought and he.weak
ist ka Persn gònngn
is to Pergine gone
‘She bought a book, whereas he went to Pergine.’

10. For evidence showing that strong forms have specialised for focussed subject, we refer the reader to Cognola (2013a: 85ff). Note that this behaviour of subject pronouns is typical of null-subject languages.
2.3 A brief comparison with contact Romance varieties

The syntactic and discourse properties of subject pronominal forms described for Mòcheno make this language very different from the Romance contact varieties. RI is, like standard Italian, a consistent pro-drop language (Frascarelli 2007; Rizzi 1982, 1986; Roberts & Holmberg 2010), in which subject pronouns can be null in all persons, in all tenses and in all syntactic constructions, see (5).

(5) a. (io) vengo 'I come.'
   b. (tu) vieni 'You come.'
   c. (lui/lei) viene 'He/she comes.'
   d. (noi) veniamo 'We come.'
   e. (voi) venite 'You come.'
   f. (loro) vengono 'They come.'

In RI, subject pronouns must be overt when they are emphatic, i.e. when they are focalised (6a) or contrasted (6b) (Frascarelli 2007; Rizzi 1982; Roberts & Holmberg 2010).

(6) a. *(LUI) viene a trovarci, non lei he comes to see-us not her  
   'It is he who will come to visit us, not she.'
   b. What are Luca and Maria doing today?
   *(Lui) viene a trovarci, mentre *(lei) rimane a casa  
   he comes to see-us, whereas she stays at home  
   'He is coming to visit, whereas he is staying at home.'

As shown by Frascarelli (2007), null subjects are licensed by an Aboutness-shift topic in RI, where rich agreement inflection (i.e. distinct endings on the verb for all tenses) is also assumed to play a role (Rizzi 1982; Roberts & Holmberg 2010).

Mòcheno is a non-null-subject language, since a subject pronoun (belonging to one of the three classes, see above), or a DP subject, is obligatory in all syntactic contexts, see (7).

(7) a. *Bos hót gatun gester?  
   what has done yesterday  
   'What did he/she do yesterday?'
   b. *Gester hót a puach kaft  
   yesterday has a book bought  
   'Yesterday he/she bought a book.'
   c. *Hót a puach kaft  
   has a book bought  
   'He/she has bought a book.'

Referential null subjects are only possible in very restricted contexts, i.e. with the 2ps singular in inversion contexts in the varieties of Fierozzo and Roveda (in Palù the
second person clitic o is needed), and with the 3ps in coordinated sentences in the 
varieties of Roveda and Palù. Both contexts are known to favour referential null sub-
jects in standard German and in its dialects (2ps typically null in Southern dialects, see 
Bayer 1984; Gruber 2008; Weiß 2005).\footnote{Following Bayer (1984), Cognola (2013) and Weiß (2005), we assume that (8a) involves 
the licensing of a silent pronoun (pro) in Spec,TP, whereas (8b) is an example of Topic drop 
(Haider 2010). See Cognola (2013) for the relation between enclitic pronouns and pro in 
Mòcheno.}

(8) a. Bos host kaft?
     what have-2sg bought
   ‘What did you buy?’

   b. De mama ist ka Persn göng ont (de) hòt a puach kaft
      the mum is to Pergine gone and she has a book bought
   ‘Mum went to Pergine and she bought a book.’

Mòcheno also differs from the Trentino dialect, which is a pro-drop language with 
subject clitic pronouns (Brandi & Cordin 1981, 1989; Poletto 2000; Vanelli, Renzi & 
Benincà 1985). In Trentino main declarative clauses, clitics are proclitic and are obliga-
tory in the second person singular, and in the third person singular and plural, as 
shown in the examples in (9) (Brandi & Cordin 1981, 1989).

(9) a. (Mi) vegno ‘I come.’

   b. (Ti) *(te) vegni ‘You come.’

c. (Elo/ela) *(el/la) ven ‘He/she comes.’

d. (Noialtri) vegnin ‘We come.’

e. (Voialtri) vegnì ‘You come.’

   f. (Lori) *(i) ven ‘They come.’

In Mòcheno main clauses, clitics are (i) always enclitic, (ii) exhibit morphologically 
distinct forms for all persons (with the exception of the second person singular in the 
Fierozzo and Roveda varieties), and (iii) cannot co-occur with DP subjects and strong 
forms (Cognola 2013).\footnote{An anonymous reviewer writes that the properties of subject clitics in Mòcheno are very 
uncommon for languages with clitics, where DP subjects can generally be doubled by the clitic. 
As discussed in Cognola (2013), the behaviour of subject clitic pronouns in Mòcheno follows 
from the V2 character of the language, according to which clitics are C-oriented elements, 
not T-oriented elements (like in Northern Italian dialects, which are non-V2 languages, see 
Poletto 2000), which implies that they can only show up when Spec,CP does not host another 
XP. Therefore, if Spec,CP hosts a DP subject or a strong subject pronoun, the enclitic pronoun 
is ruled out. Note that this behaviour is not uncommon, but is typical of V2 languages with 
clitics, see the incompatibility of DP subjects/strong subject pronouns with subject clitics in 
Bavarian dialects (Gruber 2008, among many others).}
3. Subject pronouns in Mòcheno preschool children

3.1 Population and sociolinguistic situation

The child data discussed in this paper come from a corpus of semi-spontaneous speech (6 hours, 5 children) collected in 2010 for a project on the acquisition of Mòcheno by pre-school children (Cognola 2011). The study considered the whole population attending the kindergarten in Fierozzo in the school year 2009–2010 and consisted of an observation period (20 hours, one month, at different times of day) and three tests with the Mòcheno-speaking children in order to collect semi-spontaneous speech and elicit relevant constructions in both RI and Mòcheno (see below).

The Fierozzo kindergarten is attended by children aged 3–6 from the three villages of the valley. In the school year 2009–2010, it had a total of 24 children in three classes. 6 children were successive bilinguals, 2 were simultaneous bilinguals, 6 understood Mòcheno but did not speak it (passive bilinguals), the remaining 10 hardly understood or spoke Mòcheno. One of the two teachers speaks Mòcheno, whereas the other does not. RI is the dominant language (in Meisel's 2007 sense) in the kindergarten, i.e. it is used by both teachers and children and it predominates in communication, and Mòcheno is used in routines and in songs. RI is also the preferred language (Meisel 2007), as is evidenced by the presence of non-converging dialogue only when children are spoken to in Mòcheno (Cognola 2011).

3.2 Data collection and participants

The specific sociolinguistic situation of the Fersina valley, which reflected in the kindergarten, had an impact on Cognola's (2011) study, most notably in preventing her from collecting spontaneous Mòcheno speech, since it is not a language of communication there. It also necessitated the carrying out of a qualitative rather than a quantitative study, focused on the few bilingual speakers involved in specific activities in order to collect (semi-)spontaneous speech and elicited data.

Cognola (2011) carried out three tests: two story-retelling tests to collect semi-spontaneous speech and one elicitation task to elicit main wh-interrogative clauses. The data discussed in Section 4 come from the first story-retelling test and refer to the first two and a half hours of the corpus; in Section 5 data from the second story-retelling test are considered.

The first test used by Cognola (2011) to collect semi-spontaneous speech, whose results are discussed in this paper, was designed to lead the children into a monolingual mode in Mòcheno: a totally new situation for them. In order to avoid non-converging dialogue, she designed an activity with two puppets: Ciro, a monolingual Italian speaker, and Gisela, a monolingual Mòcheno speaker, and tested the Mòcheno-speaking children in a story-retelling test. The test was organized in the following three parts (see Crain & Thornton 1998):
(10) a. Warm-up: questions and interaction with the puppets in both languages. Children are led to an understanding of the fictional situation;
b. Description of a typical day in the kindergarten in both languages;
c. Each puppet tells a story. The children have to retell the stories to the other puppet, changing language. Each story is illustrated by toys.

The test was administered in single working sessions with each child; each session lasted about 30 minutes and was recorded and then transcribed. An overview of the children who took part to the study is given in Table 2.

### Table 2. Children involved in the study

<table>
<thead>
<tr>
<th>Age</th>
<th>Type of bilingualism</th>
<th>Variety</th>
</tr>
</thead>
<tbody>
<tr>
<td>5,6</td>
<td>successive</td>
<td>Roveda</td>
</tr>
<tr>
<td>4,7</td>
<td>simultaneous</td>
<td>Fierozzo</td>
</tr>
<tr>
<td>5,10</td>
<td>successive</td>
<td>Roveda</td>
</tr>
<tr>
<td>6,5</td>
<td>simultaneous</td>
<td>Fierozzo</td>
</tr>
<tr>
<td>5,6</td>
<td>successive</td>
<td>Fierozzo</td>
</tr>
</tbody>
</table>

All the children in Table 2 are trilingual, but the use of the Trentino dialect was not investigated in the test. Since the focus is on Mòcheno and RI, we consider the children to be bilingual in this study, but this is clearly a simplification. Three children are successive bilinguals, because they were exposed predominantly to Mòcheno from age 0 to 3 (Mòcheno speaking parents and relatives), and were exposed to RI after age 3 when they started kindergarten. Two children are simultaneous bilinguals, i.e. they were exposed to similar input in both RI and Mòcheno in their early childhood (0–3), because of mixed marriages (one parent and some relatives do not speak Mòcheno).

From the analysis of the MLU of the sentences produced in the first test, it can be inferred that the children have reached a quantitatively comparable proficiency in both RI and Mòcheno, with MLU above 5, which is fully in line with their age (Crain & Lillo-Martin 1999).

13. The children who took part in the study were familiar both with the investigator, who had been visiting the kindergarten regularly for a month before administering the test, and with the game they played, since they had played with the same puppets before, see Cognola (2011).

14. Three successive bilingual speakers present in the kindergarten had to be excluded from the study because they did not enter the fictional situation (Cognola 2011). To protect their privacy, the real names of the children are not given.
Table 3. Overview of children's production

<table>
<thead>
<tr>
<th>Children</th>
<th>Sentences produced</th>
<th>RI</th>
<th>Möcheno</th>
<th>Mixed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Total words</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enrica, 5,6</td>
<td></td>
<td>47</td>
<td>55</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Tot. sentences [26]</td>
<td>9</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>MLU: 5.2</td>
<td></td>
<td>MLU: 5.5</td>
<td></td>
</tr>
<tr>
<td>Flora, 4,7</td>
<td></td>
<td>68</td>
<td>75</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>Tot. sentences [23]</td>
<td>9</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>MLU: 7.5</td>
<td></td>
<td>MLU: 7.5</td>
<td></td>
</tr>
<tr>
<td>Giovanni, 5,10</td>
<td></td>
<td>71</td>
<td>74</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Tot. sentences [26]</td>
<td>12</td>
<td>13</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>MLU: 5.9</td>
<td></td>
<td>MLU: 5.6</td>
<td></td>
</tr>
<tr>
<td>Nuria, 6,5</td>
<td></td>
<td>108</td>
<td>43</td>
<td>58</td>
</tr>
<tr>
<td></td>
<td>Tot. sentences [33]</td>
<td>18</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>MLU: 6</td>
<td></td>
<td>MLU: 6.1</td>
<td></td>
</tr>
<tr>
<td>Roberta, 5,8</td>
<td></td>
<td>250</td>
<td>100</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Tot. sentences [54]</td>
<td>34</td>
<td>18</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>MLU: 7.3</td>
<td></td>
<td>MLU: 5.5</td>
<td></td>
</tr>
</tbody>
</table>

All children produce mixed sentences when they speak Möcheno, and not when they speak RI (Cognola 2011). Sentence-internally, code-mixing involves the insertion of

---

15. For an overview of code-mixing in bilinguals, see Zurer Pearson (2009), Myers-Scotton (2001), Muysken (2000) among others. It might be thought that the specific fictional situation of the test, in which children interacted with monolingual puppets, might have played a role in not favouring code-mixing. This objection is in principle valid, since for code-mixing to show up speaker and hearer must be both bilingual. However, this consideration does not weaken, but possibly reinforces, the point we make in the paper, i.e. that code-mixing is restricted to contexts in which children are supposed to speak Möcheno. Despite the fact that the fictional situation did not favour the emergence of code-mixing, in fact, all children did only code-mix when they spoke in Möcheno, not when the language of the section was Italian. Therefore, in the presence of an identical fictional situation not favouring code-mixing, children only code-mix in one language, and not in the other. Moreover, as discussed by Cognola (2011: 16), this distribution of code-mixing is also confirmed by children’s spontaneous speech in the kindergarten. During the observation period, she only heard two
single content words (without the article) (11a), or of functional categories, like whole NPs, VPs an IPs (all examples from Cognola 2011: 46–47).

(11) a. Ont de sai kemmen \[N amici \] (Giovanni, 5;10) and she.weak.fem.sing are come friends. ‘And they became friends.’

b. \[NP La leonessa\] e \[NP la giraffa\] hòn gatun an gioco (Enrica, 5;6) the lioness and the giraffe have done a game ‘The lioness and the giraffe played together.’

c. dòra der leone de hòt gamuit \[VP correr de nuovo\] (Nuria, 6;5) then the lion she.weak.fem.sing has could run again ‘Then the lion was able to run again.’

d. dòra bir gea’ \[PP sul tappeto\] (Nuria, 6;5) later we.weak go on the carpet ‘Later we go on the carpet.’

As shown in Table 4, the quantity and the quality (type of categories involved) of sentence-internal code-mixing varies according to the child. Giovanni and Roberta only insert a few single content words, whereas the other children code-mix more frequently and also mix functional categories.

Table 4. Categories appearing in code-mixing

<table>
<thead>
<tr>
<th>Children</th>
<th>Age</th>
<th>N</th>
<th>DP</th>
<th>PP</th>
<th>VP</th>
<th>IP</th>
<th>Other¹⁶</th>
</tr>
</thead>
<tbody>
<tr>
<td>Giovanni</td>
<td>5;10</td>
<td>1</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Roberta</td>
<td>5;8</td>
<td>2</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Enrica</td>
<td>5;6</td>
<td>4</td>
<td>2</td>
<td>–</td>
<td>–</td>
<td>1</td>
<td>–</td>
</tr>
<tr>
<td>Nuria</td>
<td>6;5</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Flora</td>
<td>4;7</td>
<td>2</td>
<td>–</td>
<td>–</td>
<td>2</td>
<td>–</td>
<td>3</td>
</tr>
</tbody>
</table>

We do not find examples of word-internal code-mixing involving the mixing of grammatical morphemes and verbs/nouns from the two languages of the type illustrated in the examples in (12), where it can be seen that the German-English mixed utterances (pronounced by the same child), which indicates that children do not code-mix when the dominant language is RI.

¹⁶. With “other” adjectives and adverbs are meant.
bilingual children produce the German suffixes -en appearing on infinitives (12a) and the prefix ge- appearing on regular past participles (12b) on the corresponding English verb forms.17

(12) a. Der can German
he.GERMAN can German
  talk-en (German-English, Petersen 1988: 480)
speak-INF.GERMAN
  ‘He can speak German.’

b. kiwi… du hast ge-buayed them?
  kiwi, you.GERMAN have-2sg.GERMAN-pref.GERMAN-buayed them
  ‘Has he bought kiwi?’

(German-English, Gawlitzek-Maiwald & Tracy 1996:910)

That word-internal code-mixing, a typical property of early child code-mixing (until age 3.5, see Bernardini & Schlyter 2004; Gawlitzek-Maiwald & Tracy 1996; Petersen 1988 among others), is absent from the children’s production is fully expected at their age. Moreover, the presence of sentence-internal code-mixing is also to be expected at this age, since insertion of single content words occurs when morpho-syntactic development is quite advanced between age 3 and 4 (see Bernardini & Schlyter 2004; Köppe 1997; Schlyter 1993; Vihman 1985). The mixing of functional words by Mòcheno children is also coherent with the properties of late child (and adult, see Muysken 2000) mixing, since functional words are not produced more frequently than content words and are fully absent when the language of the session is RI, unlike early child code-mixing (Deuchar 1999; Deuchar & Quay 1998). Furthermore, our data do not reveal a tendency for functional words to come from the dominant/stronger language (RI) and for lexical words to come from the non-dominant/weaker language (Mòcheno) (Jisa 2000; Lanza 1997, 2000; Vihman 1985; Petersen 1988); instead both functional and content words come from RI.

Code-mixing is quantitatively (number of mixed utterances) and qualitatively (type of categories involved) different in the children’s production, i.e. there are individual differences among the children in relation to code-mixing (see Table 4), and always involves the insertion of material from RI into Mòcheno.18

17. Both the presence of RI morphology on Mòcheno verbs, nouns or adjectives and the presence of Mòcheno morphology on Italian verbs, nouns or adjectives are unattested in our data.

18. An anonymous reviewer wonders whether the data on code-mixing simply indicate that children do what is common practice in their language community, i.e. they mix when they speak Mòcheno and they do not mix when they speak RI. That Mòcheno adult speakers code-mix when they speak in Mòcheno is uncontroversial, but code-mixing is reduced to the insertion of single content words, i.e. the frequent insertion of entire VPs and IPs observed in children is not found in adults (see Section 5 below). Whether code-mixing is also found
4. Subject pronouns in children’s production

4.1 Setting the pro-drop parameter

The first question to be addressed is whether children have acquired the crucial difference between Mòcheno and RI, i.e. that the former is a non-null subject language, whereas the latter is a consistent null-subject language. In Table 5, we consider all sentences lacking an overt DP subject in the Mòcheno part of the corpus. In the target language these sentences always need an overt pronoun, whereas a null referential subject can potentially be licensed in Italian (see Section 2). As can be seen by comparing the second and the third columns, out of 60 sentences, only in 3 do we find a null subject, whereas in all the other an overt subject pronoun is present.

Table 5. Subjects produced by the children in Mòcheno

<table>
<thead>
<tr>
<th></th>
<th>Overt subject</th>
<th>Null subject</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrica</td>
<td>9</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Flora</td>
<td>8</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>Giovanni</td>
<td>8</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Nuria</td>
<td>16</td>
<td>0</td>
<td>16</td>
</tr>
<tr>
<td>Roberta</td>
<td>16</td>
<td>0</td>
<td>16</td>
</tr>
<tr>
<td>Total</td>
<td>57</td>
<td>3</td>
<td>61</td>
</tr>
</tbody>
</table>

The data in Table 5 clearly indicate that all Mòcheno children have acquired the pro-drop parameter, which would be considered a macroparameter (Baker 2008; Biberauer & Roberts 2012, this volume; Biberauer, Roberts & Sheehan 2014). If we consider the very few instances of null subjects produced by the children, we find evidence that they also appear to have acquired those constructions where null subjects are possible, which, as discussed in Section 2, are connected to diatopic variation. In particular, the sentences with a referential null subject produced by Giovanni and Enrica are fully target-like in their variety (Roveda), since the null subject shows up in coordination.

when Mòcheno speakers speak RI is more difficult to tell, because we have no studies on spontaneous speech between two Mòcheno speakers talking in RI or Trentino. As far as we can tell from our experience in the Fersina valley, Mòcheno speakers do code-mix when they speak RI/Trentino, for instance in conversations in bars involving two people from the valley, where code-mixing alternates with code-switching. Note that the hypothesis that code-mixing in children reflects a general pattern of the linguistic community does not explain why code-mixing is quantitatively and qualitatively different among children – which fact is immediately captured if we assume (as we do in Section 5 below) that code-mixing is an indication that Mòcheno is slightly weaker than RI in simultaneous bilingual children.
The other children, on the other hand, never produce a null subject (not even in coordination), which is consistent with the Fierozzo variety (see Section 2).\textsuperscript{19}

Let us analyse the children’s production in RI. In Table 6, we consider all the sentences lacking a DP subject in the corpus. Note that in the absence of a DP subject, null referential subjects are possible/obligatory in the target language, unless focus/contrast needs to be expressed (see Section 2). What we find is the opposite pattern described for Mòcheno in Table 10, i.e. in the 58 contexts lacking a DP subject, only 3 overt subject pronouns appear. These are all the subject pronouns realised by the children in RI.

Table 6. Overt and null subject produced by the children in RI

<table>
<thead>
<tr>
<th>Sentences with no DP subject</th>
<th>Overt subject</th>
<th>Null subject</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrica</td>
<td>0</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Flora</td>
<td>1</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Giovanni</td>
<td>0</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Nuria</td>
<td>0</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Roberta</td>
<td>2</td>
<td>22</td>
<td>24</td>
</tr>
<tr>
<td>Total</td>
<td>3</td>
<td>55</td>
<td>58</td>
</tr>
</tbody>
</table>

The data in Tables 5 and 6 indicate that there is a very striking quantitative split in the number of subject pronouns produced by the children in the two languages. Subject pronouns are practically absent from the Italian part of the corpus, whereas they are the rule in its Mòcheno part. This seems to indicate that children have acquired the parametric difference between the two languages (+/- pro-drop) and most of the exceptions. We do not find any individual differences among the children.

4.2 Syntactic and discourse factors

Children appear to have acquired the parametric difference between Mòcheno and RI. In this subsection, we answer the question of whether the syntactic and discourse conditions for the distribution of the subjects in the two languages are met.

\textsuperscript{19} An anonymous reviewer considers it misleading to count cases of coordination, which involve ellipsis or Topic drop, as “null subjects”. We do not agree with this, and, following Sigurðsson (2011), we assume that the topic-drop strategy is one possible strategy for the realization of null subjects. In Mòcheno, both the Romance (null referential pronoun in Spec,TP co-indexed with a Topic) and the Germanic (topic drop) strategies for realising null subjects are present – therefore, the acquisition of both has to considered, especially in the light of the diatopic differences.
In Table 7 we consider the syntax of subject pronouns in Mòcheno. The only forms attested in the children’s production are the weak and the clitic – strong forms are absent. Weak pronouns are consistently preverbal, and clitics are all postverbal in all children’s production. This indicates that the syntactic position of the pronouns is fully consistent with the target (see Section 2). The only remarkable thing is that two children, Nuria and Flora, did not produce clitic pronouns.

### Table 7. Subjects produced by the children and their syntactic position

<table>
<thead>
<tr>
<th>Type of subject pronoun</th>
<th>Weak</th>
<th>Clitic</th>
</tr>
</thead>
<tbody>
<tr>
<td>(X)SV</td>
<td>(X)VS</td>
<td>(X)VS</td>
</tr>
<tr>
<td>Enrica</td>
<td>5</td>
<td>–</td>
</tr>
<tr>
<td>Flora</td>
<td>9</td>
<td>–</td>
</tr>
<tr>
<td>Giovanni</td>
<td>7</td>
<td>–</td>
</tr>
<tr>
<td>Nuria</td>
<td>16</td>
<td>–</td>
</tr>
<tr>
<td>Roberta</td>
<td>12</td>
<td>–</td>
</tr>
<tr>
<td>Total</td>
<td>49</td>
<td>0</td>
</tr>
</tbody>
</table>

For RI, the three occurrences of an overt pronoun are target-like from the syntactic point of view, i.e. they are preverbal (Cognola 2011: 153,155 and below).

Let us consider whether the distribution of subject pronouns is consistent with the discourse factors ruling it in the two languages in contact. We look at the production of Roberta, Giovanni and Nuria, which is exemplificative of all children’s production.

In the story-retelling task, the children use the subject pronouns consistently with the target language Mòcheno; in particular, they produce either a weak or a clitic form in all contexts in which RI would require a null subject, i.e. when the pronoun is licensed by an Aboutness-shift topic (see Section 2 above). In (13) we see that the Aboutness topic of the first sentence is “the lion”, whereas the Aboutness topic of the second one is “the giraffe”, which provides the starting point for the event described in the following sentences. Consistently with the target, these sentences contain a weak form (they contain a clitic in other children’s production).

---

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---

There is a gender mismatch between the DP subject (grammatical feminine) and the co-indexed weak pronoun (either masculine or feminine). See Cognola (2011: Chapter 5) for an explanation of this.
The same distribution of subject pronouns is found in (14). Roberta has just told the Italian-speaking puppet Ciro what the children do in the kindergarten. The Mòcheno-speaking puppet Gisela asks the child to repeat it in Mòcheno. Roberta describes again a typical day in the kindergarten and uses only weak and clitic pronouns.

(14a)  a. *GISELA: i bill aa bissn, bos as de Roberta tsòk hòt!
       b. *ROBERTA: pahena bar stianen su, u-leign, ont dòra bar, giana za spiln, dòra birt erst za mòchen colazione, dòra bar gea' za.. en laboratorio, ont bar tea eppes, ont dòra bar gia za spiln ont dòra bar gia nou za èssn, benn-s-ist an schea' to ber gea' en giardino, dòra ber tea trinken der te, dòra gea-ber huam.

(14b)  a. *GISELA: I also want to know what Roberta said!
       b. *ROBERTA: We first get up and get dressed, then we go to play, then it is time to have breakfast, then we go to the laboratory, and we do something, and then we go to play and then we go again to eat, if it is a nice day, we go to the garden, then we have a tea, then we go home.

Finally, in the examples in (15) we consider the distribution of subject pronouns in a dialogue, in which the Mòcheno-speaking puppet asks questions to Giovanni. As the examples in (15) show, in all these contexts Giovanni always produces a weak pronoun i.21

(15a) *GISELA: ehi, ehi, i bill aa bissn bos as der Giovanni gester gamòcht hòt.
       *GIOVANNI: I tue bol spiln pet de mai compagni.
       [...] *GIOVANNI: I hòn gabascht de zenn.
       [...] *GIOVANNI: I pin gòngen en gò rtn.
       [...] *GIOVANNI: I tue spiln pet de machine.

---

21. The first person singular i exhibits two homophonous (strong and weak) forms in Mòcheno, see Table 1 above. The prosodic analysis of the children’s production could establish that the pronoun appearing in these examples is the weak form (Cognola, Moroni & Bidese 2014).
(15b) *GISELA: ehi, ehi, I also want to know what Giovanni did yesterday.
*GIOVANNI: I play with my friends.
[…]
*GIOVANNI: I brushed my teeth.
[…]
*GIOVANNI: I went to the garden.
[…]
*GIOVANNI: I play with the cars.

Note that in no contexts is the subject focussed/contrasted. This explains why no strong pronouns are present in the children’s production in Mòcheno and further confirms that their production is target like.

Let us consider the children’s production in RI. In (16) we reproduce a dialogue between Roberta and Ciro, in which she produces two of the three subject pronouns present in sentences with no DP subject (see Table 6). As can be seen, the pronoun is the first person singular “I”, which is produced in the answer to “what do you do?” and “what do you all do?”. The presence of the overt pronoun is unexpected in RI, but we suggest that it should not be considered an indication of the fact that Roberta’s production is target-deviant. First, many studies have pointed out that the presence of overt subjects in null-subject languages is favoured in the first person (see Carvalho & Child 2011; Otheguy et al. 2007; Silva-Corvalán 2001). Second, all other RI sentences produced by Roberta are fully target-like (see below).

(16a) *CIRO: […] Mi racconti cosa fai all’asilo?
*ROBERTA: io gioco con la amica che si chiama Giada.
[…]
*CIRO: e poi cosa fate?
*ROBERTA: dopo quando non c’è Giada io gioco con Maria.

(16b) *CIRO: […] Would you like to tell me what you do in the kindergarten?
*ROBERTA: I play with my friend Giada.
[…]
*CIRO: and then what do you guys do?
*ROBERTA: when Giada is not there, I play with Maria.

All other sentences produced by Roberta are fully target-like. As shown in (17), when she tells what she and the other children do in a typical day in the kindergarten, all coordinated sentences contain a null subject, like in the target grammar.

(17a) *ROBERTA: vedi, prima pro ci vestiamo, là, sul primo, poi pro andiamo dentro a giocare, poi pro facciamo colazione, poi pro andiamo a lavorare in

---

22. We thank an anonymous reviewer for drawing our attention to these studies.
laboratorio, poi pro andiamo a mangiare, poi se è bel tempo pro andiamo in giardino, poi pro beviamo il the, poi pro andiamo a casa.

(17b) *ROBERTA: We first get up and get dressed, you see that on the first [she points at the drawings made by the children illustrating a typical day in the kindergarten] then we go to play, then we have breakfast, then we go to the laboratory, then we have lunch, if the weather is nice, we go in the garden, then we have a tea, then we go home.

In the dialogue in (18), which is the Italian version of the Mòcheno dialogue in (15), we see that Giovanni produces null subject in RI, consistently with the target grammar.23

(18a) a. *CIRO: E poi? Sei andato a casa?
   b. *GIOVANNI: ho fatto il pranzo.
      […]
   c. *CIRO: e poi dopo pranzo cosa avete fatto?
   d. *GIOVANNI: abbiamo lavato i denti.
(18b) a. *CIRO: And then? Did you go home?
   b. *GIOVANNI: I had lunch.
      […]
   c. *CIRO: and what did you guys do after lunch?
   d. *GIOVANNI: we brushed our teeth.

In this section we have shown that Mòcheno-speaking bilingual children performed target-like for syntactic and discourse conditions in both Mòcheno and RI. The only deviant thing that we could find is that two children, Nuria and Flora, did not produce clitics, but only weak pronouns, in contexts in which optionality between them is allowed in the target language. However, both children followed the syntactic and discourse rules of Mòcheno, i.e. the lack of clitics does not correlate with other problems in this area of grammar.

5. Discussion of results

In Table 8 we summarise the results reached in Section 4. We show that the children have acquired the parametric difference between RI and Mòcheno, i.e. have correctly set the value of the pro-drop parameter, and master both the syntactic and the discourse factors ruling the distribution of overt and null subjects in both languages. The

23. Note that in (18a-d) Giovanni does not use the auxiliary “to be” and the reflexive verb that would be obligatory in RI (Ci siamo lavati i denti), but uses the auxiliary verb “to have”. For the presence of this phenomenon in Northern Italian dialects, see Benincà (1994).
only non-target-like thing that we found is that two children, Nuria and Flora, only produced weak forms in Mòcheno and no clitics.

**Table 8.** Null and overt subjects in children’s RI and Mòcheno

| ± pro-drop | subject pronouns |
|------------|-----------------
| IT         | M               |
| IT         | M               |
| IT         | M               |
| IT         | M               |
| IT         | M               |

| Enrica     | √   | √   | √   | √   |
| Flora      | √   | √   | √   | √ -cl |
| Giovanni   | √   | √   | √   | √   |
| Nuria      | √   | √   | √   | √ -cl |
| Roberta    | √   | √   | √   | √   |

All the children who participated in our study have correctly acquired the pro-drop parameter in the two languages in contact, despite their being set on opposite values. The data also show that they master the syntactic and discourse conditions ruling the distribution of null and overt subject pronouns in the two languages. That Mòcheno-speaking children have also acquired the discourse properties ruling the distribution of subjects in the two languages is particularly important in the light of the converging results showing that the syntax-discourse interface is responsible for difficulties and delays in different types of bilingualism and in L2 learners (see Belletti, Bennati & Sorace 2007; Colonna Dahlmann & Kupisch this volume; Serratrice & Sorace 2009; Sorace 2011). Moreover, it implies that children can master two languages from early on and can keep them separate, even in multilingual contexts where the presence of other languages is pervasive (Hulk & Müller 2000; Paradis & Genesee 1996 for similar proposals; and Volterra & Taeuschner 1978 for the single-system hypothesis for bilingualism). This undermines the notion of contact between two languages as a possible trigger for imperfect language acquisition, but does not exclude a possible role for the presence of conflicting evidence within one and the same language (Lightfoot 1991). The fact that all the children have acquired the syntax of overt and null subjects perfectly in both languages, and have done this in a situation in which they all have reduced exposure to both languages, but especially to Mòcheno, fully confirms Meisel’s (2010) claim that children’s Language Making Capacity is extraordinarily robust and allows them to perfectly acquire a target grammar even in the presence of ambiguous, contradictory and reduced input.

However, there are individual differences among the children in the production of subject pronouns in Mòcheno, which need to be better understood. Two children, Nuria and Flora, did not produce clitic pronouns in main clauses in the test. There are two possible explanations for this. One is that they have failed to acquire the paradigm
of subject pronouns as an effect of incomplete acquisition. In the light of the above discussion, we consider this hypothesis to be very weak, since it does not explain why incomplete acquisition would just affect these two children and the very specific area of subject clitics. The second hypothesis, which we believe to be correct and provide data to support, is that the absence of subject clitics in their production is due to their being the only simultaneous bilinguals in the study, i.e. they had less input in Mòcheno from 0–3 than successive bilinguals (mostly Mòcheno from 0–3, RI from 3). This implies that the absence of clitics correlates with the type of bilingualism the children instantiate and with the fact that they had less input in the heritage language, which is, therefore, slightly weaker than RI.24

To test this hypothesis, we first provide quantitative data showing that the absence of subject clitics in the two children’s speech is a consistent phenomenon. In her study, Cognola (2011) carried out a specific test involving the three children from Fierozzo that investigated gender agreement mismatches. The test was a story-retelling task in which the children heard three stories in Italian told by Ciro and had to retell them to the Mòcheno-speaking puppet Gisela (see Section 3.2 above). In Table 9, we consider the production of subject pronouns by the three children in the transcript of this test (semi-spontaneous speech, about 90 minutes). The table shows that both weak and clitic pronouns are present in the production of the successive bilingual Roberta, whereas almost no clitics are produced by the two simultaneous bilinguals Nuria and Flora. All pronouns produced by the children are target-like in their syntax and information structure.

Table 9. The production of subject pronouns by the three children

<table>
<thead>
<tr>
<th>Type of pronouns</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weak</td>
<td>Clitic</td>
</tr>
<tr>
<td>Flora</td>
<td>27</td>
</tr>
<tr>
<td>Nuria</td>
<td>42</td>
</tr>
<tr>
<td>Roberta</td>
<td>28</td>
</tr>
</tbody>
</table>

24. Montrul & Potowski (2007) show that simultaneous, but not successive, heritage Spanish bilinguals are closer to L2 speakers, and take this as evidence that heritage contexts favour incomplete acquisition. Our data also indicate a difference in proficiency between simultaneous and successive bilinguals; however, this does imply incomplete acquisition, but simply slightly unbalanced bilingualism. This is evidenced by the fact that the simultaneous bilingual children fully pattern with successive bilinguals as far as the pro-drop parameter is concerned, and they can in no way be compared with L2 speakers. See Colonna-Dahlman & Kupisch (this volume) for similar results for attrition in migrant speakers.
The data in Table 9 clearly indicate that the absence of clitic pronouns in main declarative clauses is a consistent phenomenon in the production of the two simultaneous bilingual children, which calls for an explanation. Our hypothesis is that the absence of subject clitics in the simultaneous bilingual children is evidence that they are slightly unbalanced bilinguals, and their Mòcheno is slightly weaker than their RI. That Mòcheno is the weaker language does not lead to incomplete acquisition of syntax (as the discussion in Section 4 has shown), but simply manifests itself in uneven development of the lexicon (see also Meisel 2007, 2010 for a similar result), which includes subject clitics. This hypothesis predicts that the two simultaneous bilingual children will have a more reduced Mòcheno lexicon than successive bilinguals. The data on code-mixing discussed in Section 3.2 (Table 4) above support this view. The successive bilinguals Giovanni and Roberta code-mix in very few utterances and only insert RI content words into Mòcheno, whereas code-mixing is very frequent in the two simultaneous bilinguals Nuria and Flora and involves the insertion of both content and functional words.\footnote{We propose that the simultaneous bilingual children rely on code-mixing to fill lexical gaps – in both lexical and functional categories – in their slightly weaker language. Successive bilinguals, in contrast, only insert single content words into Mòcheno, because the two languages are more balanced. This idea implies that the type of code-mixing found in the simultaneous bilingual children is target-deviant and is a sign of slightly unbalanced bilingualism. To provide evidence for this, we compare children’s and adult’s code-mixing through an analysis of the transcript of interviews with 14 successive Mòcheno speakers of all three dialects, carried out in 2014 for an ethnographic study (Marchesoni & Toller 2015). These interviews are particularly appropriate for a comparison of code-mixing in children and adults, since they involve a context similar to that in which the children’s semi-spontaneous speech was collected, having been taken from a conversation between two Mòcheno speakers (the interviewer was from the community), in which the interviewees were asked to talk about something they knew well (their personal relationship with the forest). There are about 800 sentences in the transcript, in which we have found 40 cases of code-mixing. All the speakers code-mix, and all mixes involve the insertion of single}

We propose that the simultaneous bilingual children rely on code-mixing to fill lexical gaps – in both lexical and functional categories – in their slightly weaker language. Successive bilinguals, in contrast, only insert single content words into Mòcheno, because the two languages are more balanced. This idea implies that the type of code-mixing found in the simultaneous bilingual children is target-deviant and is a sign of slightly unbalanced bilingualism. To provide evidence for this, we compare children’s and adult’s code-mixing through an analysis of the transcript of interviews with 14 successive Mòcheno speakers of all three dialects, carried out in 2014 for an ethnographic study (Marchesoni & Toller 2015). These interviews are particularly appropriate for a comparison of code-mixing in children and adults, since they involve a context similar to that in which the children’s semi-spontaneous speech was collected, having been taken from a conversation between two Mòcheno speakers (the interviewer was from the community), in which the interviewees were asked to talk about something they knew well (their personal relationship with the forest).

There are about 800 sentences in the transcript, in which we have found 40 cases of code-mixing. All the speakers code-mix, and all mixes involve the insertion of single

\footnote{The presence of code-mixing with functional categories in the production of the successive bilingual Enrica simply indicates that she has some lexical gaps that she tries to fill through code-mixing. Note that the proposed correlation between the presence of subject clitic pronouns and successive bilingualism holds, since Enrica does produce clitic pronouns (see Section 4 above).}

\footnote{We thank Leo Toller and Chiara Pompermaier of the Institute for the Promotion of the Mòcheno Language and Culture for making this partially unpublished material available to us.
content words (without an article) from RI into Mòcheno. (19) is an example of the type of adult code-mixing that occurs: the RI content words “uso frigo” and “aria” are inserted into Mòcheno to fill a lexical gap in the language. We have found no instances of lexical and functional categories being mixed in the adult language.

(19)  De kastn hom ber gamòcht va vaicht de mearestn ont dòra hom ber gamòcht de schikòstn as sai’ gaben uso frigo, […] ont dòra auszai’nt pet de eisln being za mòchen passarn de aria, za tea’ pet de eisnstaun.

“Most of the cupboards we made of fir wood, and then we also made the cupboards for the milk (schikòstn) which were like a fridge, […] and then closed them with wooden sticks to let the air circulate, to do with hazel wood.”

The comparison between child and adult code-mixing reveals that the insertion of RI functional words into Mòcheno is not a common practice in the linguistic community, where code-mixing only involves the insertion of single content words without an article. This implies that the type of code-mixing found in the production of the two successive bilinguals is target-like, whereas that found in the production of the simultaneous bilinguals is not. We suggest that the data on code-mixing and on the absence of clitic pronouns indicate that Mòcheno is the weaker language for the two simultaneous bilinguals: this is manifest at the lexical level in the absence of clitics and in the presence of quantitatively and qualitatively non-target-like code-mixing as a strategy to fill these lexical gaps.

On the basis of this analysis, we can thus conclude that there is no evidence for transmission failure in the analysed heritage setting. All children have acquired their grammars target-like, and the individual differences we have detected follow from an uneven development of the lexicon of the weaker language in simultaneous bilingual children. Therefore, the acquisition of two languages in such a multilingual setting does not differ in any relevant respects from simultaneous bilingual language acquisition.

6. Conclusions

One of the most controversial assumptions of generative approaches to diachronic change is that language change is caused by children’s incomplete acquisition, when they fail to acquire a target grammar and introduce changes that are passed on to the subsequent generations of speakers. It has been claimed that imperfect acquisition is triggered by (i) changes in the frequency of use of particular constructions, (ii) structural ambiguity of constructions, and (iii) exposure to conflicting evidence in situations of language or dialect contact (Lighfoot 1991). Meisel (2010) challenges this view, claiming that none of the factors assumed by Lighfoot (1991) are confirmed.
by the results of research in monolingual and bilingual language acquisition, which show that the children’s Language Making Capacity is very robust and allows them to acquire the target grammar(s), even in the presence of reduced and ambiguous input. The only cases documented in research on language acquisition in which acquisition failure happens systematically is L2 bilingual acquisition, and, more controversially, in heritage contexts where a minority language is spoken together with a dominant language in a specific socio-linguistic context (Allen 2007; Meisel 2010; Montrul 2004; Montrul & Potowski 2007; Silva-Corvalán 1994; Sorace 2004; Pascual y Cabo & Rothman 2012).

By focusing on the pro-drop parameter in pre-school children (4.7–6.5) in the Fersina valley, where the minority language Mòcheno is spoken together with RI and Trentino, we have addressed in the paper the question of whether incomplete language acquisition occurs systematically in heritage contexts, and whether children automatically introduce changes in their target grammar that can potentially lead to a resetting of parameters.

Our data have demonstrated for the specific language combination investigated in the paper (Mòcheno-RI) that language acquisition in this heritage context does not differ significantly from simultaneous and successive bilingual first language acquisition, i.e. transmission failure does not happen (Meisel 2010). The syntax and the syntax-discourse interface connected with pro-drop of both languages are acquired target-like by all children. The individual differences detected in two simultaneous bilingual children (absence of clitic pronouns in main declarative clauses) have been shown to be connected to the presence of lexical gaps in their Mòcheno, which is a slightly weaker language for them, and are not a sign of imperfect acquisition. These gaps are due to the fact that the simultaneous bilinguals received less input from age 0–3 in comparison to successive bilinguals, who were exposed predominantly to Mòcheno before age 3 (Montrul & Potowski 2007). If the children continue to receive input in their homes, such gaps will be filled.

This result has important implications for our understanding of the relationship between language change and language acquisition, since it indicates that children do not have problems with this macroparameter, but fail to acquire the syntax of single lexical items (possibly a nanoparameter in Biberauer & Roberts’ 2012, this volume approach), and that children are not the locus of language change caused by imperfect acquisition, even in potentially vulnerable contexts, like heritage scenarios. This confirms Meisel’s (2010) claim that children’s Language Making Capacity is extraordinarily robust and allows them to acquire a target grammar perfectly even in the presence of ambiguous, contradictory and reduced input. It also shows that language contact between Mòcheno and RI cannot be considered a trigger for language change due to imperfect acquisition (Lightfoot 1991; Thomason 2001; Thomason & Kaufmann 1988). The bilingual children have, in fact, correctly set the pro-drop parameter on
opposite values in the contact languages Mòcheno and RI, demonstrating that this parametric difference between the languages in contact can be mastered perfectly by the children.

This paper documents a specific acquisitional stage in children's acquisitional development. Whether the system described will remain stable in the future is a question that we cannot answer here, since to do so would require longitudinal data. Heritage communities are undoubtedly vulnerable contexts because of their specific socio-linguistic situation, and changes may be introduced by any one of the children in the future. Subject clitic pronouns seem to be a particularly vulnerable area of Mòcheno grammar, especially in contexts where weak and clitic forms are both possible. Changes might be introduced in the future that were not necessarily connected to imperfect acquisition, but that followed from children supporting one of the two grammatical options available in Mòcheno, just as Italian children support the non-standard pronominal forms gli instead of loro “to them”, or gli instead of le, “her” (Cardinaletti 2004).²⁷ For the Mòcheno case, where the distinction standard vs non-standard plays no role (see Section 2), the relevant factor might be the superficial overlap with the contact languages (see Hulk & Müller 2000 for a similar result). This would mean that the preferred option is the one that overlaps superficially with the Trentino dialect, i.e. weak+finite verb, since subject clitics precede the finite verb in Trentino, like weak pronouns in Mòcheno.

If this hypothesis proves to be correct, it implies that children contribute to language change by supporting one of the two grammatical options present in the language, rather than through incomplete acquisition. The question as to which mechanisms favour the choice of the supported option we must leave open for further research.

References


²⁷. We thank an anonymous reviewer for drawing our attention to the Italian data and for pointing to an alternative view on the relationship between language acquisition and language change.


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The contributions of this book deal with the issue of language variation. They all share the assumption that within the language faculty the variation space is hierarchically constrained and that minimal changes in the set of property values defining each language give rise to diverse outputs within the same system. Nevertheless, the triggers for language variation can be different and located at various levels of the language faculty. The novelty of the volume lies in exploring different loci of language variation by including wide-ranging empirical perspectives that cover different levels of analysis (syntax, phonology and prosody) and deal with different kinds of data, mostly from Romance and Germanic languages, from dialects, idiolects, language acquisition, language attrition and creolization, analyzed from both diachronic and synchronic perspectives. The volume is divided in three parts. The first part is dedicated to synchronic variation in phonology and syntax; the second part deals with diachronic variation and language change, and the third part investigates the role of contact, attrition and acquisition in giving rise to language change and language variation in bilingual settings.