

The Determinants of Diachronic Stability

Edited by

Anne Breitbarth
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Volume 254

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The determinants of diachronic stability

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1. Setting the scene

That human languages are constantly evolving is an undeniable fact. By now, theories have become very apt at dealing with linguistic variation and change. The reality is that populations are indeed in constant flux, socially and linguistically. Much of what used to be considered ‘internally-caused change’ might perhaps more appropriately have to be considered as contact-induced on the level of contact between varieties of a single diasystem. This realization turns the faithful stable transmission of linguistic features into an urgent explanandum. Different linguistic subfields have responded to this in different ways, and many questions still need to be addressed.

- Within the field of typology, the question of which traits of languages are more stable diachronically and cross-linguistically has been put on the agenda mainly by the work of Johanna Nichols (Nichols 1992). However, more research is needed as linguistic theory has focused disproportionately on the Indo-European language family.
- From a markedness point of view, inflectional classes apparently needlessly complicate morphological systems, which leads to the expectation that they should be diachronically unstable (e.g. Wurzel 1989). The fact that this is empirically not confirmed is in need of explanation (e.g. Lass 1990).
- While there is no question that language contact may induce change (e.g. Thomason & Kaufman 1988), it has only more recently been noted that there may also be linguistic stability in spite of language contact, and that it may, in some cases, even be contact-induced (e.g. Trudgill 2011; Braunmüller et al. 2014).
- A further question that has not yet satisfyingly been answered is why, given the same or similar input conditions in different languages, some linguistic changes never happen, or, once initiated, stall (e.g. Weinreich, Labov & Herzog 1968; Labov 1994, 2001).

- More recently, the related question of whether there can be such a thing as stable variation in language, and how it interacts with language change has been added to the research agenda (e.g. Wallenberg 2013).
- It is unclear what the influence of type and token frequency is on keeping certain properties diachronically stable. On the one hand, research has indicated that highly frequent items are more likely to be subject to changes associated with grammaticalization, such as phonological reduction (e.g. Bybee 2003), and therefore, low frequency of usage might be expected to favour stability. On the other hand, highly frequent elements often resist analogical change (e.g. Bybee 2003), so in this sense, ‘low frequency items’ are expected to be more prone to change.
- Finally, the role of extra-linguistic factors such as normative pressure in keeping linguistic phenomena constant should be studied more systematically, and with an eye on interaction with the language internal factors mentioned above.

The current volume joins ten contributions addressing a number of these questions.

2. Overview of the volume

The current volume unites ten contributions that look for the determinants of diachronic stability, mainly in the areas of morphology and (morpho)syntax. The relevant question is approached from different angles, and both empirical and theoretical considerations are taken into account. First, there are two chapters looking for the causes of stability in concrete empirical cases of morphology and syntax (2.1), followed by four chapters uncovering syntactic stability where traditionally, diachronic change was postulated (2.2). The next two chapters turn to the role of language contact in particular empirical cases (2.3), followed by two chapters addressing the mathematical modelling of (un)stable variation under an acquisitional model inspired by Yang’s (2000, 2002) variational learning algorithm (2.4).

2.1 Stable phenomena and their determinants

The first two chapters address diachronically stable phenomena, one morphological and one syntactic.

Grammatical gender marking is sometimes regarded as linguistic ‘junk’ (Lass 1990; Trudgill 2011), and its loss as a reduction in morphological complexity, which is the norm for (at least) Western European languages. Indeed, in many languages complex grammatical gender systems are reduced to a binary opposition, either common vs. neuter or masculine vs. feminine, with concomitantly an at least partial semantic shift in favour of marking the natural gender of the referent.

However, in other languages complex gender marking seems to be diachronically stable, which raises the question why this can be so. **Sheila Watts** takes up a suggestion by Dahl (2004) that the role of gender in discourse tracking outweighs the difficulties of acquisition, by examining in detail the relative frequency of gender marking in a language retaining gender (German) in comparison to one which has lost it (English). Her corpus study shows that surprisingly different internal factors are at play, even prior to the very different language contact situations affecting both languages, that is, already in the Old High German and Old English periods. Watts argues that phonological and perceptual salience, morphological distinctiveness, and analogy-fuelled systematicity conspire in Old High German to make a three-way gender system more easily acquirable than the Old English one.

Melissa Farasyn turns to stability in the realm of morphosyntax. Like Old High German, Old Saxon (Old Low German), and Old Dutch, the verb in Middle Low German non-restrictive relative clauses modifying a 1st or 2nd person head (antecedent) always agrees in person and number with this head (i.e., the equivalent of present-day English *you who are tired* instead of *you who is tired*). This agreement pattern is at odds with the standard assumption that verbal agreement is clause-bound (see e.g. Salzmann 2017). Given the more widespread availability of referential null subjects in older Germanic languages, Farasyn argues that head noun agreement in Middle Low German and all other (older) West Germanic languages is in fact agreement with a silent resumptive pronoun. The patterns that are most natural in present-day German, viz. either 3rd person agreement (with the relative pronoun), or agreement with an overt resumptive (*du, der du müde bist*, lit. ‘you who you are tired’), are later innovations.

2.2 Apparently unstable stable phenomena

Sigríður Sæunn Sigurðardóttir and **Thórhallur Eythórsson** argue that contrary to previous claims, weather verbs in Icelandic are not ‘no-argument’ predicates. Both in Old and Modern Icelandic they can appear with an NP either in nominative, accusative or dative case. In Modern Icelandic these NPs can be shown to be subjects, and the authors argue that this is likely for Old Icelandic too. Diachronically, in addition to some changes in subject case marking, the main innovation in weather verbs is the introduction of the ‘expletive’ elements, viz. *það* and (‘weather-’) *hann*, which they view as a superficial change. On the whole, they maintain, there is considerable stability in the use of weather verbs in the history of Icelandic, both lexically and syntactically.

Although Nichols (1992: 1) does not include Chinese in her search for “typologically, historically and areally stable features in the world’s languages”, Chinese is an intriguing case of syntactic stability. The main theoretical contention of **Redouane Djamouri** and **Waltraud Paul**’s contribution is that there are no principled reasons

in Universal Grammar (UG) for a given synchronic language system to be (typologically) more or less stable (i.e. more or less likely to change) than some other synchronic system. Instead, the authors stress the role of chance in processes of language change. This point of view is at odds with a number of recent proposals about so-called ‘parameter hierarchies’ (see especially Biberauer & Roberts 2012, 2015; Roberts 2012), which predict that a parameter that affects all functional heads in a given language (across lexical categories) should be less likely to change than lower level parameters that only apply to a subset of the functional lexicon of a given language. As Djamouri and Paul discuss at length, it is unclear whether this point of view stands up to empirical scrutiny once the diachrony of so-called disharmonic word orders is considered. Historical Chinese constitutes a very interesting testing ground to verify the diachronic predictions made by the proponents of the ideas the parameters of UG are organized in hierarchies: not only has the language been attested continuously since the second half of the second millennium BC, it has also both mixed head-final and head-initial orders from its earliest attestations onwards. The conclusion of the paper is that the Chinese data falsify the predictions from Biberauer & Roberts (2012, 2015) and Roberts (2012), regarding the instability of such disharmonic orders.

Ioanna Sitaridou’s and Afra Pujol i Campeny’s contributions both take on the long-standing and controversial question of whether any, or perhaps even all of the Medieval Romance languages (Old French, Old Italian, Old Spanish, Old Catalan, Old Leonese, Old Portuguese, etc.) had a V2 grammar and subsequently lost it, or whether at least some of the varieties only had V-to-T movement, a property which they retain until today. Both chapters claim that at least for Old Spanish (Sitaridou) and Old Catalan (Pujol i Campeny), we are dealing with a basic V-to-T grammar which remains stable throughout many centuries. In particular, Sitaridou argues that Old Spanish cannot be a prototypical V2 language, because it displays properties that make it unlike any other known V2 system. She further argues that it cannot be a new type of V2, and concludes on the basis of a detailed examination of a text corpus dating from approximately the late 13th century that a non-V2 (i.e. V-to-T in both main and embedded clauses) analysis is the only remaining option. However, she also argues that in certain environments V-to-C movement is in fact available in Old Spanish, namely in contexts of polarity emphasis, often co-occurring with the marker of emphatic positive polarity *sí*. Similarly, Pujol i Campeny shows that the high token frequency of V1 clauses in Old Catalan cannot plausibly be reconciled with a hypothetical V2 system, leaving, again, the non-V2 analysis as the only plausible option. The author also focuses on a text from the 13th century (namely a chronicle known as the *Llibre dels Feys*): systematically comparing word order patterns found in this text with their Modern Catalan counterpart, she concludes that there is no reason to assume that the range of possible

verb positions has changed over the centuries. The high incidence of V1 clauses is argued to be an effect of the narrative style that characterizes the *Llibre dels Feys*, which is entirely unrelated to a putative V-to-C grammar.

In sum, these last two chapters not only document two case studies of longitudinal syntactic stability, but they also contribute to the ongoing debate about verb placement in the history of the Romance language family.

2.3 Language contact, stability, and change

The next two chapters turn to the role of language contact in accounting for diachronic stability. While the catalysing capabilities of language contact for linguistic change are well-described in the literature, the role of contact in hindering change has so far been largely overlooked (although see de Granda 1988, 1993; Enrique-Arias 2010).

Under a variationist approach to language change (Kroch 1989, 1994) morphological variation is the result of the competition of an old and an innovative grammar, which should be diachronically unstable as one form is replaced by another. While the grammar competition model essentially attributes all language change to a form of language contact, the question is whether this also holds in situations that are more traditionally considered language contact, i.e., contact between typologically and genetically more distant languages. **Charlotte Galves** takes up the case of Brazilian Portuguese and argues that the apparently stable morphological variation between certain innovative and conservative pronouns and agreement markers resulting from massive language contact is not in fact the consequence of competition between conservative and innovative varieties of Portuguese, but rather a property of the new grammar altogether. She argues that this leads to the emergence of morphological doublets in the language which undergo specialization, and thus reanalysis of one of the forms, as also argued by **Joel Wallenberg** in his chapter (see below, and Wallenberg & Fruehwald 2013). Once the conservative form is acquired, it will undergo specialization, giving rise to apparent stability. If it is not acquired, but learnt as part of a (written) norm, it becomes a fossil, which is bound to disappear.

The paper ‘What is a diachronically stable system in a language-contact situation? The case of the English recipient passive’ by **Achim Stein**, **Richard Ingham** and **Carola Trips** deals with an instance of contact-induced syntactic change in the history of English, drawing on theoretical work by van Coetsem (1988, 2002) and Johanson (2002). The empirical focus of the paper is on the genesis of the recipient passive (of the type *Mary was given a book*) in the history of English, which first became productive with verbs of French origin, even though Old French did

not itself have a recipient passive. Therefore, it is not that a syntactic construction was borrowed as a whole, but rather, the phenomenon of structural (rather than inherent) dative case, which was in fact available in Old French, namely with clause-taking ditransitives. Assuming that only structurally case-marked arguments can act as derived subjects, this instance of borrowing can be considered an important step towards the eventual genesis of recipient passives. Given that the sociolinguistic conditions under which speakers of Old French, Anglo-French, and/or Middle English interacted with each other are fairly well documented, the authors are able to offer a detailed reconstruction of a very intricate instance of language change. What transpires is that although language contact is neither a necessary nor a sufficient condition for a stable system to be disrupted, it is in fact possible for syntactic phenomena which only have indirect surface manifestations, such as structural case, to be copied under contact.

2.4 Variational learning and diachronic stability

The final two chapters of this volume move away somewhat from concrete cases of (apparent) diachronic stability, and address the modelling of the acquisitional mechanisms behind language change, diachronically stable variation, and absence of change. The background and point of departure forms Yang's (2000, 2002) theory of variational learning, which provides a learning model for the evaluation of the evolutionary fitness of grammars postulated by language learners based on the input they receive. According to Yang's model, a child presented with input data during language acquisition that could be the output of different grammars, will assign a weight to each possible ('competing') grammar, which represents the probability that the input sentence was the output of the associated grammar. Over the course of the acquisition process, these weights are updated dynamically each time new input data are received by the learner. While some sentences will be ambiguous, in that they are compatible with more than one of the grammars effectively in competition during the acquisition process, each of the competing grammars will generate some sentences unambiguously. Upon hearing such a sentence in the input, the grammar that unambiguously generates the sentence will be rewarded by an increased probability weight, while a grammar that doesn't will be punished. As ambiguous sentences lead to the rewarding of any grammar that was picked to parse them, the grammar that successfully parses most unambiguous input sentences in the input will end up with the highest probability (or, in terms of Darwinian selection, have the highest fitness). This process is reiterated during individual language acquisition as well as over several generations of learners, as the output of each generation shapes the input to the next. Over time, a grammar that has an advantage in terms of fitness over other grammars, because it parses/generates

more unambiguous clauses, will ‘win’ over the other grammars. In principle, however, Yang’s model allows for stable variation, that is, a language for which two (or more) grammars have (roughly) the same fitness, leading to diachronic stability.

In his chapter, **Joel Wallenberg** takes up the theory of variational specialization from Wallenberg & Fruehwald (2013) and Wallenberg (2016), which suggests that specialization across all domains of grammar derives from Clark’s (1990) ‘Principle of Contrast’, originally proposed for children’s L1 acquisition of lexical items. As shown experimentally, children tend to avoid synonyms, and thus prefer to assign different (‘specialized’) meanings to different forms. Applying the same logic to the acquisition of (morpho)syntax, Wallenberg points out that depending along which type of dimension children opt to specialize two (or more) competing variants, different diachronic scenarios emerge. In particular, when the dimension of specialization is continuous, an apparent effect of diachronically stable variation arises. For example, in Wallenberg (2016) the presence of relative clause extraposition is shown to be correlated with the factor ‘prosodic weight’, which crucially is not binary (‘light’ vs. ‘heavy’), but rather continuous (measured in ‘number of words’). This type of specialization entails that there will always be a residue of cases where two (or more) competing variants ‘functionally’ overlap; as a result, specialization can never be complete, and it is predicted that one variant should continue to replace the other, albeit at a very slow pace.

In the paper in this volume, Wallenberg uses an empirical case study to address what he calls Yang’s Paradox, viz. the fact that specialization is diachronically very slow, while experimental data from child language acquisition suggest that it should occur instantaneously. The focus is on the diachronic specialization of the morphological doublet *melted/molten*, which specializes along a categorical (‘verbal’ vs. ‘adjectival’) rather than a continuous dimension; in this case, specialization can in fact be complete. Corpus evidence shows that *molten* became restricted to adjectival contexts in a period of about 500 years. During that time, most speakers do not fully specialize the forms, leading to considerable intra-speaker variation. For the interpretation in terms of Yang’s (2000, 2002) model of language change, this means that the input to language acquirers points them to the creation of a categorical dimension of specialization, and hence the possibility for survival of both forms. In addition, the great variation in the frequencies of both options influences the evolutionary dynamics of the specialization at the level of the population. Yang’s variationist acquisition mechanism does not need to be changed: as in the general case, acquirers track variant frequencies in the input.

Henri Kauhanen’s contribution joins the recent trend of using mathematical and computational modelling to elucidate mechanisms of variation and change in natural language, by providing testable hypotheses for empirical and experimental studies. Starting from Yang’s (2000, 2002) reward-penalty model of a naïve learner,

which predicts that one of two competing grammars will win over time once it gains an advantage over the other, Kauhanen demonstrates that in a more complex contact situation with three (or more) grammars, diachronically stable variation not converging on one of the grammars is possible, and expected, as interior rest points are an intrinsic feature of several types of multiple-grammar systems.

3. Summary

The contributions to the current volume deal from different angles with aspects of diachronic stability and with the question what causes it. The term diachronic stability can have two different meanings, as the chapters of this book show: on the one hand, it may refer to the absence of change where surface appearances would lead one to think that change has in fact taken place; on the other hand, it is also used to talk about longitudinally stable variation. The fact that the latter phenomenon exists goes against the Saussurean adage that a synchronic language system (*langue*) is strictly homogeneous in nature (see e.g. Saussure 1995 [1916]: 32), entailing that all linguistic variation which cannot be reduced to mere performance errors must be change in progress (an idea that was explicitly rejected by Weinreich, Labov & Herzog (1968: 122, 188); see also Labov (2001: 74–120)).

Cases of evident diachronic stability are discussed by Watts, Djamouri & Paul, and Farasyn. To this, Sigurðardóttir & Eythórsson, Pujol i Campeny, and Sitaridou add cases of apparent change, which covers actual underlying stability. While language contact is typically considered a catalyst of change (if indirectly, leaving the recipient system largely intact, as in the contribution by Stein et al.), several chapters in the current book point to the role of language contact in being the main determinant of stable variation. Kauhanen for instance demonstrates that Yang's learning algorithm will not converge on one of the input grammars in a contact situation with three or more input systems. That language contact between typologically distant languages can bring about variational specialization is argued by Galves, and similarly, Wallenberg makes this case for contact between competing grammars of one language.

The principal finding of the present volume is that the determinants of diachronic stability are first and foremost to be sought in the mechanisms of language acquisition, and in particular the way language acquirers evaluate and use linguistic information presented to them, and the frequency at which this happens. The information aiding acquisition and possibly determining stability, rather than change, ranges from phonological salience, morphological distinctiveness, and paradigmaticity of grammatical categories, to variable frequency and the ability for a given linguistic variant to be integrated into the grammar the acquisition process ultimately converges on.

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Gender stability, gender loss

What didn't happen to German

Sheila Watts

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This paper investigates the factors which have led to the diachronic stability of gender as a three-way category in German. Old High German and Old English are contrasted to show how phonological, morphological and semantic changes contribute to a reinforcement of gender as a grammatical category in German, while in English it suffers attrition and loss. The early restructuring of the pronominal declension through analogical pattern generalization is shown to combine gender and case marking in ways which allow the three-way distinction to become more salient over time. The resulting cohesion within noun phrases and gender marking on targets, particularly through the interaction of gender and case marking in the high-frequency nominative and accusative cases, gives gender marking a role in communication. As a result the cognitive effort of acquiring gender pays off and the three-way distinction remains stable.

1. Introduction

A prime example of stability in German is its strikingly conservative gender system: the language retains the inherited three-way gender opposition throughout its recorded history. In areal terms, German is an outlier whose western and northern neighbours, whether Germanic or Romance, have reduced their gender category to an essentially binary opposition (sometimes with relics of a third gender, e.g. in Dutch), while only the Slavonic languages to the east systematically retain three genders. Within Germanic, the marginal position of German in the south is mirrored in the north by Norwegian and the three-gender island languages (Færeose, Icelandic). Two Germanic languages (Afrikaans, English) have lost gender as a grammatical category entirely, shifting to semantic marking. Gender as a category of the noun in Germanic is closely interconnected with case and the morphological marking of participant roles, such that loss typically extends across both categories. Such loss may be attributed to internal causes, mainly phonological erosion, or to external causes including contact and the role of second language learners (cf. Bentz

& Winter 2013): the relative weight to be assigned to these factors has been much discussed and is subject to competing claims (Duke 2009: 249–250).

There is a widespread tendency to regard gender as a superfluous category, effectively linguistic ‘junk’, whose reduction and loss is the norm. Trudgill, for instance, proposes that “it is not entirely impossible that linguistic gender, except for natural gender in the third person, will one day disappear from the languages of the world” (2011: 167). However, the diachronic stability of noun classification systems such as gender marking can be considered to be typologically well established (e.g. in Nichols 1992: 142), such that languages with gender as a category are “very unlikely” to lose it entirely (Matasović 2004: 17, though for an opposing view see Corbett 1991: 316). Nichols’ large study demonstrates that binary gender systems are the most frequent (1992: 129), and this is confirmed in the *World Atlas of Linguistic Structures*, which shows that “given a gender system, the most common number is two” (Corbett 2013a). This finding accords with the natural binarity preference in morphology (Dressler 2003: 465). Corbett’s claim that gender loss is frequent focuses not on loss of the category per se, but on reduction of gender to a binary opposition, caused in his view mainly by “phonological attrition” (1991: 316).

Arguments that gender loss is a natural and predictable change rely on rationales from several linguistic domains. Gender is, as Leiss has observed, at best a very unusual grammatical category, in that it is fixed, with each noun normally being assigned to one gender, and does not allow speakers to select from forms within a paradigm (2011: 238). Semantically, gender appears not to contribute relevance or generality in a Bybeeian sense of the sort that one would expect to find encoded in inflection (Duke 2009: 38–39). Gender assignment seems arbitrary, though as Corbett points out, “for languages where careful research has been undertaken, gender is always predictable from a set of assignment rules, for at least 85% of the noun inventory” (2013b). This has certainly been argued to be the case for German, based on a complex set of formal and semantic assignment rules (cf. Köpcke 1982; Köpcke & Zubin 1984). That fact leaves it lying somewhere between grammar and storage in the lexicon, where the complexity of the rules and relatively large number of exceptions could be expected to pose a significant cognitive burden and be a challenge to language acquirers. As Wegener puts it, children “have difficulty learning meaningless elements” (2011: 541). A further challenge is posed by the covert nature of gender in those languages where it is marked primarily on agreement targets, rather than on the noun itself, making it potentially difficult for acquirers to spot the clues that indicate the presence of gender (Lass 1992: 103–106, Markus 1988: 242–244). And this has led in turn to the suggestion that gender contributes to those “morphological complexities which appear to be mere pointless obstacles to the efficient coding of morphosyntactic content”, but which languages “stubbornly” maintain (Carstairs-McCarthy 1994: 738).

In the two languages which are the focus of this paper, two very different gender scenarios have played out, and historical grammars of O(ld) E(nglish) and O(ld) H(igh) G(erman) and histories of German and English tend to present two different narratives which are shaped by a knowledge of how the story will end. Accounts of OHG characterize the language overall as conservative, preserving “den Typus einer flektierenden Sprache” (Braune & Reiffenstein 2004: 181). Later nominal morphology shows evidence of some significant and ongoing changes, but against a backdrop of patterns having been “relatively stable since OHG” (Salmons 2012: 204). OE, by contrast, is a language on the brink of large-scale morphological change, not least in its nominal morphology, which shows evidence of significant changes in the relative weight of case and gender marking (Hogg & Fulk 2011: 1, 141). This was possible because many OE endings were, it is claimed, “multiply ambiguous”, “relatively inexpressive”, and hence “ripe for analogical remodelling” (Lass 1992: 104).

This paper strips away this big picture narrative by focusing on the synchronic manifestation of gender in OHG and OE, the period at which the languages were most similar, to explore the cues for gender which allowed it to be acquired by the speakers of those languages. I first examine gender assignment, and outline the ways in which gender is marked on the noun itself through inflection. After considering the noun itself, the following sections proceed from the observation that “the determining criterion of gender is agreement” (Corbett 1991: 4), and examine the marking of gender on pronouns, adjectives and relativizers. I go on to argue that the frequency patterns which emerge from looking at the whole picture of agreement promote gender remaining stable in German through the close and growing relationship between gender and case marking (cf. Küschner & Nübling 2011). Rather than being junk, then gender is integral to the marking of the syntactic roles of NPs as verbal arguments. Finally, the pattern which emerges for OHG is mapped on to acquisition studies for modern German to show that phonological changes, mostly through gain rather than loss, have created a favourable context for learnability, enabling the maintenance of gender as a stable system.

2. Gender assignment and its distribution in OE and OHG

2.1 Methodological issues

Gender loss seems most typically to be preceded by gender reduction, where one gender first experiences attrition and then is lost, as has happened to neuter in many Indo-European languages (Steinmetz 2001: 201). Attrition of the weakest gender, and its merger with one of the others, requires it to become less distinctive and less frequent than the other two, such that it is less likely to be acquired. A first step

to understanding how the gender systems of OE and OHG appeared to language acquirers lies in the weighting of those systems. It is reasonable to hypothesize that the more even the distribution of nouns assigned to the three genders, the more likely that speakers would acquire a functional three-gender system.

Working out the internalised competence of speakers of OE and OHG on the basis of the extant texts poses a number of challenges. Firstly, the texts were produced by individuals, working to a significant extent in isolation from one another and in different dialects. There is no overarching standard entity which would represent a norm for either OE or OHG, although the position in OE in this respect is the more robust of the two because of the larger corpus size. Dialectal variation accounts at least in part for the attestation of nouns with more than one gender, and since dictionaries treat all the texts as witness to a single linguistic entity, such nouns are recorded as single lemmata with multiple genders in both OHG (cf. Froschauer 2003) and OE (cf. Kitson 1990: 185). Item gender can vary across modern German dialects, so it is not improbable that dialect would be a factor in variation of gender in OE and OHG, but neither corpus is so large that dialect can be analysed in isolation from other factors. Secondly, the attested texts are largely formal, literary works, in many cases dealing with legal and religious topic matter, heavily influenced by Latin models and far from natural speech or the assumed acquisition target of children. In the OHG corpus particularly, the large quantity of translated material and glosses means that there is an idiolectal quality to many texts, so that it is difficult to establish any coherent picture of what “characteristic forms” might be (cf. Salmons 2012: 155). Some items are effectively nonce forms, of which the single attestation may also have been the only occurrence. For a portion of the lexicon, then, it is impossible to establish what the consensus gender assignment might have been.

As a starting point for this analysis, it is generally assumed that a noun has a single gender and that native speakers agree on what that gender is. That assumption has been called into question for OHG in particular, which has been the subject of significant recent research (Leiss 1999; Froschauer 2003 *inter alia*). The dictionary-based work of the earlier studies has been criticized by Schwink as overestimating the frequency of multi-gender nouns (2004: 63–68), since it does not take into account that dictionaries conflate data from different writers, dialects and text-types. The detailed study by Froschauer (2003) shows that there are clear instances where the same writer uses a noun with more than one gender, but the claim that they have different semantics and realise different lemmata remains only weakly supported. In the frequency counts presented in this paper multi-gender nouns were counted once for each gender listed in the dictionary unless gender was indicated with a ?, in which case the noun was excluded from counting. This means that multi-gender nouns are hidden from view. For the purposes of the present study these nouns are considered marginal, and they will not be discussed further.

2.2 Frequency distribution

Tables 1 and 2 below present frequency counts which give an indication of the distribution of words (lemmata) in OE and OHG in the two dictionaries and in the two large corpora which are electronically available and tagged for gender. It is important to consider these two types of data source separately because even in modern German similar counts yield different frequency results. However, it must be noted that the OE and OHG sources are not independent of one another. For both of the electronic corpora, the gender assignment has been partly informed by information extracted from dictionaries as part of the lemmatization process (even if this is not wholly clear in the documentation). For the OE texts in the PROIEL corpus, the Bosworth-Toller dictionary is the source of the gender assignments, though there has been some manual correction (Bech n.d.). As a result, in the currently-available version of PROIEL a small number of nouns are tagged as multi-gender regardless of agreement. For the OHG texts in the RKA (*Referenzkorpus Altdeutsch*) lemmatization is based on a range of glossaries, cross-referenced to Splett (1993). To gain a different perspective, the dictionary cited here is Köbler (2014). Sample searches in the RKA for items recorded in the dictionaries as multi-gender nouns show that the multi-layer annotation system has been used to give, where possible, a single gender assignment for each occurrence based on agreement information.

For OE, since Hogg (1992) and Hogg and Fulk (2011) give frequency counts by both gender and, to some extent, declension type, this information is included as a further control.

Table 1. OE: Number and percentage of nouns in each gender (declension type)

	Hogg %	Hogg & Fulk %	Bosw.-Toller No. %		PROIEL No. %	
masculine vocalic	35	32				
masculine <i>n</i> -stem	10	4				
masculine other		6				
masculine total	45	42	3050	43	2191	49
neuter	25	29	1455	21	1193	27
feminine vocalic	25	21				
feminine <i>n</i> -stem	5	4				
feminine other		4				
feminine total	30	29	2522	36	1093	24
TOTAL	100	100	7027	100	4477	100

(Hogg = Hogg: 1992: 126; see also Quirk & Wrenn (1957: § 25). Hogg & Fulk = Hogg & Fulk 2011: 12, a count based on the 100 most frequent nouns in OE. The high number for 'other' is accounted for by athematic and *r*-stems (e.g. *mann*, *fæder*), which have a high token frequency but are very rare as types. Bosw.-Toller = a search in the on-line Bosworth-Toller dictionary of all the nouns beginning with B (1940), F (2203), L (773) and S (2111). PROIEL = a search in the corpus of five OE texts included in the PROIEL project. Since Bosworth-Toller and PROIEL do not permit search by noun class, totals are given by gender alone.

Table 2. OHG: Number and percentage of nouns in each gender and/or declension class

	OHG (Köbler)		OHG (RKA)		OE av.
	No.	%	No.	%	%
masc. <i>a, ja, wa, u</i>	1499		5756		
masculine <i>i</i>	155		787		
masculine <i>n</i>	706		2136		
masculine other	20		1035		
masculine total	2380	34	9714	43	45
neuter <i>a, ja, wa</i>	1312		5758		
neuter <i>n</i>	3		355		
neuter total	1315	19	6113	27	25
feminine <i>ō, jō, wō</i>	1506		3199		
feminine <i>i</i>	1057		2550		
feminine <i>n</i>	726		788		
feminine other	24		169		
feminine total	3293	47	6706	30	30
Total	6988	100	22533	100	100

(Köbler = a search in the on-line dictionary of all the nouns beginning with B (1538), F (1426), L (1059) and S (2954). RKA = *Referenzkorpus Altdeutsch*. The search was carried out over all of the OHG monuments in the corpus at 17.06.16, excluding the OS texts (*Heliand* and *Genesis*).

In the OE data masculine emerges as the most frequent gender consistently across the different search processes, supporting Steinmetz' (2001) proposal that West Germanic has a default masculine hierarchy. The distribution of feminine and neuter is roughly equal in OE. In OHG, though, no clear hierarchy can be established, since the data from the dictionary and the corpus yield such different results. One reason for this is the large number of glosses in OHG, which mean that the lexicon captured in the dictionary is substantially different from that found in continuous texts. Other possible explanations of this discrepancy will be explored further in the comparison with Table 4 below.

In addition to the frequency counts over large bodies of data in Tables 1 and 2, Table 3 – following the model of Hogg & Fulk (2011) – categorizes the gender of the 100 most frequent common nouns in OHG, extracted from Köbler (2014), and compared here with their OE cognates as listed in Bosworth-Toller. The results are shown in Table 3.

Of the 100-noun sample, only eight OHG nouns lacked an OE cognate. 83% of the OE nouns shared the single gender or the gender variability of their OHG cognate, while five are of a different gender. The remaining nouns all show gender variability in one or both languages, and the languages correspond in one of the genders assigned. It has been claimed that OHG has a high rate of multi-gender nouns (Leiss 1999), and it is true that for this sample it is twice the rate of OE (10

vs. 5), and that only OHG has nouns attested with all three genders. However, the very different sizes of the corpora in the two languages, and the more fragmented nature of the OHG corpus, mean that this difference is probably not significant. In terms of the long-term item stability of gender in German, it is noteworthy that only one of the OHG high-frequency nouns has a gender in NHG which is not within the scope of its OHG variability.

Table 3. The gender distribution of the 100 commonest words¹ in OHG, their cognates in OE, and the 100 commonest words in OE

	OHG	OE (cognates)	OE (Hogg and Fulk 2011)
masculine only	31	33	42
feminine only	32	27	29
neuter only	27	27	29
3 genders	2	0	0
2 genders	8	5	0
no cognate		8	
TOTAL	100	100	100

In a separate exercise, these OHG nouns were also compared with their O(ld) N(orse) cognates insofar as is possible given deviations in word formation. In ON 37 of the nouns could be shown to have different genders from OHG. This suggests that although gender assignment is inherited, it also develops in ways which are specific to the West Germanic family. Within that family, a language-specific change is also shown by the comparison between the OE cognates and the set of the 100 commonest words taken from Hogg & Fulk (2011). While the cognates set shows only a slight imbalance towards masculine nouns, in the commonest words group the masculine nouns clearly stand out from the other two genders as the most numerous category. This already points towards the subsequent pattern of change in English, where in the transitional period towards the loss of gender as a category, the masculine *a*-stem declension pattern subsumes other classes, and gender assignments shift towards masculine before semantic gender becomes the only model (Lass 1992: 108–109).

1. The words are: *arbeit, berg, bilidi, bluot, bruoder, buoh, burg, ding, engil, êra, erda, ēwa, fart, fater, fiant, fiur, fleisc, forhta, fuoz, geist, giburt, gidank, gilouba, ginada, giwalt, got, guot, guoti, hant, helfa, heriro, herza, himil, houbit, hus, iudeo, iungiro, kind, kraft, krist, kuning, kunni, lihhamo, lant, lēra, lib, liocht, liut, lob, lōn, maht, man, managī, mennisko, minna, mund, muot, muoter, naht, namo, nōt, ouga, reda, reht, rihhi, ring, sculd, sēla, skalk, stat, stein, stimma, strit, sunna, sunta, sunu, tag, tāt, teil, tisc, tiufal, truhtin, ubil, unreht, wān, wār, wārheit, wazzar, weg, weralt, werk, wīb, wiht, wīla, willo, wīs, wort, wuntar, zeihhan, zīt.*

In order to place the gender distribution of OHG nouns in context, Table 4 offers a selection of comparative figures for Modern Standard German.

Table 4. Distribution of genders in modern standard German²

Source		Sample size	Masculine	Feminine	Neuter
Meier 1964, based on Kaeding 1897/1898 (cited in Hoberg 2004: 83)	<i>Deutsche Sprachstatistik: 19th c. elevated written German</i>	500	34.6%	46.6%	18.8%
Rosengren 1977 (cited in Hoberg 2004: 83)	<i>Frequenzwörterbuch der deutschen Zeitungssprache</i>	500	40%	44%	16%
Oehler 1966 (cited in Hoberg 2004: 83)	<i>Grundwortschatz</i>	953	38.8%	38.8%	22.4%
Ruoff 1981 (cited in Hoberg 2004: 83)	<i>Häufigkeitswörter-buch gesprochener Sprache</i>	500	45.6%	31.8%	22.6%
Duden (2017: 158)	<i>Die deutsche Rechtschreibung</i>	ca. 108,025	34%	46%	20%
OHG for comparison, from Table 2	Dictionary Corpus		34% 43%	47% 30%	19% 27%

Interestingly, in Table 4 only one of the five tallies of German gender assignment support Steinmetz' claim that the modern language shows a hierarchy of the form masculine > feminine > neuter (1986, 2001: 208). While the neuter is always the numerically weakest gender, the competition between masculine and feminine has very different outcomes in different studies. In Meier (1964) and Rosengren (1977), high register and newspaper language shows a high percentage of feminine nouns. This is also the case for the figures for Duden (2017), which represents the whole lexicon of contemporary German and yields a distribution almost identical to that of Köbler (2014) for OHG. There appear to be two factors at play here. Firstly and most importantly, the majority of abstract nouns in German are feminine, and this tendency is repeatedly consolidated over the history of the language, as we will see further below (cf. also Vogel 2011, Werner 2012). Abstract nouns are over-represented in journalistic and scholarly language of the types surveyed in Meier (1964) and Rosengren (1977). They are also over-represented in the OHG dictionary, since there are a number of competing feminine suffixes which are deployed on the same stems by

2. I am indebted to Emma Corteen (Cambridge), who compiled this table and has given me permission to use it.

different writers and above all by different glossators: for example, Splett (1993: 926) lists as separate lemmata the largely synonymous set *firstantnessi*, *firstantnessida*, *firstantnissi*, *firstantnissa*, *firstantnissida* and *firstantanissa* ‘understanding’. In OHG continuous texts, abstract nouns are also less strongly represented, but so are those concrete feminine nouns which identify female human referents, which are less common in the male-dominated largely Christian literature. Both the corpora and the dictionaries are thus likely to be at some distance from the primary input for OE and OHG acquirers, where more human female referents would be present.

However, even in everyday language and speech in modern German, as represented in Oehler (1966) and Ruoff (1981), feminine nouns are much less frequent than in the more formal texts and the dictionaries. This suggests that the feminine noun group is numerically dominated by morphologically rather than semantically feminine nouns, and that these more morphologically complex items are less common in everyday speech. Ruoff’s statistics for modern German ordinary speech show the gender hierarchy claimed by Steinmetz, and found here generally for OE, and in the OHG text corpus.

Given the important role played by derivation in gender assignment in German, we will now turn to word formation and to abstract nouns in particular.

2.3 Word formation and gender assignment in OHG

The role of suffixation in assigning gender is an important one, and Corbett points out that gender as a category is strengthened when

a single suffix which has a fairly general meaning (such as ‘agent’, ‘diminutive’) becomes widely productive and imposes its gender on derived forms [leading to] a situation in which many nouns have a similar meaning, morphology, phonology and the same gender. (1991: 64)

Indeed, when this coalescence of form and meaning fails to happen – as is the case for the neuter category in Russian, which has little support in derivational morphology – that gender may be threatened (Corbett 1991: 317).

OHG and OE have inherited a typology where suffixation is partly associated with gender marking in this way, but the productivity of suffixation as a gender assignment marker differs considerably between the two languages. In OHG, most suffixes with their variants are always associated with a single gender (after Sonderegger 2003: 340–343, slightly simplified):

Masculine	<i>-āri</i> , <i>-il</i> , <i>-o</i> (agentive), <i>-ing</i> (<i>-ling</i> , <i>-ung</i>) (origin)
Neuter	<i>-ahi</i> , <i>-i</i> , <i>-idi/-ide</i> (all collective); <i>-īn</i> (diminutive)
Feminine	<i>-ī</i> , <i>-īn</i> , <i>-ida</i> , <i>-t</i> , <i>-unga</i> (all abstract); <i>-in</i> (<i>nna</i>) female persons

The variants of *-nessi* / *-nessī* etc. in OHG may be either neuter or feminine, whereas their OE counterparts are invariably feminine. The other OHG suffix(es) associated with gender variability are the group *-ōd*, *-ōt* (masculine), *-ōdi*, *-ōti* (neuter), *-ōdī*, *-ōtī* (feminine), which form deadjectival collectives/abstracts. In OE, the cognates of these suffixes, together with the cognates of OHG *-idi/-ide* (neuter) and *-ida*, *-t* (feminines), fall together early on into a larger ‘suffix family’ *-d/-t/-(o)þ*, which although semantically relatively transparent and partly productive, assigned nouns to all three genders (Kastovsky 1992: 358–359). Early in OE these suffixes become opaque and are generally reanalyzed by speakers as non-suffixal. The same occurred later in German, as is apparent both formally and in gender assignment in e.g. NHG *Zierat* (m.), *Heimat* (f.), *Kleinod* (n.).

While inherited and early suffixes produce broadly similar patterns across OE and OHG, the greatest distinctions are seen in those suffixes which develop out of original noun+noun compounds during the early period. Both languages form abstract compounds with cognate words: OHG *tuom* (m./n.) / OE *dom* (m.) ‘judgement, quality, state’; OHG *heit* (m./f.) / OE *had* (m.) ‘person, manner’; OHG *scaf* (m./n.) ‘form, shape’, which is cognate with OE *-scipe*, though the latter occurs only in a bound form. In OE, these second elements retain their compound-like ability to function as heads and determine gender, which is therefore masculine. They are very productive, with the result that abstract semantics in OE moves away from having a clear association with a single gender, since these masculines join the large group of feminines in *-ness* and the *-t* (etc.) abstract family which may be of any gender.

In OHG, by contrast, semantics overrides form. Abstracts in *-heit* are invariably assigned to the feminine gender, showing that there is a productive association between the semantics of abstraction and the gender of nouns. The suffix *-scaf* is itself assigned firmly to the feminine group through secondary suffixation in *-t* and, less frequently, *-ī* so as to create new, invariably feminine nouns, joining the older abstracts in *-ī* and *-unga*. Only *-tum* fails to lose its head-determining compound status and become suffixal, and OHG nouns in *-tum* remain of variable masculine/neuter gender. This in turn limits the productivity of *-tum* as an abstract suffix by contrast with the highly productive feminines *-heit*, *-schaft* and *-ung*. Already in MHG suffixes which are not associated with a specific gender like *-nisse* and *-tuem* make up less than 2% of suffixed nouns. Three-quarters of all suffixed nouns are feminine, with the other two genders within this group confined mainly to agentives and diminutives (Klein et al. 2009: 56, 160). The extension of the semantic associations of gender which is characteristic of OHG as illustrated here is described by Salmons as a “massive typological reshuffling” such that “semantic considerations are gradually built into the gender system” (1992: 11).

To sum up, both OE and OHG inherit a pattern where abstract semantics are associated with feminine gender. In OE, however, this pattern is broken when new abstracts are formed by compounding, and the second elements of the compounds

continue to have head status and to assign gender. As a result, new abstracts in OE are not recruited to the feminine gender, but remain masculine, and so increase further the dominance of the masculine group. In OHG, on the other hand, the semantic associations of word formation are strong enough for these compound heads quickly to transition to a suffixal role, losing their head status and ability to assign their original gender. This suggests that OHG language acquirers operate with a well-motivated system of productive semantic gender assignment, while OE speakers do not. If it is true that gender was semantically well-motivated and productive in OHG, even if only in part, then gender assignment was not an arbitrary feature stored in the lexicon but operated in a systematic and rule-driven way. This in turn suggests that the associated morphological baggage was not junk.

3. Nominal inflection

Nominal inflection in OE and OHG is determined by the interaction between gender and the partly restructured inherited system of stem class membership. In the large vocalic stem classes, the *a*-stems could be masculine or neuter, the *ō*-stems only feminine, and the *i*-stems could belong to all three genders in OE, only masculine or feminine in OHG. The range of possible endings in the commonest stem classes is summarized in Tables 5.1 and 5.2. The endings which are presented in these tables simplify the data for both languages by omitting the smaller classes, even where these contain high-frequency items. Table 5.2 for OHG also omits (primary) Umlaut, which occurs as a phonological rule before every *-i* ending, whereas it had already been levelled in the OE noun paradigms (Hogg 1992: 131). The normalized form of OHG used here, and the OHG attestation generally, shows a slower development of unstressed vowels towards schwa than in OE.

Table 5.1 OE noun endings

Singular	Masc.		Neut.		Fem.	
Nom.	-∅,	-a	-e	-∅, -e	-∅, -u	-e
Acc.	-e, -u	-an			-∅, -e	-an
Gen.	-es, -a		-an	-es	-e, -a	
Dat.	-e, -a			-e		
Plural						
Nom.	-as,	-an	-∅, -u	-a, -e	-an	
Acc.	-e, -a					
Gen.	-a	-ena	-a		-ena	
Dat.			-um			

(based on Kastovsky 2011: 716–718)

Table 5.2 OHG noun endings

Singular	Masc.		Neut.	Fem.		
Nom.	-Ø, -i,	-o	-a	-Ø, -i,	-Ø, -a	-a
Acc.	-o	-on		-e		-ūn
Gen.	-es	-en		-es	-a, -i	
Dat.	-e			-e	-u, -i	
Instr.	-u		-	-u	-	-
Plural						
Nom.	-a, -i	-on	-un	-Ø, -u,	-ā, -i	-ūn
Acc.				-ir		
Gen.	-o, -io	-ōno		-o,	-ōno,	-ōno
				-iro	-io	
Dat.	-um, -im	-ōm		-um, -im	-ōm, -im	-ōm

(based on Braune & Reiffenstein 2004: 184–217: insignificant variation in the vowels of endings not shown)

In OE, only the nominative plural of the masculine *a*-stems distinctively marks all three of the categories number, case and gender: other endings, like the dative plural, are distinctive for number and case but not for gender. It is generally agreed that in OE nominal inflection was not sufficiently distinctive to allow speakers to use it as their sole diagnostic for the gender of a noun (cf. Kastovsky 2011), so that gender was a covert category in OE. Hogg and Fulc cautiously state that “it cannot be determined precisely how native speakers of Old English might have mentally categorized the declensional morphology of nouns in their language [...] it is likely that the categories varied by dialect and date” (2011: 69). But while there are few or no distinctive endings which uniquely mark out a noun as belonging to a particular gender, it is probably an oversimplification to claim, as Dekeyser does for OE, that gender was lost “for sheer lack of gender-distinctive forms” (1980: 100).

For OHG, Duke suggests that “overt gender markers [in inflection, SW] are only partially transparent” (2009: 106). A stronger claim for transparency is made by Harnisch (2001: 65–68) who sees formal gender assignment as generally clear from inflection in OHG, at least to the extent of determining whether or not a noun is feminine. This emerges both from the nominative singular, as Harnisch shows, and from the contrast with the nominative plural, where only feminines have the *-a/-ā* contrast. Conversely, the masculine and neuter nouns share forms in the genitive and dative in most stem classes, so that the speaker’s ability to draw on the whole paradigm might have worked to reinforce a tendency to assign gender as \pm feminine (but did not). This overlap between masculine and neuter largely reflects the inherited pattern and underlies the direction of change which is found in the Romance languages, where the smaller neuter group is generally absorbed into the masculine class, leading to a binary distinction between masculine and feminine. If the nominal inflection patterns

in Germanic were the main predictors of the direction of change, a similar outcome might be expected here. In fact, the usual binary opposition in Germanic where it is found is between common, resulting from a merger between masculine and feminine, and neuter, which suggests that noun endings are not the main drivers.

The interaction of gender marking with the marking of case and number is important, in that it opened a possibility for language acquirers to reanalyse the purpose of the inflectional ending, and to assign its most salient feature as being the marking of any single one of these categories, rather than the fusion of all three. There is some evidence for such reanalyses involving an interaction of gender and number in English, as is seen in the ‘Wessex type’ of dialects in Late Middle English, where gender is replaced by a classification system based on a binary mass: count distinction (Paddock 1991: 384). Leiss (1999, 2005) and Werner (2012) have argued that similarly German shows tendencies towards grammaticalization of gender into a system which marks quantification. But it will be argued here that the most important relationship is between gender and case. Jones has claimed that a stage in the decline of nominal inflection in English involves “maximalization of case relationship expression” at the expense of gender marking (1988: 17). In a different way, the interaction between case and gender will be shown to be a crucial part of the maintenance of both in German.

4. Gender targets

4.1 Demonstrative pronouns > definite articles

Beyond the stem class of the noun and nominal inflections, both OHG and OE mark gender through agreement patterns involving other elements in the noun phrase, mainly pronouns and adjectives. A key development is in the demonstrative pronoun, which is re-shaped by sound change, morphological change and analogy, with divergent results in the two languages. Here OE is conservative in maintaining a historical pattern of suppletion. That pattern is levelled in OHG at the start of the period of attestation. The forms are set out in Tables 6.1 and 6.2.

Table 6.1 Demonstrative pronoun/Definite article in OE (Late West Saxon)

	Masc.	Neut.	Fem.	Plural
Nom.	sē	þæt	sēo	þā
Acc.	þone		þā	
Gen.		þæs	þære	þāra
Dat.		þæm		þæm
Instr.		þȳ, þon	–	–

(adapted from Hogg & Fulk 2011: 192)

Table 6.2 Demonstrative pronoun/Definite article in OHG (East Franconian)

Singular	Masc.	Neut.	Fem.
Nom.	der	daz	diu
Acc.	den		dia
Gen.		des	dera
Dat.		demo	deru
Instr.		diu	–
Plural			
Nom. Acc.	dē	diu	dio
Gen.		dero	
Dat.		dēm	

(simplified from Braune & Reiffenstein 2004: 247)

It has often been noted that in the OE paradigm the masculine and feminine nominative singular forms lack distinctiveness from one another, although outside of the nominative it is again the masculine and the neuter which share forms. Levelling of the suppletion in English is first seen in the 10th century, through the introduction of *þe* for the masculine nominative singular in variation with *se*. In Early Middle English there was a great deal of variation: Markus (1988: 246) notes 10 different masculine nominative singular forms and 26 variants for the nominative plural. By the final continuation of the Peterborough Chronicle (1132–1155), however, there are only two gender- and case-neutral forms of the article: *þe* (sg.) – *þa* (pl.) (Lass 1992: 112).

In OHG, it is striking that the initial dental <th> has already spread through the whole paradigm by the earliest attestation. But another distinctive quality is that in most varieties the nominative singular masculine has not only an initial dental, but also a final *-r*. This form of the demonstrative reflects the outcome of a historical grammaticalization, in which *sa- /tha* was strengthened by the suffixation of the personal pronoun, Germanic *iz* > OHG *ir, er* (Braune & Reiffenstein 2004: 247): a similar process added *-iu* as a remodelled ending to the feminine nominative singular. By suffixing these endings, the OHG demonstrative is brought into line with most other pronouns, which thus acquire a distinctive shape as a class. This innovative analogical process was unique to OHG within West Germanic. In the Ingvæonic languages no such innovation occurs, and those forms which did have an inherited *-r* lost it. Thus in the (otherwise similar) Old Saxon demonstrative pronoun the nominative singular masculine is *the, thie* (Gallée 1993: 238), like the Old Frisian *thī* (Bremmer 2009: 54). The particular association of *-r* with marking the nominative singular masculine would have been perceptually salient for

speakers, as the other demonstrative endings which contain an *-r-* are disyllabic in OHG, and the *-r-* is not final (*dera*, *deru*, *dero*).

The salience of final *-r* as the masculine nominative singular marker runs through a range of pronominal forms in OHG, as is shown in Table 7.1. They contrast in this respect with all the other West Germanic languages, including OE, as is shown in Table 7.2.

Table 7.1 Pronominal endings in OHG

	3rd Person	Possessive	Demonstrative	Interrogative
Masc.nom.sg.	er	mīn(er)	dese(r)	(h)wer
Masc.acc.sg.	inan	mīnan	desan	(h)wenan
Neut.nom./acc.sg.	iz	mīn(az)	diz	hwaz
Fem.nom.sg.	siu	mīniu	desiu	–

(simplified from Braune & Reiffenstein 2004: 243–252)

Table 7.2 Pronominal endings in OE

	3rd Person	Possessive	Demonstrative	Interrogative
Masc.nom.sg.	he	mīn	þēs	hwā
Masc.acc.sg.	hine	mīne	þisne	hwone
Neut.nom./acc.sg.	hit	mīn	þis	hwæt
Fem.nom.sg.	hēo	mīn	þēos	–

(simplified from Hogg & Fulk 2011: 195–201)

While final *-r* endings in the personal and interrogative pronouns reflect an inherited rhotacized *z in OHG which has been lost in OE, other *-r* endings show the innovative spread of this highly salient marker during the OHG period. The possessive and *this*-demonstrative forms still show some variation between *-r* and *r*-less forms in texts. A similar process can be seen here in the feminine possessive and *this*-demonstratives, which acquire the same *-iu* ending as the personal and simple demonstrative pronouns. In both of these instances, the OHG system is developing a greater coherence between morphological form and marking of case and gender than is the case in OE, where each item is typically formally isolated, as in the feminines *hēo* – *mīn* – *þēos*, leading speakers to interpret the variation as anomalous and non-systematic. In light of future morphological changes, it is important that OHG shows, in the nominative singular, a three-way contrast between two consonantal endings and one in a long vowel. These terminations are phonetically stable and perceptually salient, and they will all be preserved when final short vowels become schwa in the MHG period.

4.2 Adjectives

The Germanic innovation of an adjective class split into ‘strong’ and ‘weak’ patterns, whose use is determined syntactically by the presence or absence of a preceding determiner, was inherited by both OHG and OE. In Hogg & Fulck’s terms, strong adjectives are “indefinite” and weak ones “definite” (2011: 147, 172), but not all usage in any older Germanic language maps clearly to these labels (cf. Ratkus 2018). One of the characteristics of the split adjective inflection is the analogical extension of pronominal inflections to differentiate the adjectival paradigm, forming the strong declension pattern. Strong adjectives therefore closely resembled the demonstrative pronoun in their inflection, and were explicitly marked for gender (Jobin 2011: 344) as is shown for the nominative and accusative in OHG in Table 8.1 below.

Table 8.1 Strong adjectives in OHG. Example: *blint* ‘blind’

	Masculine	Neuter	Feminine
Nom.sg.	blint, blintēr	blint, blintaz	blint, blintiu
Acc.sg.	(blint), blintan		blinta
Nom./acc.pl.	blint, blinte	blint, blintiu	blint, blinto

(based on Braune & Reiffenstein 2004: 220. The bold endings are pronominal in origin.)

In these cases, the pronominal endings are in variation with uninflected forms in OHG. Table 8.2 shows the results of a corpus search in RKA giving the relative distribution of the forms.

Table 8.2 Strong adjectives in OHG: Frequency of ending variants

	Distinctive ending		Ø ending		Total	
	No.	%	No.	%		
Masc.nom.sg.	<i>-er</i>	245	58.5	174	41.5	419
Masc.acc.sg.	<i>-an</i>	338	97.1	10	2.9	348
Neut.nom.sg.	<i>-az</i>	84	48.6	89	51.4	173
Neut.acc.sg.	<i>-az</i>	120	50.2	119	49.8	239
Fem.nom.sg.	<i>-iu</i>	73	55.7	58	44.3	131
Fem.acc.sg.	<i>-a</i>	214	89.2	26	10.8	240

(based on a search in RKA)

From the data in Table 8.2 the most frequently distinctively marked instances are the masculine and feminine accusative singular, which indicates the age of this ending and also suggests that clearly marking the object participant role is assigned a high importance by speakers. In the nominative the innovative gender-marking endings

- (2') min cnapa lið on minum huse lama
 my servant lies in my house lame-M.NOM.SG.WK
 'my servant is lying in my house, lame' (OE Matthew 8: 6 in Liuzza 1994: 15)

The weak *-a* ending in the nominative singular (*lama*) is an unambiguously masculine marker: the neuter and feminine end in *-e*. In this case, therefore, the connection between the noun and the more distant adjective and the tracking of the referent is enabled through the morphology. However, this distinction is neither phonetically stable nor perceptually salient, and in the longer term, the marking of gender and case through distinctions between unstressed vowels means that they do not survive in Middle English. As Paddock describes it, in OE "loss of adjective concord made gender marking less overt" (1991: 379), and for McWhorter, this means that gender "falls below the level of acquirability" (2002: 262).

4.3 Relativizers

In OHG, relative clauses were most often introduced by a relative pronoun marking gender and case, while in OE the commonest way to introduce a relative clause was by the use of an indeclinable particle *þe*. Table 10 shows the distribution of genders and cases for the OHG relative pronouns. These display a strong correlation between masculine gender and nominative case, and between neuter and accusative. The overall distribution across the cases conforms to the pattern of the universal Accessibility Hierarchy, measuring relative accessibility to relativization: subject > direct object > indirect object (cf. Keenan & Comrie 1977: 65).

Table 10. OHG relative pronouns

	Masculine		Neuter		Feminine		Total	
	No.	%	No.	%	No.	%	No.	%
Nom.	727	81	172	36	67	45	966	63
Acc.	113	13	233	49	51	34	397	26
Gen.	12	1	58	12	6	4	76	5
Dat.	46	5	13	3	26	17	85	6
Total	898	100	476	100	150	100	1524	100

(Based on a search in RKA as before).

OHG also had access to an indeclinable particle *the*, but it was infrequent by comparison with the pronouns: the RKA has only 39 examples, and all but six of these are in the same text, the early 9th-century Tatian gospel harmony. The examples in Tatian nearly all show the indeclinable *the*-particle following and reinforcing a case- and gender-marked relative pronoun. On the one hand, it would be possible to interpret these particles as demonstrative pronouns in the masculine nominative

singular which had not yet adopted the pronominal endings. On the other hand, it is difficult to distinguish in a principled way between the particle and relative adverbs *dā, dār* (cf. Coniglio et al. 2017: 124–126), which can also be used introducing a relative clause and as seen in Example (5). By later OHG, examples which are tagged as relative particles (PTKREL) in RKA seem to be adverbial, in that they end in *-r* without reference to the gender of the antecedent, e.g. *tiz-tir* (Notker, 10th century).

The effects of the more distinctive endings in OHG are illustrated in the following examples taken from the same biblical text translated into OHG (Example 5a) and OE (example 5b). They show the clear marking of both gender and case on pronouns in OHG where the OE comparable endings are all in *-e*, or the forms are indeclinable. I have glossed *dar* here as an adverb, while counting the indeclinable second part of *derthe*, written as a single word in the MS, as a relativizer (for a different approach, see Coniglio et al. 2017). The indeclinable relativizer in OHG commonly follows a pronoun directly, as here, and may be seen as an instance of economy in not repeating the feature marking. An alternative explanation, given the predominance of these forms in the Tatian text, may be an influence from Old Saxon or OE at the scriptorium in Fulda where it was written.

- (5) a. *der dar mih teta heilan der*
 he-M.NOM.SG there me-ACC.SG made whole-ACC.SG he-M.NOM.SG
quad mir [...] uuer ist der man
 said me-DAT who-M.NOM.SG is the-M.NOM.SG man
der dir quad nim thin dragabetti inti gang?
 who-M.NOM.SG you-DAT said take your bed and go?
derthe dar heil uuas gidan niuuesta
 he-M.NOM.SG.REL there whole was made NEG-knew
uuer iz uuas
 who-M.NOM.SG it was
 ‘The one who made me whole, he told me. [...] Who is the man who told you to take your bed and go? The one who had been healed did not know who it was.’ (Tatian 135: 27–29 – 136: 1–2, in Masser 1994: 285–7)
- b. *se ðe me gehælde se cwæð to*
 the-M.NOM.SG. REL me-ACC.SG healed the-M.NOM.SG said to
me [...] hwæt se man wære þe þe
 me-ACC/DAT what-N the-M.NOM.SG man was REL you-ACC/DAT
sæde nim þīn bedd and ga. Se þe þær gehæled
 said take your bed and go. the-M.NOM.SG REL there healed
wæs nyste hwa hit wæs
 was NEG-knew who-M it was.
 ‘The one who healed me said to me [...] Who was the man who told you to take your bed and go? The one who had been healed there did not know who it was.’ (OE John 5: 10–13 in Liuzza 1994: 166)

These examples show the coherence and prominence of both gender and case marking in OHG alongside the morphologically blander OE, where the interrogative and relative are not gender-marked, and the personal pronouns are not marked for case.

5. Case and gender interactions

As the examination of the relativizers has shown, an important factor in looking at the acquirability of gender marking is its interaction with case. General frequency counts show that the three genders are not evenly distributed across the four main cases. Tables 11 and 12 show the relative frequency of the singular cases of OHG nouns and demonstrative pronouns, based on searches in the *Referenzkorpus Altdeutsch* and encompassing all the major noun classes. The most frequent case for each gender is marked in bold.

Table 11. OHG nouns in the singular

	Masculine		Neuter		Feminine	
	No.	%	No.	%	No.	%
Nom.	3611	42	884	21	993	22
Acc.	1672	19	1581	39	1535	34
Gen.	1580	18	558	14	512	11
Dat.	1778	21	1056	26	1508	33
Instr.	25	>1	0	0	–	–
Total	8666	100	4079	100	4548	100

Table 12. OHG demonstrative pronouns in the singular

	Masculine		Neuter		Feminine	
	No.	%	No.	%	No.	%
Nom.	1116	43	302	21	330	22
Acc.	589	23	600	42	425	28
Gen.	347	13	261	18	306	20
Dat.	554	21	272	19	466	30
Total	2606	100	1435	100	1527	100

A clear majority of the masculine nouns and demonstrative pronouns in the corpus occur in the nominative, and conversely, most nouns (66%) and demonstrative pronouns (64%) that are in the nominative are masculine. Both feminine and neuter nouns are most frequent in the accusative, although for the feminines the difference

between accusative and dative is not significant. The data again underscores the point that gender assignment is primarily semantically driven: animate and human referents, which are likely to occur in the agent role, are typically masculine, whereas neuter nouns, which identify animals and inanimates, typically take an object role. The pattern observed in the texts for feminine nouns is somewhat skewed by the nature of the corpus, with its bias towards heroic and Christian texts with few active female participants. However, the main factor which plays a role here is the large number of abstract nouns, which are less likely to be subjects, and are as frequent in prepositional phrases (dative) as they are in the object role (accusative).

The OE frequencies of case and gender interactions are broadly similar to those found in OHG, particularly for the nominative, where again about two thirds of the nouns (67%) and of the demonstratives (67%) which are in the nominative are masculine (Tables 13 and 14).

Table 13. OE nouns in the singular

	Masculine		Neuter		Feminine	
	No.	%	No.	%	No.	%
Nom.	862	41	209	18	212	25
Acc.	464	22	405	35	277	32
Gen.	233	11	126	11	110	13
Dat.	528	25	414	36	254	30
Total	2087	100	1154	100	853	100

(Based on searches in PROIEL as above. Each gender category encompasses all the regular stem classes).

Table 14. OE demonstrative pronouns

	Masculine		Neuter		Feminine	
	No.	%	No.	%	No.	%
Nom.	529	52	170	28	91	28
Acc.	204	20	215	35	98	30
Gen.	88	8	63	10	31	9
Dat.	202	20	163	27	109	33
Total	1023	100	611	100	329	100

(Based on searches in PROIEL as above).

The general tendency for the neuters and the feminines to pattern together in frequency of case and gender interaction is stronger in OE than in OHG, with both occurring mainly in the accusative and dative in OE.

Returning to the notion of a frequency hierarchy, these counts show that in texts, masculines are the most frequent gender in both languages and both parts

of speech: in OE just over half of the nouns (51%) and demonstratives (52%) are masculine, while in OHG the figures are only slightly lower (50% and 47% respectively). On this count, the OHG hierarchy is masculine > feminine > neuter, whereas in OE it is masculine > neuter > feminine. This finding supports the notion that OE, by not recruiting abstract nouns to the feminine group, allows feminines overall to become less frequent and salient in the input for acquisition. As mentioned above, in the input stimulus for acquisition there would have been more human female referents than are found in either corpus. In OE, the relatively small number of feminine nouns that do not denote women could have contributed to the shift from a grammatical to a natural gender system in later English.

6. Case and gender in acquisition

Throughout this paper I have presented evidence for the qualities of salience, distinctiveness and systematicity which make a three-way gender category acquirable by native German speakers. It has been shown that even in OHG, noun inflections alone were only rather oblique cues to gender assignment, making gender a covert category. The most informative elements, then as in later German, were the gender targets which showed agreement with the controller noun.

Studies of modern German children show that they acquire the categories of the NP in the order number > case > gender. It is argued that number is the first category to be acquired because it has extralinguistic validity, and the second category is the syntactically important function of case marking (cf. Müller 2011). The acquisition of gender comes last, Wegener claims, because it represents a “grammatical burden”: she sees gender as purposeless (2011: 540–541). Although gender is the third category to be acquired, studies nonetheless show that acquisition is readily achieved by L1 learners from the age of 2;6, whereas L2 learners typically struggle to acquire German gender (Montanari 2014).

Wegener’s (2011) study of the acquisition of German gender shows that, in acquiring case first, children initially interpret gendered endings as realising syntactic case functions. Overgeneralizations by the children in her study show a clear pattern of favouring (masculine) *-r* endings to mark subjects and (neuter) *-s* to mark objects: *-e* is primarily a (feminine) gender marker (2011: 537). That is to say, in modern German, just as has been shown here for OHG, masculine nouns are typically animates and agents, while neuter nouns are typically inanimate and so take the patient role. In Wegener’s account feminine is the only gender identified by children as itself, outside of the system of recognising syntactic participant roles. This again chimes with the evidence from OHG that feminines occur in a relatively even spread through the cases, discouraging an association of any particular syntactic

role with feminine gender. At the same time, the ability to distinguish between male and female humans is culturally and socially relevant for language acquirers.

With each gender occupying a separate but systematic niche, the three-way system has remained robust, although Werner notes that the current dominant pattern of creating abstract nouns through the conversion of infinitives, which are neuter, may in future cause the candidate group to shrink and place the feminine gender under threat (2012: 222). At the same time, a pointer towards possible loss of the neuter comes from the current use of *nen*, the masculine accusative indefinite article, with neuter referents, in both accusative and nominative (cf. Vogel 2006). If the neuter and the masculine were to merge, the position of the feminine as the least grammatical gender might motivate a further shift to more semantic marking (cf. Salmons 1992). For now, though, Wegener concludes from her study that the “fusion of gender, case, and number markers in German is probably what keeps gender marking alive” (2011: 540).

7. Conclusion

Previous work on gender change in Germanic has assumed that gender is inherited as a three-way category which is subject, over time, to loss caused by phonological change. Contrasting the data from OE and OHG here suggests that the key phonological change for OE occurs when Ingeveonic pronouns delete final *-r*, triggering a merger of masculine with feminine (as is seen, apart from some relics, in modern Dutch). It is not coincidental that Ingeveonic languages also typically merge the oblique cases accusative/dative, removing the commonality between masculine and neuter nouns. OE shares these tendencies for loss with the Low German dialects, which contrast with High German in the extent to which they lose gender and case. To add to these internal factors, OE had to be learnt by a large number of L2 learners after the settlement of England, and is then subject to contact with Old Norse through the Vikings. These sociolinguistic circumstances make acquisition of case and gender less likely.

In German, the key phonological and morphological changes which have been examined here have led to a strengthening and renewal of the gender category, rather than its loss. German not only retained the final *-r* which was lost in Ingeveonic, but spread it analogically through the whole pronominal class so that it became a highly distinctive masculine nominative singular marker. The three-way nature of the category is maintained because the masculine and neuter consonantal endings and the long vowels of the feminines are phonetically stable, perceptually salient and so resistant to later attrition. Distinctive nominatives play a key role in syntax because they enable subjects to be reliably picked out, particularly in a V2

language where they need not be clause-initial. The frequency counts show that this is particularly important for masculine nouns which occur most often as agents. The clear marking of gender on targets including relativizers and adjectives enables them to fulfil the discourse function of referent tracking. It is possible therefore to see gender marking in German as an epiphenomenon of more important syntactic and discourse functions. This is not exaptation of gender to perform a new function, but rather a re-ranking of features such that case reinforces gender, rather than their being treated by language acquirers as independent variables. Östen Dahl has asked: “If gender systems serve no communicative need, why are they so stable?” (2004: 199). The answer for OE is that if, indeed, that is the situation, then they are not stable. But when they play a role in syntax and discourse as well as morphology, their stability can be reinforced and grow over time, as has happened in German.

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Apparent competing agreement patterns in Middle Low German non-restrictive relative clauses with a first or second person head

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This paper updates Farasyn (2017), who charted the agreement patterns found in Middle Low German (non-restrictive) relative clauses with a first or second person head. In related West Germanic languages, these clauses show different types of agreement patterns. This study presents new corpus data illustrating how Middle Low German compares to these. Expanding on Farasyn (2017), it investigates the historical development and elements introducing the relative clause, showing that φ -features in older stages of the West Germanic languages are always encoded in the non-restrictive relative clause, though often in different positions. Middle Low German displays a remarkable stability in retaining a covert resumptive pronoun bearing φ -features. An apparent competing pattern with an overt resumptive is a later innovation, as are structures with third person agreement found in neighboring languages.

1. Background

Agreement patterns in non-restrictive relative clauses with a first or second person head have gained more attention in generative linguistic theories since Ross (1970) and Ito & Mester (2000) briefly shed light on the phenomenon in High German, followed by more extensive analyses of the agreement patterns from Kratzer (2009) and Trutkowski & Weiß (2016). Similar patterns appear in other West Germanic languages like English (Kratzer 2009; Heck & Cuartero 2012) and Dutch (de Vries 2004; van der Horst 2008) whereby the preferred or permitted agreement patterns differ between languages. This study particularly focuses on agreement patterns in non-restrictive relative clauses with a first or second person head in Middle Low German. Middle Low German is a cover term for a group of related dialects that were spoken from about 1250 until 1600, and written from about 1300 onwards. They were spoken in an area which was geographically enclosed by the

Dutch language area in the Northwest and the High German language area in the Southeast. The focus lies on dialects that were spoken in present-day Northern Germany only.

As High German covers all the different types of agreement patterns found in other West Germanic languages, it is useful to present the different types by using examples from that language. Based on the High German examples of Ito & Mester (2000), Trutkowski & Weiß (2016) argue that there are three possible patterns for non-restrictive relative clauses with a 1st or 2nd person head in the Modern High German dialects. Illustrated by Examples (1) to (3), and translating as ‘I who am sixty’, the three possible patterns are:

Agreement between the finite verb in the relative clause and...

- (1) ... the antecedent/head in the main clause: head agreement (HA)
 Ich, [der sechzig bin], ...
 I who.M.3.SG sixty be.1.SG
- (2) ... the relative pronoun: relative pronoun agreement (RPA)
 Ich, [der sechzig ist], ...
 I who.M.3.SG sixty be.3.SG
- (3) ... a resumptive pronoun in the relative clause: resumptive pronoun agreement (ResPA)
 Ich, [der ich sechzig bin], ...
 I who.M.3.SG I sixty be.1.SG

The results of the experiment of Trutkowski & Weiß (2016) contrast with the claim of Ito & Mester (2000) that first and second person heads in German require a resumptive pronoun in the relative clause repeating the number and person of the head, combined with morphology on the verb which corresponds with the head. Agreement with the resumptive and with the relative pronoun in the relative clause (default/third person agreement) are both possible according to Ito & Mester (2000) in cases in which the first and third person singular verb form are syncretic. In the first person plural, both types are possible as well due to syncretism, whereas in the second person plural, only agreement with the relative pronoun is possible. Trutkowski and Weiß (2016) however argue, based on a magnitude estimation experiment, that all three types of agreement can be found in the High German dialects, although there is variation amongst speakers in terms of acceptability. Moreover, a pattern with a resumptive pronoun is not always better rated than agreement with a relative pronoun or agreement with the head by native speakers. Head agreement is for instance preferred in clauses with a head in the first person plural (Trutkowski & Weiß 2016: 143).

To result in a grammatical sentence, agreement needs to be established between head, relative pronoun, eventually a resumptive pronoun, and the finite verb in the relative clause. The so-called agreement chain (cf. Kratzer 2009) that is formed by all (possibly) agreeing elements results in three different kinds of mismatches. A relative clause with a 1st or 2nd person head with HA for instance, as given in Example (1), always contains a subject gap when there is no resumptive pronoun in the 1st or 2nd person available, and involves a mismatch between the person specification of the relative pronoun and the agreement morphology on the verb of the relative clause. Another mismatch arises if the relative pronoun is interpreted as a 3rd person marker, which is the case in clauses with RPA, in which the verb has 3rd person morphology (2), while the head is 1st or 2nd person. This gap is filled when a resumptive pronoun is available (3), although in those cases, there still seems to be a mismatch between the head and the relative pronoun and between the relative pronoun and the finite verb in the relative clause, since each is interpreted as a different person. In the analysis I will address how exactly agreement in such a chain of elements can be established, regardless of the mismatches.

In High German, mismatches can only be studied in 1st and 2nd person singular, as the relative pronoun triggers default/3rd person agreement. The resumptive pronoun agreement pattern could be detected if a resumptive were present. Trutkowski and Weiß (2016: 136) found such clauses in High German internet sources, for instance in Example (4) in which the resumptive pronoun *er* ‘he’ is used in the non-restrictive relative clause.

- (4) *Aber was macht er, [der er immerhin Volljurist
But what does he, who-M.3.SG he after-all fully-qualified-lawyer
ist und seit Jahrzehnten in der Politik aktiv ist]?
is and since decades in the political-world active is?
‘But what does he do, after all being a fully qualified lawyer and active in politics
for decades?’*

Furthermore, the agreement pattern cannot be studied in the forms syncretic with 3rd person verb forms in the paradigm. In High German this accounts for all verb forms of the 1st person plural and for verbs with syncretic forms in 1st and 3rd person singular (Ito & Mester 2000). In Standard English, only 1st and 2nd person singular qualify for studying mismatches (Kratzer 2009). The prescribed patterns are different than the ones in High German (which allows HA, ResPA and RPA), as English allows HA exclusively (5a) (Heck & Cuartero 2012).

- (5) a. *I, [who am tall], ...*
b. **I, [who is tall], ...*
c. **I, [who I am tall], ...*

Standard Dutch patterns the same as English, in allowing HA exclusively (De Vries 2004). An example is given in (6a), while German-like constructions with relative pronoun agreement or resumptive pronoun agreement, as given in (6b) and (6c) respectively, are not allowed in Standard Dutch.

- (6) a. *Ik*, [*die groot ben*],...
 I who.3.SG tall am.1.SG
 ‘I, who am tall,...’
- b. **Ik*, [*die groot is*], ...
 I who.3.SG tall is.3.SG
- c. **Ik*, [*die ik groot ben*], ...
 I who.3.SG I tall is.3.SG tall

2. Corpus and methodology

This paper presents new data on non-restrictive relative clauses with a 1st or 2nd person head in Middle Low German, in order to see how the clauses look like and how they are distributed syntactically. Furthermore, I would like to answer the question how exactly agreement can be established in the agreement chain. To do this, a closer look at the features of the elements in the agreement chain is needed. A second question to be answered is how Middle Low German compares to other (neighboring) West Germanic languages like Dutch, High German and English, especially in historical stages of those languages.

The data in this study are based on a corpus study of 21 texts gathered from the *Corpus of Historical Low German* (CHLG),¹ the *Referenzkorpus Mittelniederdeutsch/Niederrheinisch* (ReN)² and the project *Niederdeutsch in Westfalen*,³ comprising approximately 14.000 finite clauses or 135.000 words. This is an extended version of the 45.000-word corpus used in Farasyn (2017). To account for variation, the four main dialect areas in the region are incorporated in the corpus: Westphalian, Eastphalian and North Low Saxon from the *Altland* (‘Old Land’), and Lübeck from the *Neuland* (‘New Land’). The *Altland* is the area where Old Saxon was spoken before, the *Neuland* is the area colonized after the Old Saxon period. All the texts are representative for the written language, which deviates from the spoken language, as writing centers adapted to standards from influential chanceries, enabling interregional communication (cf. Weiß 2005). The corpus further contains multiple

1. <<http://www.chlg.ac.uk/>>

2. <<https://slm.uni-hamburg.de/ren/>>

3. <<http://www.lwl.org/LWL/Kultur/niederdeutsch/>>

genres (literary texts, letters, charters, law books, religious texts...) and texts from the whole period in which Middle Low German was written (ca. 1300–1600). No distinction was made between translated and non-translated texts.

All data have been verified by checking the found agreement patterns and (combinations of) relative particles in the texts of the project *Niederdeutsch in Westfalen* and in other texts from the CHLG. One extra type of example of combined particles was taken from the *Legende des hl. Ludger* (of the project *Niederdeutsch in Westfalen*), another one from the *Braunschweiger Urkunden* (CHLG). These are both examples that are no non-restrictive relative clauses with a 1st or 2nd person head, so they are not of any relevance for the numbers in the rest of the article.

An overview of the texts with their corresponding writing language, dating and genre, is given in Table 1. The name of each text is an abbreviation of the full name given in the list of primary sources.

Table 1. Texts in the corpus, according to writing language, period and genre

Writing language	Period	Genre	Text
Eastphalian	1201–1300	Law	Goslarer Kramerrecht
Eastphalian	1451–1500	Chronicle	Cronecken der sassen
Eastphalian	1451–1500	Literature	Gandersheimer Reimchronik
Eastphalian	1451–1500	Letter	Göttinger Liebesbriefe
Eastphalian	1501–1550	Religious	Eastwestphalian Psalms
Lübeck	1301–1500	Charters	Lübecker Urkunden
North Low Saxon	1301–1350	Law	Sachsenspiegel
North Low Saxon	1301–1500	Charters	Oldenburger Urkunden
North Low Saxon	1451–1500	Literature	Bordesholmer Marienklage
North Low Saxon	1451–1500	Religious	Qvatuor Evangeliorum
North Low Saxon	1501–1550	Literature	Veer Koepluden
North Low Saxon	1501–1550	Letter	Agneta Willeken
North Low Saxon	1501–1550	Literature	Griseldis
North Low Saxon	1551–1600	Literature	Kortwilige Historien
Westphalian	1351–1400	Law	Herforder Rechtsbuch
Westphalian	1351–1400	Law	Soester Schrae
Westphalian	1401–1450	Religious	Spiegel der leyen
Westphalian	1401–1450	Religious	Southwestphalian Psalms
Westphalian	1451–1500	Religious	Prayer 1
Westphalian	1451–1500	Religious	Prayer 2
Westphalian	1451–1500	Religious	Myrren bundeken

All the selected (parts of) texts or text collections included in the corpus were divided into separate finite clauses. These were analyzed manually for number (singular or plural), person (1/2/3), and type of subject (noun or pronoun) and further annotated with clause type information (main clause/subordinate clause),

± second conjunct and type of pronominal subject (overt, covert). The covert type was further subdivided in referential null subjects, imperatives with unexpressed subject/agent, expletives, second conjuncts with conjunction reduction and the most relevant type for this study: gaps or resumptives in relative clauses. These data show that similar agreement mismatches can be found in Middle Low German, but that the mismatches found in Middle Low German show dominant agreement patterns that are different from the ones in for instance High German and Dutch.

3. Syntactic distribution

Non-restrictive relative clauses with a 1st or 2nd person head are scarce in a historical corpus. The reason for this has been described for High German in section one: it is not always possible to determine whether there is agreement of the verb with the head or with the relative pronoun, which is mainly due to syncretic verb forms. As Middle Low German plural has a unitary inflection, syncretism is a very important factor concealing relevant structures. This leads to the fact that these patterns can only be studied in-depth in the singular in Middle Low German, although ResPA might be visible in the plural as well. Just like in Present-day (High) German, the Middle Low German clause-introducing *de* triggers 3rd person agreement with the finite verb in the relative clause (7), which means that also sentences with a 3rd person singular finite verb cannot provide all the relevant information needed about Middle Low German agreement patterns. Farasyn (2017) offers a more elaborate description of the factors concealing relevant structures. Furthermore, a diachronic perspective seems to point in the direction of a separate system for modifying 1st or 2nd person heads anyway. I will further elaborate on this in Section 5.

- (7) *Dar mede vmmevenck he se [de van vroliken worden*
 That with embrace.3.SG.PAST he her.ACC who of cheerful words
erschrack]
 was.amazed.3.SG
 ‘Because of that he embraced her, and she was very amazed by the cheerful words.’
 (*Griseldis*)

Next to language-internal reasons, text type plays an important role in the occurrence of non-restrictive relative clauses with 1st or 2nd person heads as well, as these almost exclusively occur in religious texts. From the 57 examples of relevant clauses found in the corpus used for this study, 53 are found in religious texts (prayers and lamentations), three in literary texts (with a religious topic) and one in a letter.

The central finding of our corpus study is that Middle Low German offers two alternating options for agreement patterns. The first type has a resumptive pronoun, whereas the second type has a gap in the relative clause. Both display 1st or 2nd person agreement on the verb in the relative clause, i.e. Middle Low German either has ResPA or HA. The latter is the most common agreement pattern with 89.47% of all cases, only 10.53% of the cases have the ResPA pattern. This means that no cases of RPA occur in the dataset. Examples of ResPA and HA have been found in the corpus for Westphalian, Eastphalian and North Low Saxon, i.e. in all the dialects of the *Altland*. No examples of non-restrictive relative clauses have been found in the dialect from Lübeck in the *Neuland*. Having HA and ResPA, Middle Low German takes an intermediate position between Standard English (e.g. Heck & Cuartero 2012) and Standard Dutch (de Vries 2004), which allow HA exclusively (*I, who am/is tall; ik, die zoveel gedaan heb*) and the High German dialects (Ito & Mester 2000; Trutkowski & Weiß 2016), which allow HA, RPA or ResPA (*ich, der/die groß bin; ich, der/die groß ist; ich, der/die ich groß bin*).

3.1 Types of heads and agreement patterns

The examples found in the dataset can be divided into five groups, depending on the antecedent modified. Where multiple agreement patterns were found in a category, all of the types are given as an example. Overall, the relative clauses can modify a nominative/vocative, an object, a complement of a preposition, a possessive or an (unexpressed) subject/agent of the imperative. Table 2 shows the five possible heads and agreement patterns with the corresponding number (and percent) of examples found for each head and agreement pattern combination.

Table 2. Number of clauses, according to head and agreement pattern

Head	Agreement pattern	Number of cases
I. nominative/vocative	HA	36 (1) (63.16%)
	ResPA	2 (3.51%)
II. object	HA	7 (12.28%)
III. complement of a preposition	HA	4 (2) (7.02%)
	ResPA	2 (3.51%)
IV. possessive	HA	2 (3.51%)
V. imperative subject	HA	2 (3.51%)
	ResPA	2 (3.51%)
	Total	57

3.1.1 *Relative clauses modifying a nominative/vocative ('Anredenominativ')*

HA

- (8) *dat=tu mijn vader woldest wesen [de [...] mijn schepper bist.]*
 that=you my father would be REL [...] my creator are.2.SG
 'that thou wouldst be my father, who [thou] art my creator' (*Myrren bundeken*)

ResPA

- (9) *O here [de du my geschapen hefst]*
 O Lord REL you me created have.2.SG
 'O Lord who has created me' (*Prayer 1*)

3.1.2 *Relative clauses modifying an object*

HA

- (10) *vp dat ick dy [de dat ouerste gud bist] v(m)me myne*
 so that I you REL [...] the highest good are.2.SG for my
eghene traechheit vn(de) vnuulherdicheit nicht en
 own slowness and lack of persistence NEG NEG
mote verlesen
 must.1.SG lose
 'So that I mustn't lose you, who are my highest good, because of my own slowness and lack of persistence' (*Myrren bundeken*)

3.1.3 *Relative clauses modifying a complement of a preposition*

HA

- (11) *alle wi oetmodighe(n) sundere vleyen to dy [de[...] vns to voren*
 all we devout sinners pray to you REL [...] us to before
heuest ghesocht]
 have.2.SG sought
 'All we devout sinners pray to you, who have sought us before' (*Myrren bundeken*)

ResPA

- (12) *meer warhen sal ick van dy vlein [de du allerwegen*
 but where.to FUT.1.SG I from you flight REL you everywhere
Jegenwordich byst] welkers ogen alle dynghe bloeth sy(n)t vnde
 present are.3.PL whose eyes all things naked are.3.PL and
openbaer [de du vndersokest de herten vnde nire]
 public who you examine the hearts and reins
 'But where will I flight from you, who are present everywhere, for whose eyes all things are bare and public, (you,) who examine hearts and reins.'
 (*Prayer 1*)

3.1.4 *Relative clauses modifying a possessive*

HA

- (13) *v(er)beide(n)de de behoerlike tijd dyner gheboerten [de [...] na
biding the appropriate time your.GEN birth REL [...] after
dyner godheit ghine tijd en heuest noch iare]
your divinity no time NEG have.2.SG nor years
'biding the time appropriate for your_i birth, who_i has no time nor years due to
your divinity' (Myrren bundeken)*

3.1.5 *Relative clauses modifying the (unexpressed) subject/agent
of an imperative*

The imperative cases are plural heads, which means that one can only distinguish the ResPA pattern based on whether a resumptive pronoun occurs or not.

ResPA

- (14) *Vernimet disse dinc [de I godes vergeten]
Understand these things REL you.2.PL god forget.PL
'Understand these things, you who forget God' (Southwestphalian psalms)*

In examples such as (15), in which there is no resumptive pronoun, it is impossible to distinguish between HA and RPA because of the unitary inflection.

- (15) *Samenet eme sine hiligen [de satet sin orcunde oue
Gather.PL him his holy.ones who put.PL his message above
dat offer]
the sacrifice
'Gather His holy ones to Him, you who put His message above the sacrifice'
(Southwestphalian Psalms)*

3.2 Elements introducing the (non-restrictive) relative clause

The non-restrictive relative clauses with a 1st or 2nd person head in Middle Low German are always introduced by *de* ('who'). It is striking that there are no cases of RPA in Middle Low German, which raises the question whether this clause-initiating *de* is a relative pronoun in SpecCP (16a) at all. An alternative option could be that it is a relative particle in C⁰ (16b), as relative pronouns as well as relative particles and combinations of those are common in Middle Low German.

- (16) a. [_{CP} de [_C C=∅ [...]]]
b. [_{CP} OP=∅ [_C de [...]]]

In order to know how exactly agreement is established, it is important to know the exact status of *de*. It is however not the only element found in the left periphery of the non-restrictive relative clause, as it sometimes combines with other elements, which can shed light on this *de* at the left edge of the clause. These elements vary in between the Middle Low German dialects, although variation is limited. In all the *Altland*-dialects, which are the only ones in which I found examples of non-restrictive relative clauses, clause-introducing *de* in non-restrictive relative clauses sometimes combines with particles other than the resumptive pronoun.

In Eastphalian, clause-introducing *de* can combine with (clitic) *de* or *dar*, as given in Example (17).⁴

- (17) *Vrowet iu in deme heren alle [de de enes guden leuendes mit rejoyce you.PL in the Lord all REL PRT a good life with ruwen be gynnet] vn(de) bewiset vtwendich de vroude iuwes remorse begin and prove outwardly the joy of=your herten alle [de dar vort treden in enem guden leuende] vn(de) heart alle REL PRT forward go in a good life and beromet iu der ewighen ere alle gy [dede rechtes herten pride you of=the eternal glory all you REL=PRT of=right heart sint ane straffinghe iuwer samwitticheit] are without punishment of=your conscience*
 ‘Rejoice in the Lord, all who begin a good life with remorse, and outwardly show the joy of your heart, all who progress in a good life, and pride yourselves in eternal glory, all of you, who are of the right heart without a guilty conscience’.

(*Eastphalian psalms*)

Similarly, non-restrictive relative clauses in Westphalian can combine with *de*, but only in 3rd person non-restrictive relative clauses, as given in Example (18). *Dar* occurs as a particle as well, but only in restrictive relative clauses.

- (18) *Vn(de) yn desse(n) wille(n) vn(de) yn dessen vpsate volghede he and in this will and and this intention followed he na gode [de de wil dat alle mensschen beholden blyue(n) vn(de) to God REL wants that all people retained stay and*

4. The second *de* in the first clause in Example (17) could also be a demonstrative pronoun (see Lasch 1914: 220). This would result in a translation such as ‘all the ones, who...’. In the second and the third clause, such a reading is impossible. Because of the parallelism in the conjuncts, I prefer the other option for the analysis.

komen to bekantheyt der warheit]

come to knowledge of-the truth

‘And in this will and in this intention he followed God, who wants that all people are retained and come to knowledge of the truth’

(Legende des heiligen Ludgers)

In the North Low Saxon part of the corpus, I found one example in which particles are combined, but the example is quite unclear, as the particles *a* and *de* have been added interlinearly. In Example (19), these interlinear insertions are added between square brackets; the status of the *a* is unclear, but the element *dar* seems identical to the one in the Eastphalian texts.

- (19) *wo esches du drinken van mi [[a de] dar bin en wif*
 why ask you drink of me REL PRT am a woman
samaritana]
 Samaritan

‘why do you ask a drink of me, who am a Samaritan woman’

(Qvatuor Evangeliorum)

(Combinations of) relative particles and relative pronouns are furthermore quite common in other types of relative clauses in Middle Low German. I discuss them briefly to see which other elements or combinations of elements can introduce the clause. A first type of these kinds of clauses are 3rd person relative clauses. These are often introduced by a relative pronoun followed by *do*. It is unclear from the structure whether this particle is a locative adverb (‘there’) or a relative particle (roughly, ‘that’). The context seems to point in the direction of it being a relative particle, though a locative translation with ‘there’ would not be incorrect either. The relative clause in Example (20) for instance is introduced by *de* and followed by the locative/relative particle *do*.

- (20) *Do uses heren jare weren MCCCL^o do wart en richte*
 when our Lord’s years were 1360 there was a tribunal
gheheghet to Johannes hus Kyneken un(de) dat Johan Nobeke
 held at Johannes’ house Kyneken and which Johan Nobeke
besat [de do richter was]
 owned REL there judge was.

‘In 1360 AD there was a tribunal at the house of Johannes Kyneken, which was owned by Johan Nobeke who was the judge (there)’ *(Herforder Rechtsbuch)*

Other examples are similar, though in those cases it is clear from the context that the relative pronoun is combined with a relative particle *dar* which has the same form as the locative adverb, but which has lost its locative meaning. Example (21)

combines the relative pronoun *de* with the particle *dar*. This type of (restrictive) relative clause is very common.

- (21) *dat wi vnse werch brengen ovv eynen ghuden ende also dat et si*
 that we our works bring to a good end such that it be
dessen dren vor ghenomeden [de dar sin dryualdich in
 these.GEN three aforementioned REL PRT are threefold in
den p(er)sonen]
 the persons
 ‘... that we bring our works to a good end such that it be for the three afore-
 mentioned, who are threefold in persons.’ (Soester Schrae)

In 3rd person restrictive relative clauses modifying an inanimate head (22), a combination of *de* and *dar* is possible, although a locative reading of *dar*, as in ‘it is called Ararach there’, might be correct here as well.

- (22) *de arcke de bestod In armenia an dem barghe [de de dar*
 the ark DEM existed in Armenia at the mountain REL PRT PRT
het ararach]
 is.named Ararach
 ‘The ark was located in Armenia at the mountain called Ararach’
 (Cronecken der sassen)

In the Eastphalian dialects, restrictive relative clauses similar to Example (22), but with an animate head, can sometimes show a combination of a relative pronoun and a relative particle, both being *de*, showing even more clearly that *de* could be both a relative pronoun as well as a relative particle. Such a double use of *de* is given in Example (23).

- (23) *In desser wis dat ek schal vn(de) wille van deme seluen gude*
 in this way that I shall and will of the same property
bekeosteghen enen prester [de de holde ene missen alle daghe]
 sustain a priest REL PRT hold.SBJV a mass all days
also men wente her to ghedan heft to deme seluen altare
 as one until here to done has at the same altar
 ‘In this way, I shall sustain a priest with the same property, who is to hold a
 mass every day, as one has done up until now at the same altar.’
 (Braunschweig Urk. 1365-04-19)

Another type of relative clauses are clauses introduced by *alse/alze*, in which the comparative particle *alse* ‘as’ acts like a relative particle followed by a subject gap. The *alse*-clause modifies the whole preceding situation (Farasyn & Breitbarth 2016).

- (24) *Un(de) [se wolden ene vorbosmen un(de) vortughen]; alze [pro];*
 and they wanted him claim.as.serf and testify, as []
des ammetes recht is
 the.GEN authority's right is
 'and they wanted to claim him as a serf and testify, as [it] is the authority's right'
 (*Herforder Rechtsbuch*)

Free relative clauses can be introduced by a combination of the relative pronoun *we* 'who' and the (clitic) relative particle *de*. The particle *de* has been found in the Eastphalian as well as in the Westphalian dialect.

- (25) [*we=de sick hyr in ertrick vorheuet*] *de schal dort*
 who=PRT REFL here on earth is-pretentious he will there
vornyddert werden
 humiliated be
 'Who(soever) is pretentious on earth, will be humiliated there'
 (*Cronecken der sassen*)

Examples from all kinds of relative clauses in Middle Low German point in the direction of *de* introducing non-restrictive relative clauses being a relative pronoun and not a particle, as the clause is never asyndetic: *de* is always present, whereas the other element, the relative particle, is not. This can be seen in Eastphalian Example (17), in which multiple non-restrictive relative clauses are combined. In this example, the (set of) particle(s) varies between *de*, *dar* and clitic *de* or combinations of those elements. The most important point supporting the idea that *de* is a relative pronoun and not a particle is the fact that relative clauses modifying a(n) (inanimate) neuter antecedent are also never asyndetic. They are introduced by *dat*, as can be seen in Example (26a), although there are also exceptions in which there is semantic agreement (26b).

- (26) a. *Bekant men emme wes vor gherichte scult oder ander*
 confess one him something before court debt or other
ding [dat den eruen vnwitlik were] [...] so [...]
 thing that the heirs unknown was then
 'If one confesses something to him in court, debt or a thing which was
 unknown to the heirs, [...] then [...]' (Kramerrecht Goslar)
- b. *Storue ok emme manne sin wif_i [de_i kindere hinder*
 die.SBJV also a-DAT man-DAT his wife who children behind
sek lete] [...]
 REFL left
 'If the wife_i of a man died, who_i left children behind [...]'
 (Kramerrecht Goslar)

The Middle Low German examples can be captured within one and the same structure. A schematic overview of the system in the clause-introducing elements in Middle Low German (non-restrictive) relative clauses is given in (28).

$$(27) \quad [DP_i [_{CP} de_1 [_{C'} (de_2) [_{TP} (ResP)/(dar)_i \dots]]]]$$

I propose that de_1 is a relative pronoun which is always located in SpecCP. C^0 can contain a relative particle de_2 , but this de is not obligatory. The resumptive pronoun is located in the position following C, i.e. in SpecTP or in the Wackernagel position. I claim that this resumptive pronoun can also be null and that every Middle Low German non-restrictive relative clause thus contains a null resumptive pronoun. Evidence supporting the idea that the resumptive pronoun can be null can be found in Farasyn & Breitbarth (2016). The authors distinguish between two types of referential null subjects in Middle Low German, of which one type, a null clitic, is located in SpecCP and one type in SpecTP or the Wackernagel position. The latter is the exact same position in which resumptive pronouns are found. Another argument supporting this idea is the fact that the West Germanic languages had a much larger number of referential null elements anyway (Volodina & Weiß 2016). The (null) resumptive can never be combined with *dar* (and variants), as *dar* is located in the exact same position, following Light's (2010) analysis of *da* in relative clauses in Early New High German, which shows that *da* is some sort of expletive subject.

3.3 Special cases

The two agreement patterns listed so far, HA and ResPA, correspond to patterns that I described in the first section and that is also attested in High German. However, Middle Low German displays some divergent agreement peculiarities.

3.3.1 Long distance agreement/no binding

The first group of examples are non-restrictive relative clauses which modify an element in the matrix clause, but where that element is quite far away in the text. The relative clause turns out to be more independent, since there is no adjacency between the matrix clause containing the head and the relative clause.

This distance makes it sometimes hard to identify the antecedent of the clause. At the end of Example (28) for instance, we can see a clause which seems to be a relative clause, since it is introduced by a relative pronoun: (*Vn(de)*) *de alle dynghe sunder arbeit heuest gheschapen* ('who has created all things without trouble'). The finite verb has 2nd person singular marking. However, no direct antecedent can be found in the preceding matrix clause. The head can be introduced either explicitly, by the direct object *dy* ('you') in the first matrix clause, by the clitic *-u* ('you') in the

second main clause introduced by *Mer* ('but'), by the clitic *-u* in the subordinate clause introduced by *dat(tu)* ('that (you)'), or implicitly by the possessives in *dyner gheboerten* ('your birth') and *dyner godheit* ('your divinity') in the first subordinate clause. The *Vnde* ('and') at the start of the relative clause seems to indicate that this relative clause is a second conjunct, although no first conjunct can be found. Therefore, this *Vn(de)* probably functions as a discourse marker, since *vn(de)* does not always mark a second conjunct at the clausal level in Middle Low German. Rather often it is indicating an additional piece of information at the text level as a discourse structuring element (Farasyn & Breitbarth 2016). This suggests that this relative clause has a more important, text structuring role, which points to it belonging to the first main clause which introduces this whole chunk of information.

- (28) *Jck loue vn(de) verhoghe dy v(m)me de lange(n) inwonynge dat*
 I praise and glorify you for the long live=in that
du neghen maende by(n)nen den beslote(n) meghentliken lichame
 you nine months inside the closed maidenly body
marien een clene kyndeken heuest gheshuelt v(er)beide(n)de
 Mary.GEN a little child have.AUX.2.SG hidden biding
de behoerlike tijd dyner gheboerten [de na dyner
 the appropriate time your.GEN birth REL [...] after your
godheit ghine tijd en heuest noch iare] Mer alle dynck
 divinity no time NEG have nor years But all things
heustu in tiden vn(de) in behoerliker ordynancien ghesat O
 have=you in time and in decent rules set O
my(n)nentlike vn(de) alto ser verwunderende weerdicheit dattu
 lovely and too much wondering dignity that=you
god der vnbegrijplicher glorien nicht en heuest
 god the.GEN incomprehensible glory NEG NEG have.AUX.2.SG
versmaet een snode worm to werden [(de) de alle dyng
 disdained a nefarious worm to become REL [...] all things
sunder arbeit heuest gheschapen]
 without pain/labour have.AUX.2.SG created
 'I praise and glorify you for the long live in, that you have hidden for nine months inside the closed, maidenly body as a little child, biding the time appropriate for your birth, who has no time nor years due to your divinity. But you have set everything in time and decent rules. O lovely and too much wondering dignity, god of incomprehensible glory, you haven't recoiled of becoming a nefarious worm, and who has created all things without trouble.'
- (*Myrren bundeken*)

A similar example is (29), in which the matrix clause contains a prepositional phrase, *v(m)me dyne veruolghinge vnd tribulacie* ('for your prosecution and tribulation'), which is modified by a relative clause introduced by the relative pronoun *de* and which correctly takes a finite verb in the 3rd person singular. This relative clause is followed by another clause starting with *Vn(de)* 'and'. Just like in (28), this *Vn(de)* creates the impression that this clause is a second relative clause with ellipsis of a relative pronoun, modifying the same prepositional phrase in the matrix clause. However, the finite verb in this clause is a 2nd person singular and therefore it seems to be the case, also observing context, that it takes the object of the first matrix clause *dy* ('you') as its referent. This also explains the elided relative pronoun, which is due to a mismatch: the relative pronoun in a real second conjunct could have been left out if the referent was identical, which is however not the case for these two relative clauses, as the first relative clause has *dyne veruolghinge vnd tribulacie* as its head (3SG), while for the second relative clause, the pronoun *dy* 'you.ACC' is the referent.

- (29) *Ick benedie vn(de) dancke dy here ih(es)u (christ)e alre hoghste*
 I praise and thank you Lord Jesus Christ all highest
konyneck der konyng v(m)me dyne veruolghinge vnd tribulacie
 king the.GEN kings for your prosecution and tribulation
de dy an ghedaen waert in dyne(n) kyndeschen daghen Vn(de)
 REL you done was in your juvenile days and
[alz een ellendich vn(de) vromet pelgry(m) van dyne(n) eghenen
 like a miserable and pious pilgrim from your own
lande wordest ghedwu(n)gen to trecken int land van egipten
 land are.AUX forced to settle in=the land of Egypt
al hemelike]
 all heavenly

'I praise and thank you, Lord Jesus Christ, highest king of kings, for your prosecution and tribulation, that was done to you in your juvenile days. And who like a miserable and pious pilgrim were forced to settle in the all heavenly land of Egypt.'
 (Myrren bundeken)

3.3.2 Postcopular relative clauses

The next remarkable agreement pattern is found in matrix clauses with a subject in the 1st or 2nd person, the copula *sin* ('to be') and a predicate. I only found two examples of these, but they are highly interesting because they each show a different agreement pattern.

In (30), there is a relative clause taking the predicative DP *de ghene* ('the one') as a head. *De ghene* is a predicate to the subject of the matrix clause, *Jck* ('I'). This *Jck* seems however to be taken as the referent of the relative clause, since the finite verb in the relative clause spells out 1st person instead of 3rd person features.

- (30) *Jck byn leder de ghene [de de su(n)de*
 I am unfortunately the one who [...] the sin
ghedaen hebbe]
 done have.1.SG
 ‘I am unfortunately the one who has done the sin.’ (Myrren bundeken)

Example (31) seems to be more like a genuine cleft. The structure is similar to (30), although there is disagreement about whether *it* (‘the one’) or the clefted XP is the head in this kind of clause. The idea that *it* is the head is a wide-spread analysis of clefts called the specificational approach to clefts, though there are also other approaches to the topic. For instance Reeve (2012: 25) proposes that *John* rather than *it* is the modified head in a cleft like *It is John that Mary saw* in English, and that the relative clause is in such cases a restrictive relative clause modifying the clefted XP instead of the predicate as its antecedent. It is in any case clear that the verb in Example (31) seems to establish agreement with the relative pronoun. This is interesting, since I have not found any examples of RP agreement in Middle Low German with 1st or 2nd person HNs so far.

- (31) *Ik bin et [de mit di sprikt]*
 I am it REL [...] with you speak.3.SG
 ‘It is I who speak to you’ (Qvatuor Evangeliorum)

If the relative clause in the example above modifies the predicate and not the subject of the clause one would expect third person features on the verb in the relative clause, as is the case here. It is however special that the relative pronoun introducing the relative clause is *de*, though the expected clause-introducing element in the relative clause modifying a neuter head in Middle Low German would be *dat*. That is, the relative pronoun agrees with *ik* in gender (i.e. -gender, compared to neuter+gender *dat*), but the verb of the relative clause agrees with the relative pronoun in default 3rd person, not with the 1st person head noun. This would mean that the relative pronoun somehow takes over an inherent feature from the 1st or 2nd singular head. I will explain how this is possible in the next section.

4. Analysis

Regarding the examples that I found in the last sections, two main agreement patterns can be found in relative clauses in Middle Low German, HA and ResPA, which are also found in other languages like High German. Table 3 gives an overview of both patterns for the sentence ‘I who speak to you’ or ‘It is I who speak to you’ in Middle Low German.

Table 3. Schematic overview of the agreement types in Middle Low German

	Pronominal head	REL	[ResP]	...	VFIN
HA	<i>ik</i>	<i>de</i>	/	<i>mit di</i>	<i>spreke</i>
ResPA	<i>ik</i>	<i>de</i>	<i>ik</i>	<i>mit di</i>	<i>spreke</i>

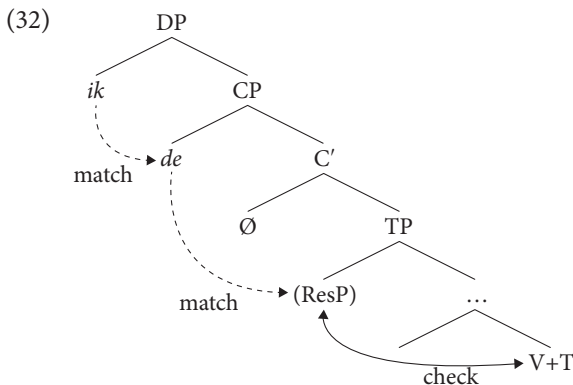
The question is now why and how this exact agreement patterns are formed, since it has to be the case that the relative clause relativizes the head in some way or another. Based on the notion of the feature chain (cf. Kratzer 2009) this can only happen by establishing a form of agreement between every part of the agreement chain, i.e. at least between head, relative pronoun and the finite verb in the relative clause.

The way in which we interpret the *de* introducing the relative clause has important implications for how Agree functions in the structure. As I have argued that *de* is actually a relative pronoun, it must be maximally underspecified for relevant features, i.e. for gender, number and person. As I have already described the left periphery of non-restrictive relative clauses in more detail in Section 3, I believe that *de* introducing the non-restrictive relative clause in Middle Low German is a relative pronoun in SpecCP. I claim that this relative pronoun is not only underspecified for number and gender, but also for person. Furthermore, I argue that these two Middle Low German patterns are two sides of the same coin, and that Middle Low German only ever has resumptive agreement. Following Trutkowski & Weiß (2016: 162), I argue that the difference between the two types of patterns is that the resumptive pronoun can be covert or overt.

In order to explain how agreement in the chain can be established, a distinction between Checking and Matching following Georgi & Salzmann (2017) is useful. Both operations are possible in a bottom-up as well as in a top-down approach, though the bottom-up approach causes different problems in resumption theories, for instance that checking across clause boundaries is not possible (Salzmann 2017). The proposed analysis of Georgi & Salzmann (2017) is a top-down approach which is among others based on resumption effects in Swiss German, in which the presence or absence of a resumptive in certain relative clauses depends on the case of the head noun. Georgi and Salzmann (2017) propose that Agree in these structures is established by Checking and Matching relations to establish an indirect dependency without any movement (Salzmann 2017). I have chosen to adapt the idea of Checking and Matching of Georgi & Salzmann (2017) to my data, which can be done as follows. Checking in non-restrictive relative clauses in Middle Low German involves Agree between a DP with unchecked φ -features and a probe (T). It requires identity of features, i.e. it is only possible if the goal has the same features as the probe. Matching involves Agree between a probe and a DP with φ -features which are already checked. The dependency does not require identity of features, viz. it is also possible if the probe only has a subset of the features of the goal.

I have adopted the top-down approach proposed in Georgi and Salzman (2017) to my data as well, with that difference that in Middle Low German not the Case information but the person feature needs to be accessible. Furthermore, I claim that the Middle Low German relative pronoun *de* in this chain is maximally underspecified for the relevant features (gender/number/person) and that every chain contains a (null) resumptive pronoun. The resumptive pronoun in combination with the chain of Checking and Matching relations assures that no locality constraints need to be violated. This is because Checking across clause boundaries is not possible (Salzman 2017). It makes it possible to deal with the non-local dependency between the often implicitly introduced 1st or 2nd person (features of the) antecedent and the resumptive and the resumptive/gap in the relative clause. In a bottom-up approach, these first or second person features would not be syntactically present, as is the case for case information in Swiss German.

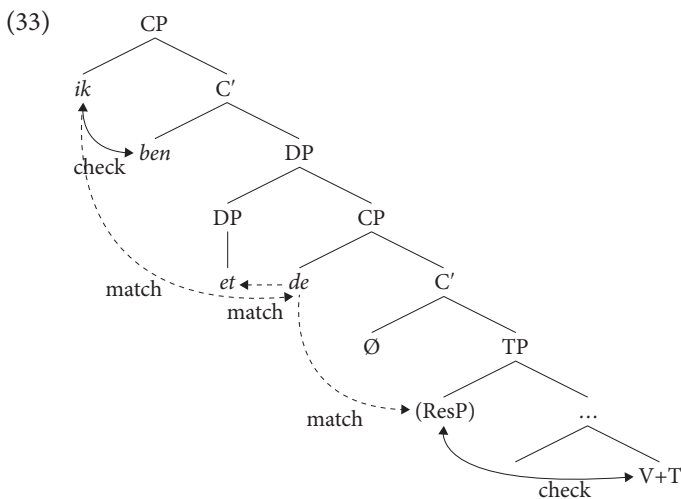
For cases of HA and ResPA, this means that there is first Matching between the head (for instance *ick*) and the relative pronoun (*de*), which is underspecified for ϕ -features and thus matches everything. Then, Matching between the relative pronoun and the (null) resumptive pronoun is established, followed by Checking between the (null) resumptive and T in the relative clause. HA and ResPA are in fact two sides of the same coin, as the structure is the same, though the resumptive can be covert or overt. Consequently, we cannot really speak about HA for Middle Low German, as Middle Low German only ever has ResPA.



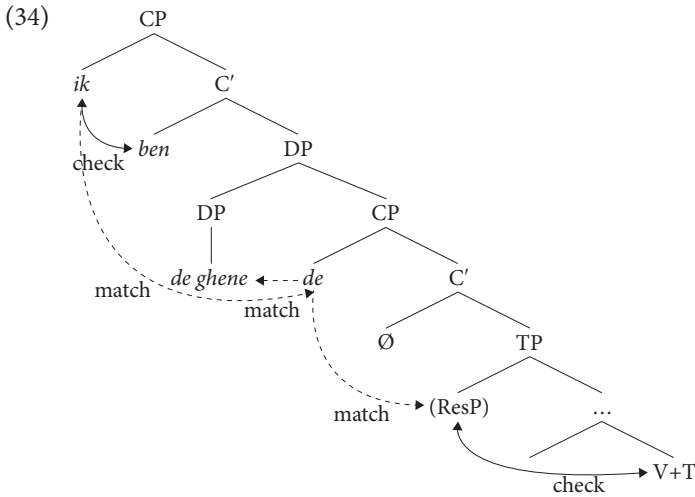
Agreement is established slightly differently in agreement chains in relative clauses modifying copula clauses. In copula relative pronoun agreement cases, there is Checking between the subject and the verb in the matrix clause again, but not between the verb and the predicate. The predicate, *et* ('it') in Example (33), does however match with the relative pronoun, as the relative pronoun is underspecified and can match everything. When Agree is established between predicate and relative pronoun, the 3rd person feature of *et*, and not the one from the 1st singular

form *ik* ('I') is passed on. Consequently, the verb in the relative clause expresses 3rd person features.

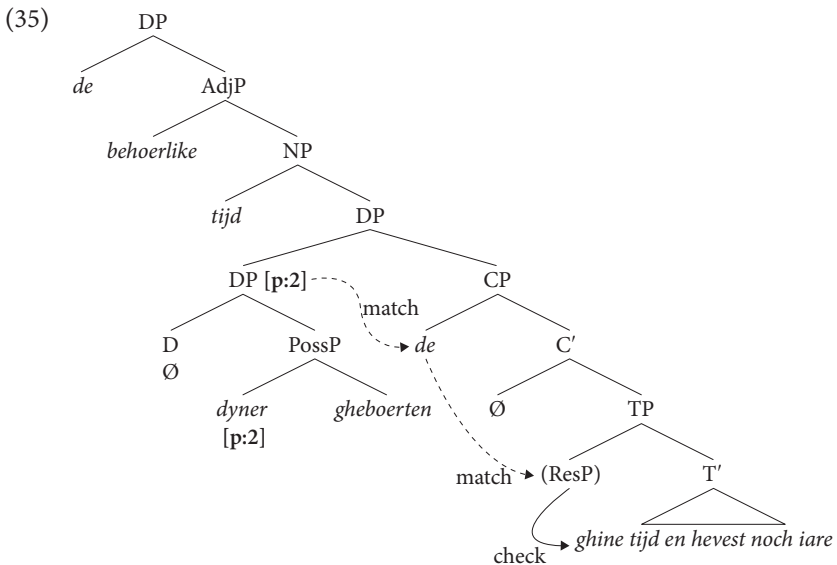
This does not explain why the clause is introduced by the relative pronoun *de*, which modifies an animate head, and not by the expected neuter *dat*. This can, however, be explained with an adaptation of the theory of licensing of restrictive relative clauses of Reeve (2012: 1981), who argues that restrictive relative clauses modifying clefts have two antecedents, and that both syntactic and thematic licensing are possible. These two antecedents are the clefted first or second person DP and *et*, the syntactic head of the clause. The non-restrictive relative clause can agree with (syntactic or semantic) features of the syntactic head, as well as with (syntactic or semantic) features of the clefted XP. The fact that *et* c-commands the relative pronoun could provide the underspecified gender feature semantically, while the Checking and Matching chain provides the syntactic features necessary for agreement in the clause, as can be seen in (33).



The derivation for copula head agreement, in which the verb agrees with the first or second person features of the subject in the matrix clause, is similar. There is first Checking between that subject and the verb. Then, there is Matching between the verb and *de ghene* ('the one'), the actual head which gets modified, although it initiates in fact a restrictive relative clause. Matching with the verb in the matrix clause is possible though, as *de ghene* is, just like the relative pronoun, maximally underspecified for φ -features. From there onwards, the agreement chain is identical to the one in the HA and ResPA agreement. *De ghene* first matches with the (null) resumptive in SpecTP and Checking between this resumptive and the verb in the relative clause is the last step in the process.



Some special structures which I have not discussed yet are non-restrictive relative clauses modifying a possessive. Although the antecedent of these relative clauses is introduced implicitly, head agreement is possible in all of the examples of this type. I assume that they behave similar to pied piping structures involving feature percolation, as I assume that feature percolation takes place in the DP containing the possessive in Middle Low German. The possessive pronoun thus projects its ϕ -features to its dominating DP. The dominating DP which receives a second person feature is then modified by the non-restrictive relative clause. The clause is construed in the same way as standard relative clauses, which results in the verb agreeing with the second person DP head. This can be seen in Example (35).



This means that even though semantically only the possessive *dyner* ‘your’ is modified, syntactically, the whole phrase containing this possessive is modified.

A question that still needs an answer at this point is how the numerous long distance-agreement examples like (28) and (29) should be analyzed. I propose that the agreement chain is mediated by the coordination-like structure that Koster (2000: 22) proposed for non-restrictive relative clauses in Dutch. Within this theory, the relative clause acts in fact as a second conjunct which offers a further specification of the antecedent of what he calls a colon phrase (:P). Koster’s proposal is meant to treat extraposition of relative clauses as a type of pied pieping, as the antecedent is a part of a larger phrase in the specifier of :P. Both parts form a set union to derive the correct interpretation, and are connected to each other by a Boolean operator. This operator, derived from mathematical set theory in which \cup is usually used as the associated symbol, is represented with ‘:’ in Koster’s analysis. Applied to Middle Low German, this results in the structure below for Example (28), repeated here.

- (28) O my(n)entlike vn(de) alto ser verwunderende weerdicheit dat = [:P [NP tu]] god der vnbegrijpliker glorien nicht en heuest versmaet een snode worm to werden. [: [CP Vn(de) de alle dynghe sunder arbeit heuest gheschapen]]

The set union thus gets us the identification between the head and the gap in the relative clause.

5. Diachronic development

It seems likely that a separate system for modifying 1st and 2nd person heads existed (and still partly exists) in Germanic. Braune (2004: 136) describes how, in Gothic for instance, non-restrictive relative clauses with a 1st or 2nd person head are introduced by a personal pronoun and a clitic relative / subordinating particle, for instance *ikei* in (36a) or *puei* in (36b). When the head is not a 1st or 2nd person pronoun, the relative clause is introduced by the demonstrative pronoun and the clitic particle *-ei*. Harbert (2006: 415–417) for instance analyses *-ei* as a complementizer which can also be used on its own to introduce subject or object clauses. Afros (2006) analyses them as relative particles as a whole. *Ei* can also be used on its own with the meaning ‘in that case, under those circumstances, there, so’ (Lehmann 1986). The original meaning of **ei* in Proto-Germanic was locative (‘there’) (Kotin 2012: 344). Following Ferraresi (2006), the personal pronoun might be located in SpecCP, while *-ei* is located in C^0 . The verb agrees with the head of the clause in person.

- (36) a. *ik auk im sa smalista apaustaule, [ik=ei ni im wairþs*
 I verily am the least apostles.GEN I=PRT NEG am worthy
ei haitaidau apaustaulus], duþe ei wrak
 COMP am.called apostle for COMP persecute.1.SG.PRET
aikklesjon gudis.
 church God.GEN
 ‘For I am the least of the apostles, that am not meet to be called an apostle,
 because I persecuted the church of God.’
 (Corinthians I 15:9, translation from Wulfila project)⁵
- b. *þu was is, [þu=ei stojis framþjana skalk]?*
 you who is YOU=PRT judge.2.SG foreign.ACC servant.ACC
 ‘Who art thou that judgest another man’s servant?’
 (Romans 14:4, translation from Wulfila project)

In the older stages of the West Germanic languages, 1st and 2nd person clauses act differently as well. Though it is hard to look into the history of Low German because of the attestation gap between Old Saxon and Middle Low German, there are examples which can shed light on how the construction must have looked like and evolved. Example (37) from *Heliand* (cf. HeliPaD, Walkden 2016) is a clause that could be a non-restrictive relative clause, although it could also be a main clause with a topic, as the verb in the second clause is in verb-final position. This is however not unusual in Middle Low German subordinate clauses, as pointed out by Petrova (2013). Another possibility is that *the maht godes* is extraposed. If however, this were a relative clause, it would be a case where we only see a personal pronoun without a relative pronoun or a definite pronoun. Another example, (38), is a case with a relative pronoun and agreement with the head (HA), which is the most common agreement type of non-restrictive relative clauses with a 1st or 2nd person head in Middle Low German as well. This particular case thus points in the direction of continuity between OS and Middle Low German. It is important to note that the verb, in both cases, agrees with the head of the non-restrictive relative clause.

- (37) *Huat, thu thesaro thiodo canst menniscan sidu [thu ni*
 what you this crowd know.2.SG people.GEN customs you NEG
uuêst [the] maht godes]
 know.2.SG the power God.GEN
 ‘Lo, you know the customs of this people, of men, you, who do(es) not know
 the power of God!’ (Heliand 3101–3102)

5. <<http://www.wulfila.be/>>

- (38) *Gabriel biun ik hetan, [thie io for gode standu]*
 Gabriel am I called who ever before God stand.1.SG
 ‘I am called Gabriel, who always stand(s) before God.’ (Heliand 120)

Broadening our view to Old High German, Schrodtt (2004) as well as Axel-Tober (2012) and Coniglio et al. (2017) show potential cases with only a personal pronoun, without a relative particle and a relative pronoun. These are similar to Example (37) from Old Saxon, but note that the verb is located at the very end of the relative clause here. It is however similar that the verb agrees with the head in person and number.

- (39) *Heil thu quádun sie xpc [thu thérero liuto kúning bist]*
 hail you said they Christ you of.those people king are.2.SG
 ‘Hail you, said they, you [who] king of those people are’
 (O IV 22, 27 from Axel-Tober 2012: 224)

The question is whether this personal pronoun is the subject, a topic or a relative pronoun. Axel-Tober (2012) cites evidence from Old High German with a relative particle, which points to this personal pronoun occupying the specifier of CP. Furthermore, Axel-Tober argues that it is not a resumptive, as there are cases in which personal pronouns and relative particles appear together (cf. Example (40)). Furthermore, there is no prosodic break, so the pronoun is part of the relative clause.

- (40) *uue iu scriberin Inti pharisei lichezera, [ir=de dezemot*
 woe to.you scribes and Pharisees hypocrites you=PRT tithe.2.PL
minzun Inti dilli]...
 mint and dill
 ‘woe you, scribes and Pharisees, you hypocrites, who tithe mint and dill...’
 (Tatian 245, 10; from Axel-Tober 2012: 225, my own translation)

Van der Horst (2008: 178) surmises that *ther* could either be a relative pronoun or a relative particle which derives from the relative adverb *tha* but does not have a locative meaning anymore. Furthermore, he refers to Cowan (1957) and the fact that this structure is probably High German. The fact that it looks like the expletive cases of *dar/do* in Early New High German supports this idea (cf. Light 2010). Furthermore, the first nine psalms from the *Wachtendonck Psalms* are written in Old Moselle Franconian (de Grauwe 1979). The Old Dutch counterpart can be seen in Example (41) from psalm 65 of the *Wachtendonck Psalms*. The clause is only introduced by *thia*, which is again either a relative pronoun or a relative particle.

- (41) *Cumit gehorit in tellon sal ic alla [thia forhtit gode], huo deda*
 come hear you tell will I all REL fear god how did
sela mina.
 soul mine
 ‘Come, listen, and I will tell all who fear God, how he has treated my soul’
 (Wachtendonck Psalms 65, 16)

In the equivalent Middle Low German verse, a resumptive is used (42).

- (42) *ic secke in alle [de i got enfortet] vat he dide*
 I say you.2.PL-DAT all REL you god fear what he did
miner sele
 to-my soul
 ‘I tell all of you, who fear god, what he did to my soul’
 (Westphalian psalms (Pijnenburg et al. 2009))

Other examples from Old Dutch, found in the *Oudnederlands Woordenboek* in the *Geïntegreerde taalbank* (Dykstra et al. 2010), show that the non-restrictive relative clause with a 1st or 2nd person head is introduced by the relative pronoun combined with *ther*, as shown in (43).

- (43) *Inde nu kununga fornemot, gelierot uuerthet [ir=ther*
 and now kings understand taught you.2.PL-are you=PRT
dremot ertha]
 judge.2.PL earth
 ‘And now kings, understand: you are taught, you who judge earth’
 (Wachtendonck Psalms 002, 10)

All examples given above shed light on the left periphery in Germanic, as they show that person and number features are somehow encoded inside the relative clause in all of these languages, as the verb agrees with the head in every single case. I therefore propose the following analysis. In Old Saxon Example (37), the pronoun is the subject inside the relative clause and there is an empty operator. In another type of cases, like in Example (38), there must be a null resumptive pronoun in order to establish verbal agreement with the head. Both structures are respectively given in (44a) and (44b)

- (44) a. $[DP_i [_{CP} OP_i [_{C'} C [_{TP} pronoun_i \dots V_i]]]]$
 b. $[DP_i [_{CP} RP [_{C'} C [_{TP} (ResP)_i \dots V_i]]]]$

In Old High German/Middle High German, there is a personal pronoun in SpecCP, acting like a relative pronoun with or without a relative particle. This, which is according to the analysis of Axel-Tober (2012), results in the structure in Example (45).

- (45) [DP_i [CP pronoun_i [C' (de) [TP ... V_i]]]]

In the real Old Dutch example, the clause can either be introduced by a relative pronoun (46a) or a relative particle (46b). The latter requires an empty operator to establish agreement in the relative clause. There is always head agreement.

- (46) a. [DP_i [CP RP [C' de [TP ... V_i]]]]
 b. [DP_i [CP OP [C' thia [TP ... V_i]]]]

In Middle Low German, there either is a relative pronoun with maximally under-specified ϕ -features and either a null or a resumptive pronoun. Alternatively there could be a relative particle *de*, though then there would be an empty operator in the specifier of CP which actually mediates the agreement, which might have developed from a topicalized pronoun as we have seen it in Middle High German. These possibilities are given respectively in (47a) and (47b).

- (47) a. [DP_i [CP de [C' \emptyset [TP (ResP)_i ... V_i]]]]
 b. [DP_i [CP OP_i [C' de [TP (ResP)_i ... V_i]]]]

In general, it can be stated that the left periphery of the non-restrictive relative clauses with a 1st or 2nd person head in the older stages of the Germanic languages always contains one or more elements which are specified for person and number features. The features can be encoded in topicalized pronouns, relative pronouns, or resumptive pronouns or combinations of those. They mediate between head and verb and make sure that agreement can be established. For Middle Low German specifically, it could be concluded from the data above that the null resumptive pattern (HA) is a rather old pattern which is retained. This might have developed from an older topicalization structure. The overt resumptive pronoun agreement strategy (or RPA in High German) is a modern innovation, which is however present in the earliest Middle Low German texts already. This innovation does not happen at all in English and Dutch. The sentences that look like long distance agreement really contain null resumptives, as non-restrictive relative clauses with a 1st or 2nd person head always have to contain person and number features in the left periphery of the clause.

6. Conclusion

The present paper sheds light on non-restrictive relative clauses with a 1st and 2nd person head in Middle Low German. In such clauses, agreement chains can be formed in two different ways, though these are in fact two sides of the same coin. The verb always agrees with the head in person and number. This is possible as

an agreement chain is formed by the head, a relative pronoun *de* introducing the relative clause, a resumptive pronoun and the verb. I have claimed that Middle Low German has an underspecified relative pronoun in the left periphery of the relative clause and that every relative clause contains a resumptive, which can however be covert, which thus results in two ways in which the relative clauses can be spelled-out. The agreement chain is established through Agree relations, by the processes of Checking and Matching. The same analysis can account for curious clauses containing a predicative element and for numerous clauses in which there is no adjacency between matrix clause and relative clause. For these, I propose that the phrases form some sort of set union mediated by a Boolean operator.

A closer look at the historical development of the structure in the older stages of the Germanic languages shows that the type with a covert resumptive is a stable pattern retained from older language stages. This is not surprising in the sense that the older West Germanic languages had more referential null subjects (Volodina & Weiß 2016). In Old Saxon and Old High German as well as in Old Dutch, the verb in the non-restrictive relative clause modifying a 1st or 2nd person head always agrees in person and number with the head. This is because these features are always encoded in one of the elements that can introduce the relative clause, i.e. in elements in SpecCP, C⁰ or SpecTP. Such elements containing features are the personal pronoun, the relative pronoun or the null resumptive pronoun. RPA in High German and clauses with an overt resumptive, as in Middle Low German and High German, are later innovations.

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Stability and change in Icelandic weather verbs

Syntax, semantics and argument structure

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Contrary to previous claims, weather verbs in Icelandic are not “no-argument” predicates. Both in Old and Modern Icelandic they can appear with an NP either in nominative, accusative or dative case. It can be shown that in Modern Icelandic the NPs are subjects, and this is likely to have been the case in Old Icelandic. Diachronically, in addition to some changes in subject case marking (Nominative Substitution and Impersonalization), the main innovations in weather verbs involve the introduction of the “expletive” elements *það* and *hann*. On the whole, however, there is considerable stability in the use of weather verbs in the history of Icelandic. Not only are the lexical items nearly all the same, but a clear continuity in the syntax of weather expressions can be documented.

1. Introduction

Weather verbs in Icelandic have standardly been claimed to be “no argument predicates” (Thráinsson 2007: 267; see also Nygaard 1905: 6–7 and Sigurðsson 1989: 315ff.). This goes for weather verbs such as *rigna* ‘rain’ (1a) and *hvesa* ‘get windy’ (1b).

- (1) a. Í gær rigndi.
yesterday rained
‘Yesterday it rained.’
b. Í gær hvessti.
yesterday got-windy
‘Yesterday it got windy.’

In Modern Icelandic the “expletive” elements *það* and *hann* occur with weather verbs, but their distribution is different. While the former appears in a wide array of “expletive constructions”, for example existential clauses as in (2a) (from Thráinsson 1979: 477), the latter is confined to expressions of natural phenomena (4).

- (2) a. **Það** eru mýs í baðkerinu.
it are mice in the-bathtub
'There are mice in the bathtub.'
- b. Í gær voru (***það**) mýs í baðkerinu.
yesterday were it mice in the-bathtub
'Yesterday there were mice in the bathtub.'

The elements *það* and *hann* behave differently with respect to their position in the clause: *það* only occurs clause-initially, immediately preceding the finite verb, as in (2) and (3), whereas *hann* inverts with the verb, occurring either in clause-initial position or following the finite verb, as in (4). Note that in all these instances the finite weather verb occurs in second position (V2), as is the general rule with other finite verbs in Icelandic (see Section 4.3).

- (3) a. **Það** rignir mikið í dag.
it rains much today
'It rains a lot today.'
- b. Í dag rignir (***það**) mikið.
today rains it much
'Today it rains a lot.'
- (4) a. **Hann** rignir mikið í dag.
he rains much today
'It rains a lot today.'
- b. Í dag rignir **hann** mikið.
today rains he much
'Today it rains a lot.'

In our discussion we refer to the element *það* as a “filler” and *hann* as a “quasi-argument” (for details, see Eythórsson & Sigurðardóttir 2016 and Sigurðardóttir & Eythórsson 2016). These elements did not exist in Old Icelandic; the filler *það* emerged in the 16th century and the quasi-argument *hann* is attested in meteorological contexts by the 17th and 18th centuries.

In this paper we show, contrary to what has been previously claimed, that weather verbs do in fact have full NP arguments, both in Old and Modern Icelandic. These can be either in nominative, accusative or dative case.¹ It can be demonstrated that in Modern Icelandic not only nominative but also oblique NPs can be

1. Although NPs with weather verbs are well attested throughout the history of Icelandic, they have never received a comprehensive treatment. However, oblique case with certain weather verbs is discussed in a number of works, notably Andrews (1982: 461), Sigurðsson (1989: 285), Zaenen & Maling (1984 [1990: 145]), Maling (2002: 69), Sandal (2011), Ottosson (2013), Cennamo, Eythórsson & Barðdal (2015), Barðdal (2015a), and Wood (2017: 269–273).

syntactic subjects (in accordance with Andrews 1982 and much later work) and this was arguably also the case in Old Icelandic (Barðdal & Eythórssón 2003). This applies to the NPs with the weather verbs in the examples in (5).

- (5) a. **Vindurinn** kólnar.
 the-wind.NOM gets-cold
 ‘The wind gets cold.’
 b. **Vindinn** hvessir.
 the-wind.ACC gets-windy
 ‘It gets windy.’
 c. **Eldi** rignir.
 fire.DAT rains
 ‘It rains fire.’

In addition to the two changes already mentioned (the introduction of the filler *það* and the quasi-argument *hann*), further changes pertain to the case marking of NPs. These can be manifested in two ways: either as substitution of nominative for oblique case (Nominative Substitution) or, conversely, as substitution of oblique for nominative (Impersonalization). These changes affect the case marking of subjects only, and do not alter the grammatical functions of the relevant NP, nor are they in any way limited to weather verbs.²

The lack of the elements *það* and *hann* in Old Icelandic does not mean that weather verbs (occurring without an NP) were more frequent in clause-initial position than in Modern Icelandic. Both in Old and Modern Icelandic weather verbs adhere to the strict verb second (V2) requirement generally observed in the language, except under certain well-defined pragmatic conditions involving verb-initial (V1) main clauses such as Narrative Inversion.

Our investigation thus shows that a remarkable stability can be observed with weather verbs in the history of Icelandic. Aside from the fact that the lexical items are nearly all the same, the continuity in syntax can in particular be detected in the use of NPs with weather verbs.³

The paper is organized as follows: In Section 2 we present the empirical evidence from Old and Modern Icelandic which our analysis is based on. In Section 3 we discuss the relevant changes observed in the history of Icelandic; this includes changes in case marking (3.1), the introduction of *það* (3.2) and the emergence of

2. The better known “Dative Sickness” (or Dative Substitution), affecting accusative experiencer subjects (see, e.g., Eythórssón 2002), does not pertain to weather verbs.

3. On potential reasons for the stability of the Icelandic language, see Guðmundsson (1977) and Milroy & Milroy (1985: 347).

weather-*hann* (3.3). Section 4 focuses on stability in the history of Icelandic weather verbs; 4.2 briefly examines the subject tests which can be applied to show that the NPs with weather verbs are subjects while 4.3 deals with the position of the finite verb (V2 and V1 orders).

2. The empirical evidence

2.1 The survey

The discussion and analysis in this paper is based on empirical evidence drawn from an extensive survey of weather verbs in Old and Modern Icelandic. We searched for the following verbs (including all inflectional forms, but omitting the present and past participle in adjectival use),⁴ all of which are attested in Modern Icelandic:

- (6) *birta* ‘brighten’, *blása* ‘blow’, ***dimma*** ‘get dark’, *drífa* ‘snow’, *fenna* ‘snow’, *frysta* ‘freeze’, *hlána* ‘thaw’, *hlýna* ‘get warm’, *hvessa* ‘get windy’, *kólna* ‘get cold’, *lygna* ‘abate (of wind)’, *lýsa* ‘brighten’, *lægja* ‘abate (of wind)’, *myrkva* ‘get dark’, *rigna* ‘rain’, *rökkva* ‘get dark’, *skyggja* ‘get dark’, *snjóa* ‘snow’, *þiðna* ‘thaw, melt’

For reasons of space, our discussion in this article is focused on only a subset of these verbs, indicated in bold in (6).

In the Modern Icelandic part of the survey we mainly used two databases, *Tímarit.is* (an internet collection of Icelandic periodicals) and *Ritmálsskrá Orðabókar Háskólans* (ROH, The University of Iceland Lexicon Project Written Language Register), with the addition of the search engine *Google*. This search was carried out in order to verify the attestation of the relevant verbs in Modern Icelandic, as well as their syntactic behavior and their ability to occur with an NP. Of the verbs under discussion all except *myrkva* ‘get dark’ and *frysta* ‘freeze’ are attested in Modern Icelandic with an NP. The verbs are shown in Table 1, where they are classified according to semantic field, with additional information on the case of the NP they may select for. Note that although some of the verbs seem to have the same meaning, there may be fine semantic nuances which are not captured by the relevant English gloss. Furthermore, while some verbs represent the default usage, others are mostly confined to certain contexts or registers.

4. We omit participles in adjectival use for the simple reason that they have more in common with adjectives than verbs.

Table 1. Weather verbs in Modern Icelandic taking an NP (nominative, accusative or dative)

		Modern Icelandic							
		NOM	ACC	DAT			NOM	ACC	DAT
precipitation	<i>drífa</i> ‘snow’	✓	✓		phase	<i>frysta</i> ‘freeze’			
	<i>fenna</i> ‘snow’		✓		change	<i>hlána</i> ‘thaw’	✓		
	<i>rigna</i> ‘rain’	✓		✓		<i>hlýna</i> ‘get warm’	✓		
	<i>snjóa</i> ‘snow’			✓		<i>kólna</i> ‘get cold’	✓		
						<i>þiðna</i> ‘thaw, melt’	✓		
wind	<i>blása</i> ‘blow’	✓	✓		brightness	<i>birta</i> ‘brighten’	✓	✓	
	<i>hvessa</i> ‘get windy’	✓	✓			<i>dimma</i> ‘get dark’	✓	✓	
	<i>lygna</i> ‘abate (of wind)’	✓	✓			<i>lýsa</i> ‘brighten’	✓		
	<i>lægja</i> ‘abate (of wind)’	✓	✓			<i>myrkva</i> ‘get dark’			
						<i>rökkva</i> ‘get dark’			✓
					<i>skyggja</i> ‘get dark’			✓	

In the Old Icelandic part of our investigation we made use of *Íslenskt textasafn* (ÍT, The Icelandic Text Collection) and *Ordbog over det norrøne prosasprog* (ONP, A Dictionary of Old Norse Prose).⁵ In this article Old Icelandic examples are given with normalized spelling, irrespective of the text sources. As a rule, it is indicated which collection they are taken from (ÍT or ONP).

The search in ÍT and ONP resulted in examples of all the verbs in (6), with only two exceptions, *hlýna* ‘get warm’ and *skyggja* ‘get dark’ (shown in brackets in the tables below). Moreover, while all the verbs in our Old Icelandic material, except *lægja* ‘abate’ and *þiðna* ‘thaw, melt’, occur without an NP, most of them also occur with an NP in nominative, accusative or dative case. The verbs are shown in Table 2, where they are classified in the same way as the Modern Icelandic ones in Table 1. In addition, Table 3 shows the frequency of a given verb occurring with or without an NP in Old Icelandic.

5. In addition to ÍT and ONP, we also searched the Icelandic Parsed Historical Corpus (IcePaHC); however, this search only yielded part of the results already obtained, but no new results.

Table 2. Weather verbs in Old Icelandic taking an NP (nominative, accusative or dative)

		Old Icelandic							
		NOM	ACC	DAT			NOM	ACC	DAT
precipitation	<i>drífa</i> ‘snow’	✓	✓	✓	phase change	<i>frysta</i> ‘freeze’			✓
	<i>fenna</i> ‘snow’		✓			<i>hlána</i> ‘thaw’	✓		
	<i>rigna</i> ‘rain’	✓		✓		(<i>hlýna</i> ‘get warm’)			
	<i>snjóa</i> ‘snow’					<i>kólna</i> ‘get cold’	✓		
						<i>þiðna</i> ‘thaw, melt’	✓		
wind	<i>blása</i> ‘blow’	✓	✓		brightness	<i>birta</i> ‘brighten’			✓
	<i>hvessa</i> ‘get windy’		✓			<i>dimma</i> ‘get dark’			✓
	<i>lygna</i> ‘abate (of wind)’		✓			<i>lýsa</i> ‘brighten’			✓
	<i>lægja</i> ‘abate (of wind)’		✓			<i>myrkva</i> ‘get dark’			✓
						<i>rökkva</i> ‘get dark’			
						(<i>skyggja</i> ‘get dark’)			

Table 3. Frequency of weather verbs in Old Icelandic with and without an NP (absence of NP is indicated by Ø)

		Old Icelandic							
		NP	Ø	SUM			NP	Ø	SUM
precipitation	<i>drífa</i> ‘snow’	5	9	14	phase change	<i>frysta</i> ‘freeze’	3	2	5
	<i>fenna</i> ‘snow’	4	0	4		<i>hlána</i> ‘thaw’	2	1	3
	<i>rigna</i> ‘rain’	28	16	44		(<i>hlýna</i> ‘get warm’)			
	<i>snjóa</i> ‘snow’	0	6	6		<i>kólna</i> ‘get cold’	7	3	10
						<i>þiðna</i> ‘thaw, melt’	3	0	3
wind	<i>blása</i> ‘blow’	7	2	9	brightness	<i>birta</i> ‘brighten’	5	4	9
	<i>hvessa</i> ‘get windy’	7	5	12		<i>dimma</i> ‘get dark’	1	9	10
	<i>lygna</i> ‘abate (of wind)’	1	2	3		<i>lýsa</i> ‘brighten’	1	70	71
	<i>lægja</i> ‘abate (of wind)’	10	0	10		<i>myrkva</i> ‘get dark’	4	25	29
						<i>rökkva</i> ‘get dark’	0	7	7
						(<i>skyggja</i> ‘get dark’)			

As shown in Table 3, the frequency of weather verbs in Old Icelandic varies considerably. Some of the verbs are relatively common, whereas other verbs are rare. What is perhaps most interesting is the low token frequency of weather verbs in Old Icelandic in general. Weather nouns are more common, e.g., *veður* ‘weather’ (occurring 194 times according to ONP), *snjór/snær* ‘snow’ (126 times), *vindur* ‘wind’ (96 times) and *regn* ‘rain’ (71 times). Presumably, the rarity of weather verbs in Old Icelandic is, at least partly, a consequence of the fact that other methods were employed in weather descriptions. Instead of the verbs *hvessa* ‘get windy’ and *lygna* ‘abate (of wind)’, for example, one can find a paraphrase with a verb with a more general meaning (*falla* ‘fall’, *gera* ‘do’) and a weather noun (*veðrið* ‘the weather’ and *logn* ‘calm’), as in (7).

- (7) ...og er morgnaði, féll veðrið og gerði logn.
 and when came-morning fell the-weather and made wind-still
 ‘... and when it dawned the weather subdued and it got calm.’
 (ÍT, Egils saga, Chapter 58)

The same can be said of *snjóa* ‘snow’ and *regna* ‘rain’ which are often replaced by a verb and a weather noun, as in (8):

- (8) a. Þá var það á einni nótt, að féll snjór mikill...
 then was it on one night that fell snow much
 ‘Then it happened one night that a lot of snow fell...’
 (ÍT, Egils saga, Chapter 72)
- b. Þá gerði á regn mikið.
 then made on rain much
 ‘Then came a great rain.’ (ÍT, Droplaugasona saga, Chapter 1)

2.2 Weather verbs without an NP

Weather verbs occurring without an NP are of two types: (i) prototypical weather verbs, such as *regna* ‘rain’ and *snjóa* ‘snow’ (9), and (ii) verbs which have a more general meaning but pattern with the prototypical weather verbs in meteorological contexts. The verbs of the latter type include *hvessa* ‘get windy’ and *lægja* ‘abate’, which have the basic meaning ‘sharpen’ and ‘lower’ respectively, and *kólna* ‘get cold’ and *hlýna* ‘get warm’, both of which are also used in more general contexts. Examples of two of these verbs from Old Icelandic are given in (10). Corresponding usage is also found in Modern Icelandic.

- (9) a. Þann tíma voru vætur svá miklar, at bæði rigndi nætr
that time were rains so great that both rained nights
ok daga.
and days
'During that time the rain was so great that it rained both night and day.'
(ONP, Hák81 594¹¹)
- b. En áður þeir sigldu brott snjáfaði mjök á fjöll.
but before they sailed away snowed much on mountains
'But before they sailed away it snowed a lot up in the mountains.'
(ONP, ÓT^I 256¹⁰)
- (10) a. Þá hvessti svo að varla var vaðhæft á konungsskipinu.
then got-windy so that hardly was wadeable on the-king's-ship
'Then it got so windy that it was hardly possible to wade on the king's ship.'
(ONP, HákFris 462²⁸)
- b. ...nú tók at kólna.
now took to get-cold.INF
'...now it started to get cold.'
(ONP, Jvs7 29³²)

These examples are in accordance with traditional ideas that weather verbs occur without an NP (Thráinsson 2007: 267; see also Nygaard 1905: 6–7 and Sigurðsson 1989: 315ff.). As shown in the following, however, these verbs can also be accompanied by NPs in Icelandic, either in nominative, accusative or dative case. This fact has so far received little attention.⁶

2.3 Weather verbs with an NP

2.3.1 *Nominative*

An NP with the verb *kólna* 'get cold' is always in the nominative case, both in Old and Modern Icelandic. This is clear in the Old Icelandic example in (11a), where the noun *veðráttá* 'weather condition, weather' is unambiguously nominative. On the other hand, the noun *veðrið* 'the weather' in (11b) is identical in nominative and accusative case, and hence the form is ambiguous; in light of examples like (11a), however, it stands to reason that it is in fact nominative.

- (11) a. ...þá kólnar veðráttá
then cools weather-condition.NOM
'...then the weather gets cold.'
(ONP, Enc^{II}624 122¹¹)

6. See, however, the references given in fn. 2.

- b. En er hann kom upp á heiðina kólnaði veðrið.
 but when he came up on the-heath got-cold the-weather.NOM
 ‘But when he arrived up on the heath the weather got cold.’
 (ÍT, Eyrbyggja saga, Chapter 40)

The verb *hlýna* ‘get warm’ is not attested in our Old Icelandic data set. In Modern Icelandic, however, it is found with a nominative NP, exactly like *kólna* ‘get cold’. In the Modern Icelandic examples in (12) both verbs are accompanied by the definite noun *vindurinn* ‘the wind’, which is unambiguously in the nominative case.

- (12) a. Á sama augnabliki var eins og vindurinn kólnaði.
 on same moment was as if the-wind.NOM got-cold
 ‘On the same moment it was as if the wind cooled.’
 (*Fálkinn* 1948(22):12)
- b. ...enda hlýnaði vindurinn með hækkandi sól.
 since got-warm the-wind.NOM with rising sun
 ‘...as a matter of fact the wind got warm when summer approached.’
 <<http://dalsmynni.123.is/blog/2008/04/28/240472/>>

Note that a nominative NP with the verbs *kólna* and *hlýna* has the meaning ‘something becomes cold/warm’. As experiencer verbs, however, *kólna* and *hlýna* exist with a dative (*einhverjum kólnar/hlýnar* ‘somebody (DAT) gets (starts to feel) cold/warm’).

2.3.2 Accusative

Unambiguous accusative NPs can be found in Old and Modern Icelandic with the verbs *birta* ‘brighten’ and *lægja* ‘abate’. Note that the use of *birta* with a noun (e.g., *hríð* ‘snowstorm’) involves a different meaning than the use of the verb without a noun. When used without a noun the meaning is ‘there becomes more light’, but the addition of a noun yields a metaphorical reading, i.e., ‘the storm abates (and it becomes brighter)’. With the verb *lægja*, however, the meaning is the same irrespective of the presence or absence of an NP; i.e., it always means ‘abates’.

- (13) a. Birtir nú hríðina, ok kemr gott veðr.
 brightens now the-snowstorm.ACC and comes good weather
 ‘Now the storm abated and the weather became good.’
 (ÍT, Hrana saga hrings, Chapter 8)
- b. Þá lægði storminn og kvómu þeir heilir til lands.
 then abated the-storm.ACC and came they whole to shore
 ‘Then the storm abated and they arrived safely on shore.’
 (ÍT, Helga kviða Hundingsbana II)

The verbs *hvesa* ‘get windy’ and *dimma* ‘get dark’ are attested with an NP in Old and Modern Icelandic. In Old Icelandic the nouns accompanying these verbs are ambiguous between the nominative and the accusative case, for example *veður* ‘weather’ and *nótt* ‘night’ in (14). In light of later Icelandic, however, we assume that the case of these NPs is accusative (15).

- (14) a. Litlu eftir þetta heyrdðu þeir, at **veður** tók at hvesa...
 little after this heard they that weather.ACC took to get-windy
 ‘Shortly after this they heard that the weather started to get windy...’
 (ÍT, Göngu-Hrólfss saga, Chapter 28)
- b. ...er **nótt** tók at dimma en dag tók at skemma...
 when night.ACC took to get-dark but day.ACC took to shorten
 ‘...when the night started to get dark and the day to get shorter...’
 (ONP, Hkr^{lx} 256²: AM 37 fol^x “J1”)
- (15) a. ...og brimið vex og **vindinn** hvessir.
 and the-surf grows and the-wind.ACC gets-windy
 ‘...and the surf increases and it gets more windy.’
 (*Fjallkonan* 1898(41):162)
- b. Þegar **nóttina** dimmir, þá stækkar meira undirvöxtur...
 when the-night.ACC darkens then grows more root
 ‘When the night gets darker the roots grow bigger...’
 <<http://www.malefnin.com/ib/topic/6799-nyr-goda-nott-thradur/?page=65>>

Most of the verbs discussed in this subsection also exist as transitives, taking a nominative subject and an accusative object. This is illustrated in (16) with the verb *hvesa* ‘get windy’, which originally meant ‘sharpen’.

- (16) Þór hvessti augun á orminn.
 Thor.NOM sharpened the-eyes.ACC on the-worm
 ‘Thor looked at the serpent with a piercing glance.’
 (ÍT, Snorra Edda, Chapter 48)

As weather verbs, however, they are intransitives with an accusative NP (see the discussion of the subject status of such NPs in Section 4.2.2).

2.3.3 Dative

When denoting actual rain, the verb *rigna* ‘rain’ is used on its own. However, both in Old and Modern Icelandic *rigna* is also attested with a dative NP. When this dative NP denotes a liquid, it is usually ‘blood’, but NPs denoting more solid phenomena include ‘fire and brimstone’, ‘rocks’ and even ‘manna’ (an edible substance known from the Bible). In (17a) an Old Icelandic example is given of this verb with the noun *blóð* ‘blood’ and in (17b) with *rain* ‘rain’ (which in this case, however, is used metaphorically to denote ‘a battle’); both of these examples are from poetry.

- (17) a. ...rignir **blóði**.
 rains blood.DAT
 ‘...it rains blood.’ (ÍT, Brennu-Njáls saga, Chapter 157 (Darraðarljóð 1))
- b. ...rigna getr at **regni** / **regnjóðr**, **Hávars þegna**.
 rain.INF does to rain.DAT warrior Hávarr.GEN thane.GEN
 ‘...warrior, it starts to rain the rain of Hávar’s thanes (i.e., a battle begins).’
 (ÍT, Egils saga, Chapter 44)

In Modern Icelandic a dative NP with *rigna* rarely denotes a liquid, although such instances are attested, as seen in (18a). Usually the dative NP denotes abstract concepts such as ‘scolding’ or ‘insults’, but occasionally more “tangible” phenomena like ‘dogs and cats’, as in (18b). The latter use is most likely due to English influence (note, however, the reverse order of the NPs in Icelandic).

- (18) a. Það rigndi **blóði** í Írak í dag...
 it rained blood.DAT in Iraq in today
 ‘It rained blood in Iraq today...’
 <<http://www.visir.is/blodbad-i-bagdad-i-dag/article/2005509140385>>
- b. ...nema hér rignir **hundum** og **köttum** dag eftir dag.
 except here rains dogs.DAT and cats.DAT day after day
 ‘...except here it rains cats and dogs day after day.’
 <<http://madamhex.blog.is/blog/madamhex/entry/256021/>>

The verb *snjóa* ‘snow’ is not attested in Old Icelandic with an NP. Whether or not this is a coincidence is unclear (only six examples of this verb are known to us from Old Icelandic texts). In Modern Icelandic, however, *snjóa* is very frequent and sometimes appears with a dative NP (19).

- (19) Það snjóaði **fallegum stórum, hvítum flygsum**...
 it snowed beautiful.DAT big.DAT white.DAT flakes.DAT
 ‘It snowed beautiful big white flakes...’
 <http://bokmenntaborgin.is/?post_type=mapplace&p=498>

The use of a dative NP with *rigna* ‘rain’ is attested in other Germanic languages, notably in Gothic (20) and Old English (21a). In addition Old English also has dative with ‘snow’ (21b).

- (20) ...usiddja Lod us Saudaumim, rignida swibla jah funin
 went-out Lot from Sodom rained sulphur.DAT and fire.DAT
 us himina.
 from heaven
 ‘... Lot left Sodom, sulphur and fire rained down from heaven.’ (Luke 17.29)
- (21) a. Hit ágan rínan xl. daga and xl. nihta tósome ðæm
 it started rain.INF 40 days and 40 nights together the.DAT
mæstan réne.
 most.DAT rain.DAT
 ‘It started to rain the greatest rain for 40 days and 40 nights altogether.’
 (Wulfstan, (Napier 1883: 216–217))
- b. Swa miclum sniwde.
 so much.DAT snowed
 ‘So much snowed.’ (COE Alex 679 (Allen 1995: 62))

Furthermore, alongside the dative, an instrumental case is marginally attested with the verb ‘rain’ in Old English, as shown in (22).

- (22) And hit þa ongan rínan feowertig daga and feowertig nihta
 and it then started rain.INF 40 days and 40 nights
 tosome þy **mæstan réne.**
 together the.INSTR most.INSTR rain.INSTR
 ‘And then it started to rain with great rain for 40 days and 40 nights altogether.’
 (Wulfstan, (Napier 1883: 206))

It is commonly assumed that the instrumental case was a feature of Proto-Germanic, and that it syncretized with the dative early on, leaving only traces in West Germanic languages (e.g., Krahe 1969). Therefore, although the Old English Examples (21a) and (22) occur in the same text (Wulfstan), the instrumental can be regarded as an archaic remnant from Proto-Germanic, whereas the dative is an innovation.

3. Changes from Old to Modern Icelandic

3.1 Changes in case marking

3.1.1 Nominative Substitution

A change from accusative to nominative case marking is attested with the verbs *birta* ‘brighten’, *dimma* ‘get dark’, *hvessa* ‘get windy’ and *lægja* ‘abate’. Both *birta* and *lægja* appear with an unambiguous accusative already in Old Icelandic. The use of nominative with these verbs is very recent, attested only from the beginning of the 21st century (*lægja* from 2008 and *birta* from 2014).

- (23) a. ...svo nú er bara að bíða eftir að **vindur** lægir.
 so now is just to wait after that wind.NOM abates
 ‘So, now we just need to wait until the wind abates.’
 <<http://gumpurinn.blog.is/blog/gumpurinn/entry/568562/>> (2008)
- b. ...**dagurinn** birtir alltaf þegar þú ert í kring.
 the-day.NOM brightens always when you are in around
 ‘... the day always brightens when you are around.’
 <http://www.pikore.com/m/768905157634923330_12314837> (2014)

As stated in Section 2.3.2 above, the case marking of the nouns occurring with *dimma* ‘get dark’ and *hvessa* ‘get windy’ in Old Icelandic is ambiguous between nominative and accusative. Accusative case is, however, attested in later Icelandic with these verbs, along with the more recent nominative (with *dimma* from 1909 and *hvessa* from 2011).

- (24) a. Þá **nóttin** dimmir, draugar vakna...
 when the-night.NOM darkens ghosts wake-up
 ‘When the night gets darker, ghosts wake up...’ (*Fjallkonan* 1909(11): 43)
- b. ...vitandi að **vindurinn** hvessir meðfram brúnum.
 knowing that the-wind.NOM gets-windy along edges
 ‘...knowing that it gets windy along the edges.’
 <http://www.fjallgongur.is/aevingar/15_aevingar_jan_mars_2011.htm> (2011)

A change from an oblique case, including accusative, to nominative is a common tendency in Icelandic, termed Nominative Substitution, and mainly occurs with theme subjects (cf. Halldórsson 1982; Eythórsson 2000, 2002; Jónsson & Eythórsson 2005; Eythórsson & Barðdal 2005; Barðdal 2011; Dunn, Dewey, Arnett, Eythórsson & Barðdal 2017). In light of the fact that earlier oblique NPs with the weather verbs in (23) and (24) are to be analyzed as subjects (see the discussion in Section 4.2 below), the change in case marking manifested in these examples is clearly an instance of Nominative Substitution.

3.1.2 Impersonalization

In addition to Nominative Substitution, the reverse change, which may be called Impersonalization (Eythórsson 2015; Eythórsson & Thráinsson 2017), is also found with Icelandic weather verbs. In Old Icelandic the verb *blása* ‘blow’ takes a nominative subject, as shown in (25), but in Modern Icelandic we occasionally find an accusative with this verb (26), which appears to be an innovation.

- (25) ...sem á blási fagur sunnanvindur.
 as on blows fair.NOM southern-wind.NOM
 ‘...as if a fair southern wind is blowing.’ (ONP, Thom² 433⁸)

- (26) Vindinn blés og bátnum velti um koll.
 the-wind.ACC blew and the-boat.DAT turned on top
 ‘It was windy and the boat capsized.’
 <<https://www.hugi.is/ljod/greinar/81337/oldukoss/>>

One might argue that the accusative with *blása* ‘blow’ is original in Old Icelandic since it is attested with this verb in the meaning ‘erode’, as shown in (27) (Ottosson 2013; Sandal 2011; Barðdal 2015b; Cennamo, Eythórsson & Barðdal 2015).

- (27) var þá á hvassviðri mikið og hafði blásit hauginn.
 was then on stormy-weather much and had blown the-mound.ACC
 ‘there was stormy weather and the mound had eroded.’
 (Fm. IV, 57 (Cleasby & Vigfússon 1874))

In fact, however, the example in (27) is of a different nature than the one in (26), since *hauginn* ‘the mound’ is affected by the blowing, whereas the same can hardly be said about *vindinn* ‘the wind’ in (26). Moreover, the verb *blása* ‘blow’ in (27) is ambiguous between being intransitive and transitive. Thus, it could be that the subject of the second conjunct is omitted on identity with the subject *hvassviðri* ‘bad weather’ in the preceding clause, in which case *hauginn* ‘the mound’ would be an object. Therefore we argue that the nominative is original with *blása* in the use shown in (25), whereas the accusative in (26) is an innovation.

Returning to the concept of impersonalization, it is a sporadic type of change and is only attested with a handful of verbs, in particular the experiencer verbs *hlakka til* ‘look forward to’ and *kvíða fyrir* ‘be anxious about’ (Eythórsson 2000, 2002, 2015; Barðdal 2011). The occurrence of Impersonalization with *blása* in (26) is of a different kind, as it involves a change from a verb taking an agentive nominative subject to a verb taking an accusative theme subject. Presumably this pattern is analogical to the one found with other “wind” verbs, notably *hvesa* ‘get windy’ and *lægja* ‘abate’ which originally occur with accusative (see Section 2.3.2 above).

3.2 The filler *það*

The non-referential element *það*, homonymous with the third person neuter pronoun *það* ‘it’, only occurs initially in certain clause types in Modern Icelandic, including those containing weather verbs. It is often called “expletive” but as explained above (in Section 1), we opt for the more neutral term “filler”; in any case, it is not a quasi-argument, as suggested by the fact that it does not participate in subject-verb inversion, as shown in (2), repeated here.

- (2) a. *Það* eru mýs í baðkerinu.
it are mice in the-bathtub
‘There are mice in the bathtub.’
b. Ígær voru (**það*) mýs í baðkerinu.
yesterday were it mice in the-bathtub
‘Yesterday there were mice in the bathtub.’ (cf. Thráinsson 1979: 477)

Unambiguous examples of the element *það* first appear in early Modern Icelandic, in a translation of Middle English folktales found in a manuscript dated to around 1500:

- (28) *Það* var einn mann í Englandi sem fleiri aðrir...
it was one man in England as more others
‘There was a man in England, just like many others...’
(Rögvaldsson 2002: 22)

The oldest examples of *það* with weather verbs are found in the New Testament translation from 1540 (Rögvaldsson 2002: 23). Unsurprisingly, the filler only appears clause-initially in front of the finite verb (29a) and is otherwise absent (29b).

- (29) a. ...og hann bað bænar að *það* skyldi eigi rigna, og *það*
and he asked prayer that it should not rain and it
rigndi ekki yfir jörðina í þrjú ár og sex mánaði.
rained not over the-earth in three years and six months
‘...and he prayed that it would not rain and it did not rain on the earth for
three years and six months.’
(ÍT, Nýja testamenti Odds Gottskálkssonar, Epistle of James 5:500)
b. En þann dag er Lot fór út af Sódóma rigndi
but that day when Lot went out from Sodom rained
ofan eldi og brennisteini.
from-above fire.DAT and brimstone
‘That day, when Lot went out of Sodom, it rained fire and brimstone.’
(ÍT, Nýja testamenti Odds Gottskálkssonar, Luke 17:163)

Since these examples occur in translations, it would seem likely that the use of the filler *það* found its way into Icelandic due to foreign influence (Rögnvaldsson 2002: 23). As noted, the example in (28) is a translation from Middle English (Pétursson 1976). The New Testament, from which the example in (29) is taken, was translated from German (with some consideration of the Latin Vulgate text), and the translator, Oddur Gottskálksson, was partly raised in Norway (Helgason 1929). Both facts may be significant, because in the other Scandinavian languages there is evidence for a comparable element – an “expletive” or a quasi-argument (Falk 1993; Larsson 2014) – from the 15th century onwards, and in other Germanic languages there are even earlier examples of such phenomena, e.g. in Old English (e.g., Ringe & Taylor 2014: 440) and Old High German (e.g., Dal 2014). Importantly, it was the use of the pronoun that was borrowed into Icelandic, not the form as such.

The use of the filler in Icelandic had become widespread by the 19th century, as in the text in (30), which dates from 1837.

- (30) ...því að á þorranum (8 Febr.) snjóaði í Kantónarborg (Kanton) í
because in February (Feb. 8) snowed in Canton in
fyrsta sinn í næstliðin 80 ár; héldu landsmenn fyrst að
first time in previous eighty years thought inhabitants first that
það rignði viðarull...
it rained wood-wool
‘It rained in Canton for the first time in 80 years. The inhabitants first thought
that it rained wood wool...’
(*Skírnir* 1837:17)

There are indications that the distribution, and therefore also the argument status, of *það* may be changing. In (31) an apparently non-referential *það* occurs to the right of the verb *rigna* ‘rain’ (here in the subjunctive), which deviates from the standard use. Such examples are, however, very rare.

- (31) Rigni það, rigni það bara.
rain it, rain it just
‘May it rain, may it rain!’
(*Vorið* 1950(3): 81)

Given the fact that *það* is not an argument, aside from rare exceptions, we will not discuss its distribution further in this paper.

3.3 The quasi-argument *hann*

Whereas the emergence of the filler *það* in Icelandic has been investigated previously (cf. Rögnvaldsson 2002; Viðarsson 2009), we do not know of any special diachronic study of the quasi-argument *hann*, which is homonymous with the third person masculine pronoun *hann* ‘he’. A search in the relevant databases (ROH, ÍT,

IcePaHC and Tímarit.is) reveals that there are examples of *hann* in meteorological contexts already by the 17th century. In some of the early attestations, *hann* is plausibly analyzed as a referential pronoun; for example, in (32a) *hann* occurs with the verb *drífa* ‘snow’ and seems to refer to the masculine noun *snjór* ‘snow’ in the preceding clause. This is supported by the fact that there is another example in the same document (32b) where *drífa* occurs with *snjór* (in accusative case).

- (32) a. ...**snjór** kom anno 1581, eptir það minnsta grasár;
 SNOW.NOM.M came in-year 1581 after that smallest grass-year
hann dreif allan góu þrælinn
 he snowed all Góa’s the-slave.ACC
 ‘Snow came in the year 1581, after that very little grass; it snowed constantly the last day of the month Góa.’ (ROH, Safn til sögu Íslands I–IV) (1605)
- b. Þá **dreif snjó** þann dag svo mikinn...
 then snowed SNOW.ACC that day so much
 ‘Then it snowed so much that day...’
 (ROH, Safn til sögu Íslands I–IV) (1605)

Already by the 17th and the 18th centuries *hann* is attested with no antecedent with the verb *hvesa* ‘get windy’. In (33a) there is a slight possibility of *hann* referring to *Þorra* (the genitive of *Þorri* ‘fourth month of winter’). In (33b), involving a scene in a play where somebody stands up and looks out the window and utters the relevant sentence, there is no syntactic antecedent. However, given that *hvesa* is known to occur with a masculine NP, e.g., *vindur* ‘wind’, the element *hann* might still be regarded as referential in (33b).

- (33) a. Þorra dægur þykja löng, / þegar **hann blæs** á norðan
 Þorri.GEN days seem long when he blows from north
 ‘The days of the month Þorri seem long, when the wind blows from the north.’ (ROH, Hrólf’s rímur kraka) (late 17th c., early 18th c.)
- b. **Hann** er að **hvesa**.
 he is to get-windy.INF
 ‘It’s getting windy.’ (ROH, Sigurður Pétursson 1950:77) (1798)

In the late 19th-century texts given in (34) *hann* is found with the verbs *snjóá* ‘snow’ (34a) and *rigna* ‘rain’ (34b) which are not attested with a masculine NP without any antecedent. In these cases *hann* has clearly been reanalyzed as a non-referential quasi-argument.

- (34) a. **hann snjóaði** hjer mest síðari part dags...
 he snowed here most latter part day.GEN
 ‘It snowed the most here during the latter part of the day...’
 (Ísafold 1884(14):53)

- b. Þetta er ljóta illviðrið – hann rignir alltaf jafnt
 this is ugly the-bad-weather he rains always evenly
 og þjett!
 and tightly
 ‘This is shitty weather – it rains constantly all the time.’

(Ísafold 1890(43):171)

Interestingly, there is a time span of almost two hundred and fifty years between the oldest examples in our data collection of *hann* preceding a finite verb, documented in 1605 (32a), and *hann* following a finite verb, documented in 1848 (35). The inversion here involves the verb *rigna* in a conditional clause (without the complementizer *ef* ‘if’); significantly, *hann* is clearly a quasi-argument with this verb.

- (35) ...sama er að segja, rigni hann, er hann útbreiððari [sic]
 same is to say rains-SUBJ he is he more-exposed
 móti vætunni...
 against the-wetness
 ‘...the same applies if it rains, then it (i.e., the eiderdown) is more exposed to the precipitation...’
 (Ársritið Gestur Vestfirðingur 1848(1):100)

Weather-*hann* is not only found in Icelandic; a similar phenomenon also exists in other Scandinavian languages: Faroese and West-Norwegian, Swedish and Jutlandic dialects (cf. Bandle 1973). The example in (36) is from Modern Faroese (Thráinsson et al. 2012: 287–289).

- (36) Hann kavar.
 he snows
 ‘It snows.’

Like Icelandic, Faroese is a V2 language and *hann* occurs immediately after the finite verb when a phrase like *í dag* ‘today’ is topicalized (37) (Thráinsson et al. 2012: 287–289).

- (37) a. Hann er høgur í dag.
 he is high.M today
 ‘The wind blows from the north today.’
 b. Í dag er hann høgur.
 today is he high.M
 ‘Today the wind blows from the north.’

In West-Norwegian dialects the distribution is the same, and *hann* occurs both in clauses with a neutral word order and in inversion, see (38) (Helge Sandøy, p.c.):

- (38) a. **Han** går seg på sør no.
 he goes self on south now
 ‘The wind is turning to the south now.’
 b. No begynner **han** å tjukne til i vest.
 now begins he to thicken.INF to in west
 ‘Now it’s getting overcast in the west.’

Furthermore, weather-*hann* can occur in dative case following a preposition in Norwegian dialects, as in (39). This is reminiscent of the expression *það slítur úr honum* ‘there are scattered drops (lit., it tears from him)’ in Icelandic (40):

- (39) Det kom ikkje dropen utor **honum** i går
 it came not the-drop out-of him yesterday
 ‘It didn’t rain a drop yesterday.’ (Helge Sandøy, p.c.)
 (40) Himininn er lágur og blakkur, og öðru hverju slítur úr
 the-sky.M is low.M and dark.M and now-and-then tears from
honum hret.
 him.DAT cold-spell
 ‘The sky is overcast and dark and every now and then there is scattered rain.’
 (Nýtt Helgafell 1958(1):23)

From the example in (40) it appears that the dative form *honum* is a real pronoun referring to the noun *himinn* ‘sky’ in the preceding clause. Moreover, in the examples from Faroese (37) and Norwegian (38a) the referent seems to be ‘wind’, and in the Norwegian one in (38b) it would appear to be ‘sky’. However, it is unclear what weather-*hann* in the other Icelandic (34–35) examples and in the Faroese one in (36) would refer to.

Earlier scholarship often assumed that weather-*hann* was a personal pronoun. Thus, Kopperstad (1920), for example, imagined that *hann* had a general reference to ‘sky’ (*himinn*) and ‘air temperature’ (*lofthiti*), or even to pagan deities like Njörðr, the god of the sea in Norse mythology. Although such ideas nowadays appear to have been discarded (cf. already Olsen 1920), the view that weather-*hann* is a personal pronoun can still be found, notably in Barðdal (2015b: 398), Thráinsson (2005: 339) and Thráinsson et al. (2012:287–288). In both of the latter works *hann* is termed a pronoun due to the fact that it cannot be omitted in Icelandic (41) and Faroese (42).

- (41) Í gær var *(hann) kaldur.
 yesterday was he cold.M
 ‘Yesterday it was cold.’
 (42) Í dag er *(hann) høgur.
 today is he high.M
 ‘Today the wind blows from the north’

The term *personal pronoun* for *hann* in weather contexts in the modern languages is in our view a misnomer. By the same argument it would, for example, be possible to claim that the quasi-argument *it* in English is a pronoun, just because it cannot be omitted (*it rains* vs. **rains*).

As already argued, weather-*hann* was originally a referential pronoun and first emerged with verbs which could occur with a masculine noun, e.g., *vindur* ‘wind’ and *snjór* ‘snow’ (cf. Bandle 1973: 47–48); later on this pronoun was reanalyzed as a non-referential quasi-argument. This assumption is supported by the oldest attestation in Icelandic of *hann* in weather clauses, given in (32a) and (33), where *hann* appears with verbs that are known to occur with a masculine noun. The use of weather-*hann* then spread to other weather verbs which did not occur with a masculine NP. In this way expressions like *hann rignir* ‘(lit.) he rains’, *hann snjóar* ‘(lit.) he snows’, *hann frystir* ‘(lit.) he freezes’ emerged. A further fact suggesting that *hann* is really a quasi-argument and not a referential pronoun is that sometimes speakers explicitly express their uncertainty as to what it refers to, as seen in (43), where the person writing the text directly asks what the referent of *hann* is.

- (43) ...loksins héltst “hann” (himinn?? Hver er þessi hann??)
 finally remained he the-sky.M who is this he
 nógu þurr...
 enough dry.M
 ‘Finally “he” (the sky?? Who is this *he*??) stayed dry enough...’
 <http://oskimon.com/2003_07_01_gamalt.html>

Thus, although weather-*hann* is a quasi-argument in Modern Icelandic, it can be shown to have originated as a referential pronoun.

4. Stability from Old to Modern Icelandic

4.1 Change or stability?

The changes discussed above should not mislead anyone to think that there is a fundamental difference between Old and Modern Icelandic with respect to weather verbs. There is in fact considerable stability which manifests itself in various ways. The lexical items have remained virtually the same throughout the history of Icelandic; thus, all the Modern Icelandic weather verbs we surveyed (apart from *hlýna* ‘get warm’ and *skyggja* ‘get dark’) are also attested in Old Icelandic. The nouns found with these verbs are also largely the same in both Old and Modern Icelandic, e.g., *veður* ‘weather’ and *vindur* ‘wind’, occurring with *hvessa* ‘get windy’ and *lægja* ‘abate’, and *hríð* ‘snowstorm’, occurring with *birta* ‘brighten’. The use of

NPs with weather verbs is quite idiomatic in Modern Icelandic, and even though it is a remnant from Old Icelandic it is not necessarily considered to have an archaic flavor in the modern language. The low token frequency of weather verbs in Old Icelandic, commented on in Section 2, should not be taken to reflect a change in the use of the verbs. It may be that for stylistic reasons other means of describing the weather are attested more often in the Old Icelandic texts than the use of weather verbs (see Section 2.1 for some examples). Furthermore, changes like Nominative Substitution and Impersonalization do not affect the grammatical function of the NPs, but are morphosyntactic in the sense that only subject arguments undergo these specific changes (for the subject status of the NPs, see the following Section (4.2)). In addition, the syntactic position of finite verbs, including weather verbs, has remained stable in the history of Icelandic (see Section 4.3).

4.2 Weather verbs with NPs

4.2.1 *Change in case marking but not in grammatical function*

As stated above, changes such as Nominative Substitution and Impersonalization do not affect the grammatical function of the relevant NPs but only their case marking. In those instances where a verb occurs with one NP that NP is always the subject, no matter which case it is in.⁷ Admittedly, many subject tests (e.g., Jónsson 1996: 112ff.; Thráinsson 2005, 2007) are difficult to apply to arguments of weather verbs, due to the semantic peculiarities of these verbs. Nevertheless, we think that a few such tests can be applied in order to demonstrate the subject properties of the relevant arguments.

4.2.2 *Overt arguments with weather verbs in Modern Icelandic*

Taking for granted that nominative NPs with weather verbs are subjects, our main concern here is to establish the subject properties of oblique NPs with these verbs. The subject tests which are of particular interest in this context include the following:⁸

- i. Position of the argument in main and embedded clauses
- ii. Position of the argument in raising infinitives
- iii. The Definiteness Effect in raising infinitives
- iv. Constraints on extraction of an argument out of an embedded clause

7. The observation that any verb occurring with an NP argument will have a grammatical subject was first made for Icelandic by Zaenen, Maling & Thráinsson (1985 [1990]).

8. An anonymous reviewer suggests that we add control infinitives to the list of subject tests below. However, since “control verbs can only take an animate (and often also agentive) subject” (Thráinsson 2007: 424–425), this test is inapplicable to weather verbs in Icelandic.

First, the position of the argument in between a finite auxiliary like *hafa* ‘have’ and a main verb, as in (44a), is generally considered a valid subject test in Icelandic (see the references above). The same holds of clauses containing aspectual auxiliaries like *fara* ‘begin’, as demonstrated in (44b).

- (44) a. Um morguninn *hafði vindinn lægt*.
 in the-morning had the-wind.ACC abated
 ‘In the morning the wind had abated.’
 b. Í gær *fór vindinn að lægja*.
 yesterday began the-wind.ACC to abate.INF
 ‘Yesterday the wind began to abate.’

The position of the argument in infinitive clauses embedded under raising verbs like *telja* ‘consider’ is also a subject property. In this case an argument of a weather verb is “raised” to the object position of the verb in the matrix clause, as in the example in (45a). In corresponding passive clauses the argument occurs in a subject position, as in (45b). Both instances support the analysis of the NP with verbs like *lægja* as a subject.

- (45) a. Hann taldi *vindinn ekki hafa lægt*.
 he considered the-wind.ACC not have.INF abated
 ‘He didn’t think the wind had abated.’
 b. *Vindinn* var ekki talið *hafa lægt*.
 the-wind.ACC was not considered have.INF abated
 ‘The wind was not thought to have abated.’

The Definiteness Effect only applies to subjects – and not objects – and is therefore a subject property. As stated in Section 2.3.3 above, the verb *rigna* ‘rain’ can take an NP in dative case. In (46) the verb and its dative NP (*sprengjum/sprengjunum* ‘bombs’/‘the bombs’) occur in an infinitive clause embedded under *líta* ‘let’. Whereas both definite and indefinite NPs can precede the infinitive (46a), definite forms are strongly dispreferred following the verb, if not excluded altogether (46b).

- (46) a. Þeir létu *sprengjum/sprengjunum rigna* í Sýrlandi.
 they let bombs.DAT/the-bombs.DAT rain.INF in Syria
 ‘They let bombs/the bombs rain in Syria.’
 b. Þeir létu *rigna sprengjum/??sprengjunum* í Sýrlandi.
 they let rain.INF bombs.DAT/the-bombs.DAT in Syria
 ‘They let bombs/??the bombs rain in Syria.’

The infelicity of the definite form *sprengjunum* ‘the bombs (dat.)’ to the right of the verb in (46b) is due to the The Definiteness Effect, which suggests that the NP is a subject.

The fourth and final subject property to be mentioned in this connection involves an argument which does not block the extraction of an adverb out of an embedded clause, as in (47) and (48a). On the other hand, such extraction is not possible with topicalized objects, as seen in (48b) (cf. Jónsson 1996: 112, 115).

- (47) Hvenær sagði María [að **vindinn** hefði lægt ___]?
 when said Mary that the-wind.ACC had abated
 ‘When did Mary say that the wind had abated?’
- (48) a. Hvenær sagði María [að **Jóni** hefði leiðst ___]?
 when said Mary that John.DAT had bored
 ‘When did Mary say that John was bored?’
 b. *Hvenær sagði María [að **þessi bók** hefði
 when said Mary that this.NOM book.NOM had
 Jóni líkað___]?
 John.DAT liked

From these facts it can be concluded that both nominative and oblique NPs with weather verbs show subject properties (cf. (i–iv) above).

4.2.3 Overt arguments with weather verbs in Old Icelandic

Having shown that NPs with weather verbs are subjects in Modern Icelandic regardless of their case marking, we now propose that this also holds of Old Icelandic. It is clear that nominative NPs with such verbs are subjects in Old Icelandic, and although it is much more difficult to find independent tests supporting a subject analysis of oblique subject-like NPs for the earlier stage of the language (see however Barðdal & Eythórsson 2003), the following two tests can be adduced:

- i. The syntactic position of the argument
- ii. Raising infinitives

As to first test, the Old Icelandic examples in (49b) and (50b) show that the NP follows the finite verb in clauses with an inversion, exactly as in Modern Icelandic.

- (49) a. ...köstuðu þá akkerum, til þess er **veður** lægði.
 threw then anchors until weather.NOM abated
 ‘... they cast anchor until the weather got calm.’ (ÍT, Egils saga)
- b. Þá **lægði storminn**...
 then abated the-storm.ACC
 ‘Then the storm abated...’ (ÍT, Helga kviða Hundingsbana II)

Moreover, in clauses involving the aspectual auxiliary *taka* ‘begin (lit., take)’, as in (50), the NP can occur between the auxiliary and the infinitive form of the main verb, which is a clear subject property. Although such examples are very few, their value cannot be dismissed.

- (50) a. **Veður** tók að þykna...
 weather.NOM begin to thicken.INF
 ‘It began to get cloudy...’ (ÍT, Fóstbræðra saga, Chapter 9)
- b. Þá tók **veðrið** að þykna...
 then began the-weather.NOM to thicken.INF
 ‘Then it began to get cloudy...’ (ÍT, Fóstbræðra saga, Chapter 3)

As to raising infinitives, we have seen in 4.2.2 that definite (but not indefinite) subjects are dispreferred postverbally in such structures in Modern Icelandic. The occurrence of the indefinite NP *blóði* ‘blood (DAT)’ following the verb *rigna* ‘rain’ in the Old Icelandic example in (51) is in accordance with this constraint. However, the example is inconclusive given that there is no matching attestation of an NP preceding *rigna*, which would be a decisive proof of subject raising.

- (51) Honum þótti rigna blóði í ljórana.
 him.DAT thought rain.INF blood.DAT on the-windows
 ‘It seemed to him that blood was raining on the windows.’
 (ÍT, Sturlunga saga)

From this it can be seen that the evidence for the subject nature of NPs with weather verbs in Old Icelandic is quite fragmental. Nevertheless, there is nothing in particular which directly speaks against a subject analysis of these NPs, and in view of the situation in Modern Icelandic such an analysis is indeed plausible.

4.3 The position of the finite weather verb

Old and Modern Icelandic exhibit a strict V2 effect, with V1 being restricted to certain syntactically and pragmatically conditioned contexts.⁹ A common subtype of V1 is the so-called Narrative Inversion (52), which, as its name implies, is found in narrative contexts (cf. Thráinsson 1986; Sigurðsson 1990, 1994 [1983]).

- (52) Komu þeir þá að helli einum.
 came they then to cave certain
 ‘Then they came to a certain cave.’

In the absence of other clause-initial elements, *það* or *hann* precede finite weather verbs in Modern Icelandic, and thus the V2 effect is preserved. Since *það* and *hann* are not present in Old Icelandic one might think that weather verbs were more common in clause-initial (V1) position at that stage than in Modern Icelandic. This

9. V3 orders were almost non-existent in Old Icelandic, but gained ground in the 19th century and occur to a certain degree in contemporary (mostly colloquial) Icelandic (Angantýsson 2011; Viðarsson 2016).

is, however, not the case. In fact, weather verbs are very uncommon in clause-initial position in Old Icelandic. In our sources we have only found four such examples in main clauses (two of which occur in poetry) and one in an embedded clause (Sigurðardóttir & Eythórsson 2016: 31).

Here we let it suffice to show only one Old Icelandic example containing an initial weather verb in a main clause (53). The NP *veðrit* ‘the weather’, occurring with the verb *hvesa* ‘get windy’, is presumably accusative (based on our knowledge of case marking of NPs with this verb in later Icelandic). Assuming that the NP is a subject, this clause would seem to instantiate Narrative Inversion.

- (53) ok stóð Haraldr á búlkabrún ok skipaði land. Hvesti
 and stood Haraldr on freight-edge and ordered land got-windy
 þá svá veðrit...
 then so the-weather
 ‘...and stood on the edge of the freight and ordered (his men to the) land. Then
 it got so windy...’
 (ONP, Stu¹¹R11127^x 118²⁵)

Narrative Inversion with weather verbs is also very rare in Modern Icelandic. The text in (54) contains the verb *rigna* ‘rain’ in clause-initial position in a narrative context, resembling Narrative Inversion, although there is no overt subject present in the clause which the verb could invert with.¹⁰

- (54) Íþróttahátíð USVS var haldin síðasta laugardag.... Veðurguðirnir
 sports-festival USVS was held last Saturday the-weather-gods
 voru ekki með okur [sic] í liði. Rigndi allan tímann...
 were not with us in team rained all the-time
 ‘The USVS sports event was held last Saturday... The weather gods were not
 on our side. It rained the whole time...’
 (Fréttabréf U.M.F. Ármanns 2013(8):1)

Other types of V1 clauses in Modern Icelandic involve *yes/no*-questions and subjectless newspaper headlines. Weather verbs are attested in such clause types in Modern Icelandic, as in (55) and (56). No such structures are attested in Old Icelandic, however.

- (55) Rignir á Mars og er eitthvað vatn þar?
 rains on Mars and is some water there
 ‘Does it rain on Mars and is there any water there?’
 <<http://www.visindavefur.is/svar.php?id=65115>>

10. An anonymous reviewer wonders if the V1 pattern in (54) could be an instance of subject deletion in a telegraphic style. To this we reply that such a stylistic feature would be unexpected in the middle of a narrative as in the cited example.

- (56) Hvessir og snjóar norðantil á landinu.
 gets-windy and snows northern-part on the-land
 ‘It gets windy and snows in the northern part of the country.’
 <<http://www.ruv.is/frett/hvessir-og-snjoar-nordantil-a-landinu>>

As mentioned above, a single weather verb is attested only once in an embedded clause in Old Icelandic, where it directly follows the complementizer (57).

- (57) Þeir fara, þar til at birti.
 they go until brightened
 ‘They kept going until it dawned.’ (ÍT, Örvar-Odds saga, Chapter 5)

In Modern Icelandic such position of weather verbs is possible in embedded clauses, as in (58a), but the element *það* can also be inserted, as shown in (58b).

- (58) a. ...þá horfði hann áteiknimyndir [sic] með Afa þangað til
 then watched he on-cartoons with Grandad until
 að birti.
 that brightened
 ‘...then he watched cartoons with Grandad until it dawned.’
 <<http://www.svalaogmar.blogspot.be/>>
- b. ...þangað til að það birti.
 until that it brightened
 ‘...until it dawned.’ <<http://www.grindavik.is/v/120>>

Instead of placing a weather verb in initial position in a declarative clause, usually some other word or phrase is placed in front of it, either by topicalization, as in (59), or by Stylistic Fronting, as in (60). These examples are from Old Icelandic, but the same holds for Modern Icelandic, although the filler *það* is of course also a possibility in initial position in the modern language.

- (59) Þá lýsti, er þeir fóru frá haugnum.
 Then brightened when they went from the-mound...
 ‘It dawned when they left the mound.’ (ÍT, Örvar-Odds saga, Chapter 5)
- (60) Bað Elía, að eigi rigndi á jörðina.....
 asked Eliah that not rained on the-earth
 ‘Elijah asked that it shouldn’t rain on the earth...’
 (ÍT, Íslenska hómilíubókin. Fornar stólræður)

In summary, the examples we have discussed here show that weather verbs occur very rarely in clause-initial position in Old and Modern Icelandic. This may come as a surprise given that these verbs frequently have no overt subject. Despite lacking the elements *það* and weather-*hann* Old Icelandic does not appear to be

significantly different from Modern Icelandic in this respect. When weather verbs do occur in initial position, the placement seems to be conditioned by specific syntactic and pragmatic factors.

5. Conclusion

Due to the fact that weather verbs regularly appear on their own in Icelandic it has been claimed that they are “no-argument predicates”. However, we have shown that contrary to such claims weather verbs in Icelandic can also take a full NP, either in nominative, accusative or dative case. This is the case both in Old and Modern Icelandic. Moreover, we largely find both the same weather verbs and the same NPs occurring with these verbs throughout the history of Icelandic.

In a diachronic perspective, three main changes are relevant to our discussion of weather verbs: the emergence of the filler *það* and the quasi-argument *hann* (“weather-*hann*”), as well as changes in the case marking of NPs with certain weather verbs. All of these changes can be described as surface changes rather than fundamental changes in the syntax of Icelandic. While the rise of the element *það* affects a wide array of constructions in Icelandic (“expletive constructions”), the quasi-argument *hann* is confined to expressions involving natural phenomena. Change in case marking with NPs of certain types is a common tendency in Icelandic and not at all special to NPs with weather verbs. The changes in question, Nominative Substitution and Impersonalization, do not involve a change in grammatical function but are morphosyntactic, affecting the case marking of subjects only. In Modern Icelandic subject tests can be applied to a certain extent to establish the subjecthood of the NP with weather verbs, both those in nominative case and in oblique case. In Old Icelandic it is clear that nominative NPs with such verbs are subjects, and although the evidence for subject status of oblique NPs is not as conclusive, it is indeed likely.

Since Old Icelandic does not have the filler *það* or the quasi-argument *hann*, one might expect that weather verbs (occurring without an NP) were more frequent in clause-initial position than in Modern Icelandic. This, however, is not the case. Weather verbs generally adhere to the strict V2 requirement, except under certain well-defined conditions involving V1, for example Narrative Inversion.

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Disharmony in harmony with diachronic stability

The case of Chinese

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Chinese is an intriguing case of syntactic stability. Since the earliest available documents (13th c. BC) up to today, it has displayed SVO order in combination with a head final NP as well as – in subsequent stages – other phenomena said to be typical of SOV languages, such as postpositions (since 1st c. BC) and a head-final CP (since 5th c. BC). This contradicts the received wisdom in the literature that highly ‘disharmonic’ stages are unstable and liable to change towards a (more) ‘harmonic’ one. Taking Chinese as a starting point, the assumption that the concept of stability itself – although inaccessible to the child acquirer and only observable with hindsight by the linguist – is an inbuilt part of human language and hence of universal grammar, is shown to be wrong.

1. Introduction

1.1 Preliminaries on evolutionary terminology

The literature on language change, as e.g. illustrated in the titles of the contributions to this volume, abounds with terms borrowed from evolutionary theory: (in)stability, stable variation; change, rate of change; competition, population, etc. However, *contingency*, i.e. pure chance, mere accident, is never mentioned, despite its major role in evolution recognized since Stephen Jay Gould (1989: 288): “The modern order was not guaranteed by basic laws (natural selection, mechanical superiority in anatomical design), or even by lower-level generalities of ecology or evolutionary theory. The modern order is largely a product of contingency.” Accordingly, “the decimation of species, and the survival of winners, is more like a lottery than a tree of progress.” (Back flap of book cover). This is also the view adopted in Berwick & Chomsky (2016: Chapter 1). In other words, the concept of *contingency* challenges the teleological view of change as *progress*, where *progress*

is always progress towards an ‘ideal’ end state (on the irrelevance of *progress* in simulation studies of language change, cf. Kauhanen 2017).

This is where language change comes in, which still is often tacitly assumed to likewise involve ‘progress’ towards a ‘(more) stable’, ‘(more) harmonic’ end state (cf. Section 1.2 immediately below). This view is doubly faulty: it randomly selects some aspects of evolutionary theory while ignoring important factors such as *contingency*, and it wrongly assumes a parallel between the evolution of organisms and ‘evolution’ of language. While an organism incorporates anterior states via gene mutation, this is simply not the case for language, where the child acquirer has no access at all to anterior states of the language, or to other languages, for that matter (unless when in a multi-lingual environment and acquiring several languages simultaneously). Historical and typological knowledge is reserved to the linguist, and it is thus only the linguist who can make statements about a language being (un)stable or (dis) harmonic etc. (cf. Hale 2007 for a critical appraisal of this panchronic view of language change).

Consequently, using evolutionary terms when describing language change should simply be avoided, and it should be kept in mind that whether a language changes or not is very much a matter of contingency. This does not mean that there are no internal, i.e. structural constraints on change when it happens, such as Whitman’s (2000) *Conservancy of structure constraint*. However, these constraints crucially involve the input available to the child acquirer, no language-external factors. The latter, i.e. language-external factors such as the sociological status of the innovating speaker only influence the *diffusion* of a change, not the change itself and are therefore a matter of sociology rather than linguistics. (Again cf. Hale 1998, 2007: Chapter 3 for the fundamental distinction between *change* and its *diffusion*.)

Accordingly, the very existence of a given combination of phenomena in a convergent grammar at a certain synchronic stage shows this stage to be in compliance with universal grammar; we do not need any ‘proof’ to show that ‘stable’ and ‘unstable’ languages as well as ‘harmonic’ and ‘disharmonic’ ones are equally plausible.

1.2 The concept of *cross-categorical harmony* in formal syntax:

The *head parameter* and its subsequent versions

The concept – though not the term – of *cross-categorical harmony* underlying the notion of (in)stability goes back to Greenberg’s (1963) word order typology.¹ Among

1. Hawkins (1980, 1982) was the first to explicitly use the term *cross-category harmony* (CCH), which as *cross-categorical harmony* has become the current usage. Note, though, that unlike Greenberg (1963) and Dryer (1992, 2009), Hawkins (1982: 4) introduces a quantitative component in his definition of CCH, i.e. languages can conform to CCH in different degrees (cf. Paul 2015: 302–303 for further discussion).

his forty-five universals there are fifteen that state cross-categorial correlations, with the relative order between verb and object as basis and the observation that this relative order may be replicated by other, non-verbal categories. Accordingly, a VO language was expected to have prepositions rather than postpositions and modifiers following rather than preceding the (head) noun.

As discussed *in extenso* in Newmeyer (2005), the *head parameter* (cf. Stowell 1981) constituted the attempt by generative syntax to incorporate cross-categorial harmony into the grammar itself. The head parameter postulates that in a given language complements are consistently to the right or to the left of the head. English and Japanese are presented as examples *par excellence*; whereas in English, complements systematically follow the relevant heads, in Japanese, complements systematically precede the relevant heads, giving rise to the observed clustering: verb – object order, adjective – complement order, prepositions etc. for English and object – verb order, postpositions etc. for Japanese.

Importantly, the head parameter – like the other parameters (null subject parameter, parameter for the directionality of case assignment etc.) proposed to account for cross-linguistic variation – was thought to be visible to the child learner. Accordingly, an English learning child would set the head parameter to the value ‘head-initial’, while a Japanese learning child would choose the value ‘head-final’. Typological consistency in terms of a uniform head directionality was assumed to hold at the level of D(eep) structure, whereas the often observed mixed head directionality on the surface (structure) was the result of optional rules relating D-structure to surface structure (cf. Newmeyer 2005: 59). Evidently, this mode of explanation became unavailable in the subsequent model of generative grammar that dispensed with the D-structure vs. S-structure distinction, i.e. the *Minimalist program* (cf. Chomsky 1995). In addition, it had become clear in the meantime that even with the D-structure vs. S-structure dichotomy the non-uniform head directionality observed for numerous languages could not be explained. The well-known two types of genitive in English, postnominal *of* and prenominal *'s*, illustrate such a case, for at no point in the derivation of *John's book* will the genitive *'s* ever follow the noun and show the order noun – genitive as expected for a VO language (and exemplified by the *of* genitive: *the book of my favourite author*). The reverse case exists as well, i.e. languages that on the surface look more consistent than in their underlying D-structure. According to Newmeyer (2005: 110), German and Dutch are good examples here, because due to the requirement that the finite verb occupies the second position in main clauses, we obtain quite a lot of surface SVO sequences, consistent with the ‘head complement’ order observed for e.g. nouns and prepositions. This contrasts with the underlying verb-final word order, visible in subordinate clauses and in turn consistent with e.g. postpositions. Many more examples of the German type could be mentioned, i.e. languages where the mixed

head directionality cannot be derived, irrespective of the level chosen to represent the relevant word order type (cf. Newmeyer 2005, Section 3.3). Suffice it to point out that the problems for the head parameter just outlined were augmented by the observation that uniform or non-uniform head directionality was found to have no influence whatsoever on acquisition. Quite on the contrary, the acquisition of basic word order is quite early for ‘head-consistent’ and ‘head non-consistent’ languages alike, as reported in Newmeyer (2005: 100).

Notwithstanding the fact that most generative linguists will subscribe to the role of acquisition as the cornerstone of linguistic theorizing (insofar as any theory must be compatible with the constraints observed for language acquisition), they nevertheless differ in the role they assign to typology. Only a few endorse the radical position defended by Newmeyer (2005), Whitman (2008), Whitman & Ono (2017), Boeckx (2014), which is the one adopted here, viz. that cross-categorial harmony and with it the head parameter are not principles of grammar and should therefore not be built into a syntactic theory. On the contrary, there exist many attempts to integrate results from typological surveys such as cross-categorial correlations into syntactic theory itself.²

Cinque (2013, 2017), for example, has elaborated several such proposals. One idea is to have cross-categorial harmony operate on a more abstract level. This is necessary, because Dryer’s (1992, 2009) correlation pairs are invalidated by an increasing number of languages. Cinque (2013: 49) therefore proposes to establish idealized harmonic word order types and to observe “to what extent each language departs from them”. In other words, these harmonic orders are “abstract and exceptionless, and independent of actual languages, though no less real” (Cinque 2013: 49). Here Cinque basically adopts Hawkins’s (1980, 1982) approach where an increase in deviation from the “ideal” harmonic ordering is said to correlate with a decrease in the number of languages exemplifying this type. Cinque (2017) suggests that the head parameter is a microparameter, not a macroparameter, as assumed earlier. This is captured by constraints on the features triggering movement of constituents from a unique structure of Merge: these features may be present on a single lexical item or on items belonging to a subclass of a certain category (microparameter) or across categories (macroparameter).

Biberauer and Roberts (2015) pursue a similar approach to word order and add a diachronic component. They subdivide parameters into macro-, meso- and microparameters. Crucially, macroparameters, i.e. parameters holding for all functional heads across categories, are said to be “strongly conserved”, while

2. Addressing the tension between (mostly functional) typological studies and formal syntactic theories, Baker and McCloskey (2007) express their belief in the importance of the head parameter and their hope that other parameters of that kind will emerge.

meso- and microparameters, which are confined to subclasses, are expected to change. Japanese is an example for head-final order as macroparameter (via an edge or EPP feature on all functional categories). In disharmonic languages such as Chinese, however, the head parameter is not a macro-, but rather a mesoparameter: it is set as head-*final* for N (as well as for C and postpositions), but as head-*initial* for V (and many other categories). Following Biberauer & Roberts' (2015) reasoning, this mesoparameter should have changed in the more than 3000 years of the attested history of Chinese, contrary to facts.

To summarize, crosscategorical harmony in the form of the head parameter and its different updated versions is still very influential. It determines synchronic analyses, where often the scenario without the 'disharmonic' category is preferred over the alternative with the disharmonic category,³ and shapes current ideas about language change as a goal-oriented change towards (more) harmony.

1.3 Chinese as a stable disharmonic language par excellence

Given the tenacity and widespread acceptance of the assumption that 'disharmonic' languages are less 'stable' than 'harmonic' ones and that the concept of (in)stability itself – although only observable with hindsight by the linguist – is an inbuilt part of human language and hence of universal grammar, it might be useful to be confronted with the detailed analysis, based on first-hand data, of a stable disharmonic language such as Chinese.

Chinese offers the advantage of having an attested history of more than 3000 years, the earliest documents dating back to the 13th c. BC. It has shown the same word order SVO over this entire period up today. This 'stability' needs to be emphasized because the completely unfounded idea of Chinese as displaying major word changes, due to Li & Thompson (1974), still surfaces occasionally in the literature. This is all the more incomprehensible as their article itself only offers two examples (one of which is incomplete and misparsed) for its far reaching claim (cf. Paul 2015: 15–16 for more details). In addition, a wealth of observations in Chen Mengjia (1956), Djamouri (1988) and Shen Pei (1992), among others, all clearly establish SVO order from the 13th c. BC on (cf. Djamouri & Paul 2009, Djamouri, Paul & Whitman 2013a for further discussion and references).

3. It is clearly considerations of crosscategorical harmony that motivate Cinque (2010) to avoid an analysis positing postpositions in the VO-language Gungbe: "If the phrase final complex prepositions 'under', 'beside', and so on of Gungbe and other such languages are not P heads but phrasal modifiers of a silent head PLACE, then their exceptionality with regard to Greenberg's observation that postpositional languages are not verb initial disappears [...]" Cinque (2010: 15, footnote 9).

Importantly, this stable SVO order has co-existed with properties that are in general considered to be typical of SOV languages such as a head-final NP (since the 13th c. BC), a head-final CP (since the 5th c. BC) and postpositions (since 1st c. BC). This presents the – under current assumptions – completely unexpected situation that a highly ‘disharmonic’ situation has ‘survived’ for more than three thousand years and not changed towards an allegedly more ‘natural’ harmonic state on which we can only speculate, but which would probably have involved either the change of SVO to SOV or a change in the headedness of the NP. Concerning the latter and adopting for sake of the argument the same linear view as Greenberg (1963), Hawkins (1980, 1982) and WALS, all kinds of modifiers including relative clauses precede the noun, not only adjectives. This is important because the combination ‘VO’ and ‘Rel N’ is extremely rare and observed for only five out of 705 VO languages in Dryer & Haspelmath (2013) (cf. Whitman & Ono 2017 for further discussion).

Naturally, this is not to say that there have not been any syntactic changes in the history of Chinese. However, these changes have not ‘reduced’ the ‘disharmony’ observed, and crucially, they have not affected the main order SVO (cf. Section 4 below).

Considering the many cases of ‘grammaticalization’ for which Chinese is so often cited (cf. the overview in Peyraube 1996), one may ask to what extent they fit into the situation just described.⁴ As far as we can see, grammaticalization phenomena, i.e. the reanalysis of a given open-class lexical item (e.g. verb-to-preposition reanalysis, noun-to-postposition reanalysis) do not alter the picture presented here. As emphasized by Hale (1998), in the reanalysis of an item A as an item B, the source item A does *not* disappear, but A continues to exist alongside with the new, reanalyzed item B. (That subsequently A itself may undergo a change or simply disappear is orthogonal to the reanalysis of A as B.) In other words, a verb does not ‘become’ a preposition, nor does a noun ‘become’ a postposition, but a new item is *added* to the language. While B must by definition be different from A (otherwise B would not be detectable as a new item) and may for example differ from A in its subcategorization frame, such an enrichment of the lexicon does not involve change in the strict sense of regular syntactic change (cf. Hale 1998), the latter defined as affecting formal features of functional heads (also cf. von Stechow 1995). Grammaticalization can be likened to lexical innovation (much like the origin of ‘bead’ from ‘prayer’): the acquirer notices that a lexical item is used in more than one context and accordingly postulates two different items, one for each context, unlike her/his sources that had only one item.⁵

4. Thanks to Elly van Gelderen for drawing our attention to this point.

5. English *bead* comes from Middle English *bede* ‘prayer, prayer bead’, which in Old English was *bed*, *beode* ‘prayer’. The semantic shift from ‘prayer’ to ‘bead’ came about through the metaphoric extension from the prayer, which was kept track of by the rosary bead, to the rosary bead itself, and then eventually to any ‘bead’, even including ‘beads’ of water.

This is very clear in Modern Chinese which shows quite a number of verb – preposition pairs such as the verb *dào* ‘arrive’ and the preposition *dào* ‘until, to’; *duì* ‘be opposite’ and *duì* ‘toward’; *gěi* ‘give’ and *gěi* ‘to, for’ etc. (cf. among others Djamouri & Paul 1997, 2009; Whitman & Paul 2005 for concrete case studies and references). Though historically related, these items are to be treated as separate homophonous entries in the synchronic grammar of Chinese. Naturally, there are also prepositions historically derived from verbs without any verbal ‘counterpart’ in present day Chinese, as is the case for the prepositions *cóng* ‘from, by way of’ and *wèile* ‘because of, for (the sake of)’ etc.⁶ This is due to the simple fact that the verbs they have been reanalyzed from disappeared in the course of the history. In other words, whether the input item for reanalysis continues to exist or not is a matter of contingency (*contra* Longobardi 2001 who postulates the disappearance of the input item as a necessary condition for reanalysis to apply).⁷

1.4 Organization of the article

Section 2 highlights the constant character of *non-uniform* head-directionality across categories, observed from 13th c. BC up to today. Section 3 examines syntactic phenomena which have emerged in the course of the attested history of Chinese, such as sentence-final particles and postpositions, which increase rather than reduce the ‘disharmonic’ nature of Chinese. Section 4 concentrates on a change in the distribution of adjunct phrases which had far-reaching consequences for the overall syntactic structure of Chinese and again cannot be explained in terms of (dis)harmony. Section 5 analyses cases of surface ‘OV’ order, i.e. focus clefts in pre-Archaic Chinese and the *bǎ* construction in Modern Mandarin; importantly, both can be shown to involve head-complement order in compliance with VO. The observed cases of argument PPs in preverbal position in Modern Mandarin are likewise discussed here. Section 6 turns to a subvariety of Northwestern Mandarin, the Tangwang language. Its alleged OV characteristics can only be fully understood when assuming VO as main word order, notwithstanding its contact with Altaic OV-languages. Section 7 concludes the article.

6. To avoid any misunderstanding, evidently prepositions ‘born’ as such likewise exist, i.e. prepositions attested in the earliest documents available and for which no further derivation from an (unattested) verbal source can be maintained. This is the case for the prepositions *zì* ‘from’ and *yú* ‘in, at’ in pre-Archaic Chinese (13th c. BC), discussed in Djamouri & Paul (1997, 2009).

7. The lists established for Modern Mandarin in Paul (2015: 55–57) feature eleven prepositions without a verbal counterpart, and twenty prepositions co-existing with a homophonous verb, on a conservative count excluding e.g. the written register.

2. What did not change in Chinese during the last 3000 years

In this section we demonstrate the constant character of *non-uniform* head-directionality across categories, observed throughout the history of Chinese. For reasons of space, we provide first-hand data for the pre-Archaic Chinese period (PAC), i.e. the Shang inscriptions (13th c.–11th c. BC) only, with the understanding that the same situation likewise holds for all the periods including Modern Mandarin. (For a thorough discussion of non-uniform head-directionality in Modern Mandarin, cf. Paul 2015: Chapter 8).

2.1 Head-initial extended verbal projection up to TP: ‘S > Neg > Aux > V > O’

From PAC (13th c.–11th c. BC) on, TP and its subprojections have always been head-initial. Of the 26,000 complete sentences in the Shang corpus, 94% have SVO order, and only 6% SOV (cf. Chen Mengjia 1956; Djamouri 1988; Shen Pei 1992 among others.). More precisely, both argument NPs (cf. (1)) and argument PPs (cf. (2), (3)) occur in postverbal position. In double-object constructions (cf. (4), (5)), the theme and goal likewise follow the verb:

- (1) 王阱麋... (Heji 10361)
 wáng jǐng mí
 king trap elk
 ‘The king will trap elks.’
- (2) 王往于田 (Heji 00635 r.)
 wáng wǎng [_{PP} yú tián]
 king go to field
 ‘The king will go to the fields.’
- (3) 我乎往于西 (Heji 10050)
 wǒ hū wǎng [_{PP} yú xī]
 1PR order go to West
 ‘We will order (somebody) to go West.’
- (4) 帝受我年 (Heji 09731 recto)
 dì shòu [_{IO} wǒ] [_{DO} nián].
 Di give 1PR harvest
 ‘[The ancestor] Di will give us a harvest.’
- (5) 侑于祖乙一牛 (Heji 06945)
 yòu [_{PP} yú zǔyǐ][_{QP} yī niú]
 present to Zuyi one ox
 ‘One will present to Zuyi an ox (as sacrifice).’

Furthermore, negation and auxiliaries always precede the (lexical) verb

- (6) 子商亡斷在禍 (Heji 02940)
 zǐ shāng wáng duàn [_{PP} zài huò]
 prince Shang NEG end in misfortune
 ‘The prince Shang will not end in misfortune.’
- (7) 方允其來于汴 (Heji 6728)
 fāng yǔn qí lái yú zhǐ
 Fang effectively FUT come to Zhi
 ‘Fang will effectively come to Zhi.’

In (6), the existential negation *wáng* precedes the *vP* consisting of the verb *duàn* ‘to end’ and the argument PP *zài huò* ‘in misfortune’. Example (7) not only shows that the future auxiliary *qí* selects the *vP* to its right, but also illustrates the canonical position of non-phrasal adverbs, here *yǔn* ‘effectively’, below the subject and preceding the verbal projection.

2.2 Opposite head-directionality within the extended nominal projection: Head-final NP in a head-initial DP

While in addition to *Determiner* (D), other functional projections such as small *n*, *Number Phrase* etc. have been postulated for the extended nominal projection, we simplify our presentation here and concentrate on the difference between the lexical projection NP, on the one hand, and the functional projection(s) above NP, on the other, represented for our purposes by DP. (For the architecture of the extended nominal projection in Modern Mandarin, cf. among others Huang, Li & Li 2009: Chapter 8; Zhang 1999, 2015; Paul 2012, 2017).

2.2.1 *Head-final NP*

The NP has been head-final since PAC, as evidenced by the order ‘adjectival modifier – head noun’ in (8a) and (8b).⁸

8. An anonymous reviewer inquires why ‘adjective N’ is analyzed as an NP and not as an extended nominal projection with the adjective in a dedicated specifier position *above* NP (cf. Cinque 2005). Our reasoning for ‘adjective N’ as NP is based on later stages from Late Archaic Chinese on (i.e. after the 5th c. BC), which unlike PAC had an explicit head subordinating modifiers, including adjectives, to the noun: ‘adj *zhi* N’ and subsequently ‘adj *de* N’. While ‘adj sub NP’ is clearly a DP, there is semantic and syntactic evidence to show that in ‘A N’, A is merged with N (cf. Djamouri 1999 for *zhi*, and Paul 2017 for *de*); given Bare Phrase Structure, this results in an NP.

- (8) a. 新黍... (Heji 24432 r.)
 [NP xīn shǔ]
 new millet
- b. 大邑 (Heji 40352)
 [NP dà yì]
 great settlement

2.2.2 Head-initial DP

Demonstrative pronouns precede the NP, as in (9a) and (9b).

- (9) a. 今夕其雨//之夕允雨。 (D00630)
 jīn xì qí yǔ // [DP Zhī xì] yǔn yǔ
 present night FUT rain // that night really rain
 ‘Tonight it will rain.’ // ‘That night it rained indeed.’⁹
- b. 及茲月有雨 (Heji 41867)
 jí [DP zī yuè] yǒu yǔ
 reach this month have rain
 ‘Reaching this (coming) month, there will be rain.’

It is difficult to decide on the basis of this fact alone whether a demonstrative pronoun occupies the head position of DP or rather its specifier position; importantly, both options result in a head-*initial* DP. It seems more plausible to have the demonstrative pronoun hosted by the D-head: [DP [D^o Dem] NP].

The head-initiality of DP is confirmed by the order ‘proper name – common noun’, analyzed as [DP [proper name] [D' [D' [D^o e] NP]]], i.e. with the proper name occupying SpecDP:

- (10) a. 召方
 shào fāng
 Shao tribe
- b. 唐土 (Heji 40352)
 táng tǔ
 Táng territory

Relative clauses precede the NP and are analysed here as hosted by SpecDP:¹⁰

9. This example illustrates the general structure of the material found in the Shang inscriptions: first a prognosis is made, and then the result concerning the prediction is registered.

10. It is evident that the relative clause must occupy a position on the D-spine *above* the NP in PAC; given that we have no data with both a demonstrative pronoun and a relative clause, we locate the relative clause in SpecDP. Note that in Modern Mandarin, demonstrative pronouns do co-occur with relative clauses, thus requiring a more articulated DP structure (cf. Paul 2017 and references therein).

- (11) a. 在北史有獲羌 (Heji 00914 recto)
 [_{DP} [_{Rel.cl.} zài běi] shǐ] yǒu [_{DP} [_{Rel.cl.} huò] qiāng]
 be:at north emissary have capture Qiang
 ‘The emissary who is in the north will get hold of the captured Qiang tribesmen (i.e. of the Qiang tribesmen who have been captured).’
- b. 朕劇羌不死 (Heji 0525)
 [_{DP} [_{Rel.cl.} zhèn jù] qiāng] bù sǐ
 1SG hurt Qiang NEG die
 ‘The Qiang that I hurt will not die.’
- c. 有疾羌其死 (Heji 0526)
 [_{DP} [_{Rel.cl.} yǒu jí] qiāng] qí sǐ
 have illness Qiang FUT die
 ‘The Qiang who are ill will die.’

The non-uniform head directionality within the extended nominal projection is not only observed for Chinese, but likewise holds for Japanese, where the functional category *no* heads the head-*initial* DP and selects a head-*final* complement NP (cf. Whitman 2001).

2.3 Prepositional Phrases

The PPs attested in PAC are headed by *zì* ‘from’ (cf. (12a–b) below), *zài* ‘in, at’ (cf. (6) above) and *yú* ‘in, to’ (cf. (2), (3), (5), (7) above). For evidence in favour of their prepositional status, cf. Djamouri & Paul (1997, 2009).

- (12) a. 王自余入 (Heji 3458)
 Wáng [_{vP} [_{PP} zì yú] rù]
 king from Yu enter
 ‘The king will enter from Yu.’
- b. 其有來艱自方 (Heji 24150)
 qí yǒu lái jiān [_{PP} zì fāng]
 FUT have come disaster from Fang
 ‘There will be a disaster coming from the Fang region.’

To summarize, it is the head-finality of NP that is the big ‘trouble maker’ with respect to the other consistently head-initial categories, especially with respect to its own functional superstructure DP, which is head-initial as well. As we will see below, in the course of the history additional head-final structures emerged, thus even further increasing rather than diminishing the degree of ‘disharmony’ in Chinese.

3. ‘Innovations’: Phenomena emerging in the course of the attested history

3.1 Sentence-final particles (since 5th c. BC)

Sentence-final particles (SFPs) are first attested in Late Archaic Chinese (LAC) (5th c.–3rd c. BC). In parallel to SFPs in Modern Mandarin, they are analysed as complementizers in a head-*final* CP. Like the head-*final* NP, this head-*final* CP is in disharmony with the otherwise observed head-initiality, including that of DP, which in general is presented as the ‘equivalent’ of CP in the nominal domain. Again on a par with Modern Chinese, the SFPs realize the different heads in a three-layered split CP (cf. Paul 2009, 2014; Djamouri, Meisterernst & Paul 2009; Pan & Paul 2016):

- (13) ‘Attitude > Force > Clow’ (cf. Paul 2005, 2009, 2014)

Importantly, this *complete* split CP is observed immediately upon the first emergence of SFPs in LAC:

- (14) 我王者也乎哉! (Guoyu 國語, Jinyu 6 晉語六; 5th c.–3rd c. BC)
 [AttitudeP [ForceP [lowCP [TP Wǒ wáng-zhě] yě] hū] zāi!
 IPL king -NOM clow FORCE ATT
 ‘How come (that you wrongly assume) we might retain the kingship!’

The first C-layer above TP (_{low}CP) is instantiated here by *yě*. *Yě* is obligatory in equational sentences with a nominal predicate such as (14); elsewhere it strengthens the assertion made in the TP. SFPs in the next higher projection indicate the sentence type (ForceP) e.g. interrogative (*hū*₁), exclamative (*hū*₂) or imperative. The highest C head finally expresses the attitude of the speaker/hearer, e.g. astonishment (*zāi*), doubt, admonition etc.

As illustrated below, the interrogative force head *hū*₁ can occur both in matrix (cf. (15)) and in embedded questions (cf. (16)):

- (15) 魯可取乎? 對曰不可。 (Zuozhuan 左傳, Min 1 閔公元年; 4th c. BC)
 [CP [TP Lǔ kě qǔ] hū]? Duì-yuē bù kě
 Lu can take FORCE answer NEG can
 ‘Can Lu be annexed? He answered: No, it cannot.’
- (16) 有朋自遠方來, 不亦樂乎? (Lunyu 論語, Xue Er 學而, 4th-3rd c. BC)
 Yǒu péng zì yuǎn fāng lái [CP [TP bù yì lè] hū]
 have friend from distant region come NEG also enjoyable FORCE
 ‘To have a friend come from a distant region isn’t that enjoyable?’
- (17) 不知天棄魯乎 (Shiji 史記, Lu Zhou Gong shijia 魯周公世家; 1st c. BC)
 Bù zhī [ForceP [TP tiān qì Lǔ] hū]
 NEG know heaven abandon Lu FORCE
 ‘I do not know whether Heaven has abandoned Lu.’

3.2 Postpositions (since 1st c. BC)

Djamouri, Paul and Whitman (2013b) date the first appearance of postpositions around the first century BC (cf. Example (18)):¹¹

- (18) 女子為自殺於房中者二人。 (Shiji 史記 Píng Yuán jūn Yú Qīng lièzhuàn 平原君虞卿列傳, 1st c. BC)
 Nǚzǐ wéi zìshā [_{PreP} yú [_{PostP} fáng zhōng]] zhě èr rén.
 woman commit suicide at room in NOM two person
 ‘[After the death of their husband] There were two women who committed suicide in their room.’
- (19) 二年後伐越，敗越於夫湫。 (Shiji 史記, Wu Zixu liezhuan 伍子胥列傳, 1st c. BC)
 [_{PostP} Èr nián hòu] fá yuè, bài yuè yú fúqiū.
 two year after fight Yue defeat Yue at Fuqiu
 ‘Two years later, he attacked the Yue and defeated them at Fuqiu.’
- (20) 既覺洗浣於房前曬。 (Mishasaibu 彌沙塞部, Wu Fen Lü 五分律, 5th c. AD)
 jì jué xǐhuàn [_{PreP} yú [_{PostP} fáng qián]] shài.
 after rise wash at house in.front.of sun
 ‘After he had woken up and washed himself, he sunned himself in front of the house.’
- (21) 閏當在十一月後 (Hanshu 漢書, Lü li zhi 律曆志, 2nd c. AD)
 Rùn dāng zài [_{PostP} shíyī yuè hòu].
 leap:month must be:at eleven month after
 ‘The leap month must occur after the eleventh month.’
- (22) a. 始皇帝幸梁山宮，從山上見丞相車騎眾，弗善也。
 Shǐ huángdì xìng liáng shān gōng, [_{PreP} cóng
 First Emperor enjoy Liang mountain palace from
 [_{PostP} shān shàng]] jiàn chéngxiàng chē jì
 mountain on see minister chariot horseman
 zhòng, fú shàn yě
 attendant NEG appreciate SFP
 ‘The First Emperor, when visiting the Mount Liang palace, from (on) the mountain saw the carriages, outriders, and attendants of the chancellor, and he did not appreciate it.’
 (Shiji 史記, Qin Shi Huang benji 秦始皇本紀, 1st c. BC)

11. Traditional grammars as well as the majority of recent syntactic studies of Chinese (among them Huang, Li and Li 2009) do not recognize the category *postposition*. Instead, the term *localizer* is indistinctly used for both location nouns (e.g. *páng-biān* ‘the side’) and postpositions (e.g. as *páng* ‘next to, by’) (cf. Paul 2015: Chapter 4 for further discussion). As a result, there are no previous diachronic studies available that make the necessary distinction between the originally completely homophonous location nouns such as *zhōng* ‘the middle’, *hòu* ‘the back’ etc. and the postpositions reanalyzed from these nouns such as *zhōng* ‘in’, *hòu* ‘after’ (illustrated in (18) and (20)).

- b. 自生民以來，未有盛於孔子也。

[_{PostP} [_{PreP} Zi [shēng mǐn]] yǐlái], wèi yǒu shèng yú
 from exist people onwards NEG have surpass at
 Kǒngzi yě
 Confucius SFP

‘Since the existence of humans, there hasn’t been anyone surpassing Confucius.’ (Mengzi 孟子, Gong Sun Chou I 公孫丑上, 4th c. BC)

In fact, many of the examples of postpositions involve Circumpositional Phrases (CircP) where the preposition selects the PostP as complement, as in (18), (20), and (22)). (Note that in (21) the PostP is the argument selected by the verb *zài*.) Importantly, these CircPs obey the same ‘Path over Place’ principle as observed for other languages such as German and Dutch that show ‘disharmonic’ CircPs, i.e. CircPs composed of prepositions and postpositions (cf. Svenonius 2006 and many papers in Cinque & Rizzi 2010). In contrast to German and Dutch, however, in Chinese CircPs indicating spatial location must be distinguished from CircPs indicating temporal location. In the former, the PostP corresponds to PlaceP, and hence is the complement of the preposition indicating Path (cf. (22a)). In temporal CircPs, however, it is the postposition that selects the PP (PlaceP), as in (22b). In addition, the hierarchy where the preposition selects the PostP likewise holds for cases of ‘static’ location (‘place where’), as illustrated in (18) to (20). Note, finally, that these disharmonic CircPs are attested for all of the subsequent stages of Chinese, up to and including Modern Mandarin (cf. Djamouri, Paul & Whitman 2013b for further discussion).

The existence of Circumpositional Phrases ‘prep XP postp’ in Chinese strengthens the claim that one cannot dispense with the category of adpositions in Chinese (*contra* Huang, Li & Li 2009; Cheng & Sybesma 2015, among others).

4. What did change: The distribution of adjunct XPs

In this section now we turn to an important change in the distribution of adjunct phrases. This change is to be taken as representative of syntactic changes in the history of Chinese in general, to which the issue of (dis)harmony is completely orthogonal.

Against the backdrop of constant SVO order, from the Shang inscriptions (13th c.–11th c. BC) to Modern Mandarin, the change in the distribution of adjunct phrases, from both pre- and postverbal position in PAC to *exclusively* preverbal position in Modern Mandarin, reflects changes in the format of the *vP* (cf. Djamouri & Paul 1997, 2009; Djamouri, Paul & Whitman 2013a). More precisely, adjunct XPs (PPs and NPs) could appear in three positions in PAC: preceding the

subject, between the subject and the verb, or postverbally (after the object when present). This contrasted with argument XPs in PAC which had to follow the verb (unless when clefted). The resulting distribution of argument XPs, adjunct XPs and non-phrasal adverbs is illustrated in (23)–(26).

In (23), the argument PP *yú shāng* ‘in(to) Shang’ subcategorized for by the verb *rù* ‘enter’ must occupy the postverbal position, whereas the adjunct PP *yú qī yuè* ‘in the seventh month’ can precede the verb.

- (23) 王于七月入于商 (Heji 7780 r.)
 wáng [_{PP} yú qī-yuè] [_{vP} rù [_{PP} yú shāng]]
 king in seven-month enter in Shang
 ‘The king in the seventh month will enter the Shang city.’

Non-phrasal adverbs such as *yì* ‘also’ (cf. (24–25)) and *yǐn* ‘indeed’ (cf. (26)) have always been confined to the preverbal position *below* the subject and excluded from postverbal position, from PAC on up to Modern Mandarin:

- (24) 五月癸巳雨乙巳亦雨 (Heji 20943)
 [Wǔ-yuè guǐsì] yǔ, yǐsì yì [_{vP} yǔ]
 five-month *guisi*.day rain *yisi*.day also rain
 ‘On the day *guisi* of the fifth month, it rained; on the day *yisi*, it also rained.’
- (25) 侑伐于黃尹亦侑于蔑 (Heji 00970)
 yòu fá yú Huángyǐn yì [_{vP} yòu yú Miè]
 offer victim to Huangyin also offer to Mie
 ‘We will offer victims (as sacrifice) to Huanyin, and also to Mie.’
- (26) 壬辰允不雨風 (Heji 12921 v.)
 réncén yǐn [_{NEGP} bù [_{vP} yǔ]] [_{vP} fēng]
 Renchen.day indeed NEG rain blow
 ‘On the *renchen* day, indeed it did not rain, but the wind blew.’

The obligatory post-subject preverbal position of non-phrasal adverbs is consistent with VO languages, and equally holds for English. It applies to all subsequent stages of Chinese up to Modern Mandarin.

4.1 The distribution of adjunct phrases in pre-Archaic Chinese

Below we provide an array of representative data illustrating the different positions available for adjunct XPs in PAC (expanding on the discussion in Djamouri & Paul 1997, 2009). These data invalidate the incorrect statement in the literature that *yú*-PPs are only attested postverbally in Archaic Chinese (*contra* Aldridge 2012: 156 and the many precursors of this view cited there).

4.1.1 'SV(O) [adjunct XP]'

Adjunct phrases in postverbal position present a feature in which PAC patterns more strongly with typical head-initial languages than with modern Mandarin, given that in Modern Mandarin adjunct phrases must *precede* the verb. Accordingly, the equivalents of (27)–(32) in Modern Mandarin would be unacceptable.

- (27) 乎多犬网鹿于櫛 (Heji 10976 r.)
 hū duō quǎn [vp wǎng lù [pp yú nóng]]
 order numerous dog.officer net deer at Nong
 'Call upon the many dog-officers to net deer at Nong.'
- (28) 乞令吳以多馬亞省在南 (Heji 564 r.)
 qì lìng wú yǐ duō mǎyǎ [vp xǐng [pp zài nán]]
 Qi order Wu lead numerous military.officer inspect at south
 'Officer Qi will order Wu to lead the numerous military officers to carry out an inspection in the south.'
- (29) 其品祠于王出 (Heji 23713)
 qí [vp pǐn cí [pp yú [TP wáng chū]]]
 FUT pin.sacrifice ci.sacrifice at king go.out
 'One will perform a *pin* and a *ci* sacrifice when the king goes out.'
- (30) 王入今月 (Heji 20038)
 wáng [vp rù [NP jīn yuè]]
 king enter present month
 'The king will enter [the city] this month.'
- (31) a. 其雨丁
 qí [vp yǔ [NP dīng]]
 FUT rain ding.day
 'It will rain on the day *ding*.'
- b. 允雨丁 (Heji 33943)
 yǔn [vp yǔ [NP dīng]]
 indeed rain ding.day
 'Indeed, it rained on the day *ding*.'
- (32) 侑于河來辛酉 (Tun 1119)
 yòu yú hé [lái xīn-yǒu]
 present to He next xinyou.day
 '[We will] present a sacrifice to the divinity He on the next *xinyou* day.'

4.1.2 'S [adjunct XP] V(O)'

In contrast to the postverbal position where only one adjunct is permitted, multiple adjuncts are attested in the preverbal position to the right of the subject:

- (33) 王在十二月在襄卜 (Heji 24237)
 wáng [_{VP} [_{PP} zài shí'èr yuè] [_{VP} [_{PP} zài xiāng] [_{VP} bǔ]]]
 king at 12 month at Xiang divine
 'The king in the twelfth month at the place Xiang made the divination.'
- (34) 王今丁巳出 (Heji 07942)
 wáng [_{NP} jīn dīngsì] chū
 king actual *dingsi* go.out
 'The king on this *dingsi* day goes out.'
- (35) 王自余入 (Heji 3458)
 wáng [_{PP} zì yú] rù
 king from Yu enter
 'The king will enter from Yu.'

4.1.3 '[Adjunct XP] S V(O)'

Finally, adjunct phrases can also occupy the sentence-initial position to the left of the subject:

- (36) 于辛巳王圍召方 (Heji 33023)
 [_{PP} yú xīnsì] wáng wéi shào fāng.
 at *xinsi*.day king surround Shao tribe
 'On the *xinsi* day, the king will surround the Shao tribe.'
- (37) 今六月王入于商 (Heji 7775)
 [_{NP} jīn liù-yuè] wáng rù yú shāng
 present six-month king enter in Shang
 'This sixth month, the king will enter the Shang city.'
- (38) 在女王其先邁捍 (Ying 593)
 [_{PP} zài nǚ] wáng qí xiān gòu hàn
 at Nü king FUT advance meet opposition
 'At Nü, the king will advance and meet an armed opposition.'

4.2 The distribution of adjunct phrases in Late Archaic Chinese (LAC) 5th c.–3rd c. BC

About 1000 years later than PAC, i.e. in *Late Archaic Chinese* (LAC), adjunct XPs are still attested in both pre- and postverbal position:

- (39) ... 故以羊易之 (*Mengzi* 孟子, Liang hui wang I 梁惠王上, 7/8, 4th c.–3rd c. BC)
 ... gù [_{PP} yǐ yáng] yì zhī
 therefore with sheep replace 3SG
 '... therefore [I] replace it [i.e. the ox] with a sheep.'

- (40) 我非愛其財而易之以羊也。 (ibid.)
 Wǒ fēi ài qí cái ér yì zhī [pp yǐ yáng] yě
 1SG NEG cherish 3SG value CONJ replace 3SG with sheep SFP
 ‘It is not that I attach a great importance to its value [i.e. the value of the ox]
 and therefore replaced it with a sheep.’

As illustrated in sentences (39) and (40) cited from the same text, the PP headed by *yǐ* can either precede or follow the verb plus object pronoun *yì zhī* ‘replace it’. There seems to exist no consensus about possible semantico-pragmatic differences between the preverbal and the postverbal positions for adjunct PPs in LAC. (Cf. Lu Guoyao (1982) and Liu Jingnong (1998) for conflicting views; cf. Djamouri, Paul & Whitman 2013a for further discussion.)

4.3 The distribution of adjunct phrases in subsequent stages

In the stages subsequent to LAC (5th c.–3rd c. BC), adjunct XPs are no longer acceptable in postverbal position and must occur preverbally, preceding or following the subject. The postverbal position remains the default position for argument XPs. This is the situation as still observed for today’s Mandarin Chinese where adjunct phrases can occur in all preverbal positions, but are totally excluded from the postverbal position (cf. Paul 2016a):

- (41) (明天)他(明天)會(明天)來
 {[_{NP} Míngtiān]} tā {míngtiān} huì {míngtiān} lái (*míngtiān)
 tomorrow 3SG tomorrow will tomorrow come tomorrow
 ‘He will come tomorrow.’
- (42) (在圖書館)你(在圖書館)能(在圖書館)複印
 {[_{PreP} Zài túshūguǎn]} nǐ {zài túshūguǎn} néng {zài túshūguǎn}
 in library 2SG in library can in library
 fùyìn (*zài túshūguǎn)
 xerox in library
 ‘You can make photocopies in the library.’
- (43) (除夕以前)我(除夕以前)要(除夕以前)回家
 {[_{PostP} chùxì yǐqián]} wǒ {chùxì yǐqián} yào {chùxì
 New Year’s eve before 1SG NYE before need NYE
 yǐqián} huí jiā (*chùxì yǐqián)
 before return home NYE before
 ‘I need to go home before New Year’s Eve.’

In English as well, adjunct NPs, PPs and PostPs (*that way, with care, on Tuesday; ten years ago*) behave alike and contrast in their distribution with adverbs (*carefully, subsequently*) (cf. Emonds 1987; Ng Siew Ai 1987; McCawley 1988; contra Larson 1985).

4.4 Wrap-up

In the period from PAC up to LAC, adjunct phrases can appear in three positions, to the left or the right of the subject and postverbally (i.e. after the object when present). While the semantic constraints governing the distribution of adjuncts remain to be elucidated, it is evident that the preverbal adjunct position cannot be likened to focus, since focalization of adjuncts in PAC requires a cleft structure with an overt matrix copular predicate (cf. Section 5.1 below). Given the asymmetry between multiple adjunct phrases in preverbal position vs only one adjunct phrase postverbally, Djamouri, Paul and Whitman (2013a) propose to account for the PAC and LAC facts by allowing the verb to select exactly one VP shell (cf. Larson 1988):

$$(44) [\text{AdvP } [_{\text{VP}} \text{V } [_{\text{VP}} \text{O } [_{\text{V}} \text{t}_V \text{adjunct XP}]]]]$$

The postverbal adjunct is a complement of the verb and thus within the VP. The possibility of exactly one adjunct XP to the right of the verb indicates that selection of just one such shell was allowed. The change observed in the stages subsequent to Late Archaic Chinese and resulting in the disappearance of postverbal adjunct XPs can then be formulated as loss of the VP shell structure.

5. The different cases of surface ‘OV’ order

In this section we now turn to the analysis of ‘SOV’ sequences and demonstrate that they do not challenge our observation that SVO has been the main word order from PAC on.

5.1 Surface ‘OV’ order in PAC: Focus clefts

Examined carefully, all of the observed SOV cases in PAC turn out to either involve focalization of the object or object pronouns in the context of negation. For reasons of space, we concentrate on focalization here. Note, though, that under an analysis of ‘Neg pronoun V’ where the object pronoun occupies the specifier of a functional projection, the sentences illustrating an at first sight preverbal object position also show a head-complement structure (for detailed discussion, see Djamouri 2000, 2014).

Importantly, the focus pattern in PAC was restricted to a type of cleft construction, where the focused constituent follows an item that functions as a matrix copular predicate. It is complete sets of predictions in the Shang inscriptions that permit us to identify superficial OV structures as clear cases of focalisation. (45a) presents a prediction in the form of a simple assertion displaying VO order. Against this background, two alternatives, (45b) and (45c), are proposed. In these alternatives,

gào ‘make a ritual announcement’ presents the presupposition, whereas the goal PP presents the focus.¹²

- (45) a. 勿告于中丁 (Heji 13646 recto)
 [_{TP} *pro* wù [_{vP} gào [_{PP} yú Zhōngdīng]]]
 must.not.be announce to Zhongding
 ‘We must not make a ritual announcement to [the ancestor] Zhongding.’
- b. 勿于大甲告 (ibid.)
 [_{TP} *pro* wù [_{complement cl.} [_{PP} yú Dàjiǎ] [_{vP} gào t_{PP}]]]
 must.not.be to Dajia announce
 ‘It must not be to [the ancestor] Dajia that we shall make a ritual announcement.’
- c. 勿于大戊告 (ibid.)
 [_{TP} *pro* wù [_{complement cl.} [_{PP} yú Dàwù] [_{vP} gào t_{PP}]]]
 must.not.be to Dawu announce
 ‘It must not be to [the ancestor] Dawu that we shall make a ritual announcement.’

In surface order terms, a clefted constituent is postverbal: it follows the matrix verb, i.e. the copula and occupies the highest specifier position in the copula’s clausal complement. This complement can never contain an explicit subject, except when the subject itself is clefted, as in (46):

- (46) 唯南庚害王 (Heji 01823 r.)
 [_{TP} Wéi [_{complement cl.} Nángēng [_{vP} hài wáng]]]
 be Nangeng harm king
 ‘It is [the ancestor] Nangeng that harms the king.’

The structure for the focalization of adjuncts is the same, i.e. it involves a cleft structure with a matrix copular predicate selecting a clausal complement, whose specifier hosts the focalized adjunct.

- (47) 王勿唯今日往 (Heji 07351)
 [_{TP} Wáng wù [_{vP} wéi [_{complement cl.} [_{NP} jīn rì] [_{vP} wǎng]]]]
 king NEG be present day go
 ‘It must not be today that the king will go.’
- (48) 唯于辛巳其雨 (Heji 20912)
 [_{TP} Wéi [_{complement cl.} [_{PP} yú xīnsì]] [_{vP} qí yǔ]]
 be at *xinsi*.day FUT rain
 ‘It is on the day *xinsi* that it will rain.’

12. Note that Li & Thompson (1974) completely neglect the rich corpus of PAC.

In surface order terms, a focalized adjunct again is postverbal, i.e. it follows the copula by virtue of its being part of the copula's clausal complement. It cannot be confused with an 'ordinary' preverbal adjunct XP preceding the matrix predicate (as illustrated in (33)–(35), Section 4.1.2 above); the obligatory presence of the copula when clefting an adjunct XP indicates that the adjunct is precisely not part of the matrix clause.

To conclude, all of the attested examples where an argument NP or PP occupies a (surface) preverbal position involve focalization (cf. Djamouri 1988, 2001). Importantly, the relevant focus pattern in pre-Archaic Chinese is restricted to a type of cleft construction, akin to modern Mandarin *shi...de* clefts (cf. Paul & Whitman 2008). On the cleft analysis, the focused constituent is postverbal, because to the right of the matrix copula: it occupies the specifier position of the projection selected as complement by the copula. Accordingly, this construction illustrates 'head-complement' order precisely in accordance with 'VO', not 'complement-head' order. Against this backdrop, there is no basis whatsoever for the claim that Chinese was predominantly SOV before the 11th c. BC.

5.2 The *bǎ* construction in Modern Mandarin

If we now turn to Modern Mandarin and to *the* standard example (since Li & Thompson 1974) for its alleged SOV order, i.e. the *bǎ* construction 'S *bǎ* O V', we see again that this view simply does not bear further scrutiny.

As discussed extensively in Whitman (2000), Whitman & Paul (2005), *bǎ* is not a preposition heading a preverbal PP, but a higher verbal head, a point of view by now largely agreed upon by the specialists in Chinese syntax. Accordingly, 'S *bǎ* O V' involves 'head-complement' order, as does the entire extended verbal projection, given that *bǎ* selects as complement a verbal projection to its right; this verbal projection can be very complex and contain AspP and ApplicativeP (cf. Paul 2015: Chapter 2 for further discussion):

- (49) Tā [_{VP} bǎ [_{BaP} Lìsì [_{Ba} t_{ba} [_{AspP} hěnxīnde [_{Asp} pāoqì -le
3SG BA Lisi cruelly abandon-PERF
[_{VP} t_{paoqi} [_{VP} t_{paoqi} t_{Lisi}]]]]]]]]]
'She cruelly abandoned Lisi.'
- (50) Wǒ [_{VP} bǎ [_{BaP} shū [_{Ba} t_{ba} [_{AspP} [_{Asp} [sòng -gěi] -le [_{AppIP} tā
1SG BA book give -APPL -PERF 3SG
[_{AppI} t_{sòng-gěi}] [_{VP} t_{tā} [t_{sòng} t_{shū}]]]]]]]]]]]
'I gave him a book (as a present).'

This analysis also invalidates Cao & Yu's (2000) assumption that the *bǎ* construction – (incorrectly) analysed as 'S [[_{pp} *bǎ* NP] V]' – emerged due to intense contact with Sanskrit via the translation into Chinese of Buddhist sutras after the 3rd c.

AD. In fact, be it the contact with Sanskrit or with the surrounding OV languages such as Tibetan, Mongolian, Manchu, contact has *not* led to any major word order change in Chinese (cf. Section 6 below).

5.3 Argument PPs in preverbal position in Mandarin

While there is nowadays a consensus that *bǎ* and the following DP do not form a constituent and hence cannot be analysed as a PP (cf. Paul 2015, Chapter 2 for an overview), some argument PPs do occur in preverbal position in Modern Mandarin. These cases, which deviate from the generalization that the postverbal position is the default position for argument XPs in Mandarin, can be divided into three groups.

- i. For a limited subset of donatory verbs (e.g. *jì* 寄 ‘send’ and *xiě* (*xìn*) 寫(信) ‘write (a letter)’ and for transitive verbs optionally involving the meaning of transfer, the recipient *gěi* PP ‘to XP’ can either follow or precede the verb (cf. Paul & Whitman 2010, Paul 2016b for further discussion):

- (51) a. Wǒ {[_{PP} gěi Měilì]} jì -le sān ge bāoguǒ {[_{PP} gěi Měilì]}
 1SG to Mary send-PERF 3 CL parcel to Mary
 ‘I sent three parcels to Mary.’
- b. Nǐ kuài {[_{PP} gěi Měilì]} dǎ diànhuà {[_{PP} gěi Měilì]}
 2SG fast to Mary strike phone to Mary
 ‘Phone Mary right away.’
- c. Wǒ {[gěi Měilì]} dǎ -le yī jiàn máoyī {[gěi Měilì]}
 1SG to Mary knit-PERF 1 CL sweater to Mary
 ‘I knitted Mary a sweater.’ (postverbal PP)
 ‘I knitted a sweater for Mary.’ (preverbal PP)

As reflected in the different translations provided in (51c), the postverbal *gěi*-PP indicates the recipient only, whereas the preverbal *gěi*-PP is ambiguous between a recipient and a benefactive reading, on a par with English *for Mary*. In the latter case, *Mary* as benefactive can, but need not coincide with the recipient, thus allowing for a person different from *Mary* (e.g. her child) to receive the sweater.

- ii. The patient/theme of complex predicates in the form of V-O phrases is encoded as a preverbal PP (Paul 1988: Chapter 4)

- (52) Wǒ zhǐ shì kāi wánxiào, nǐ kě bié [_{PP} gēn wǒ]
 1SG only be open joke 2SG really NEG with 1SG
 rèn zhēn
 recognize true
 ‘I’m only joking; for heaven’s sake, don’t take me seriously.’

- (53) Nǐ wèishenme [pp gēn wǒ] jiàn wài?
 2SG why with 1SG see foreign
 ‘Why do you treat me as a stranger?’

iii. Some PPs headed by *duì* ‘to(wards)’ (mostly with stative predicates) and *wàng* ‘in the direction of, to(wards)’ might be analysed as encoding an argument rather than an adjunct:

- (54) a. Wǒmen [duì nǐ] wánquán (bù) xìnren
 1PL to(wards) 2SG completely NEG have.confidence
 ‘We have complete confidence in you.’ / ‘We have no confidence in you at all.’
 (Lü Shuxiang et al. 2000: 182; negation added)
- b. Rénjiā dōu xìnren tā, nǐ yě kěyǐ
 people all have.confidence 3SG 2SG also can
 xìnren tā
 have.confidence 3SG
 ‘Everybody trusts him, you can trust him, too.’
- (55) a. Wǒ [duì Lǎozhāng] yǒu yīdiǎn yìjiàn
 1SG to(wards) Laozhang have a.bit opinion
 ‘I’m somewhat prejudiced against Laozhang.’
 (Lü Shuxiang et al. 2000: 183)
- b. Dàjiā [duì wǒ] dōu hěn rèqíng
 everybody to(wards) 1SG all very warm
 ‘Everybody is very kind to me.’
- (56) a. Xiǎohái [wàng tā] xiào -le xiào
 child to(wards) 3SG smile-PERF smile
 ‘The child smiled at him.’
- b. Nǐ [wàng qián] kàn
 2SG to(wards) front look
 ‘Look ahead.’

The clearest case is (54a–b), where the argument of *xìnren* ‘trust, have confidence’ is either encoded as a (necessarily postverbal) DP or as a (necessarily preverbal) PP.¹³

Given the constrained nature of argument PPs in preverbal position (i.e. in a low specifier position above negation), it should be evident that these cases do not invalidate the generalization that the postverbal position is the default position for argument XPs in Modern Mandarin.

13. In fact, only argument PPs headed by *gěi* ‘to, for’, *dào* ‘to, until’ and *zài* ‘at’ are allowed in postverbal position.

6. The Tangwang language

Chinese and more generally Sinitic languages have always had an underlying VO order. The alleged OV characteristics observable in some non-Mandarin varieties can only be fully understood and analysed against the backdrop of this robust VO order.

This can be illustrated by the Hezhou subvarieties of Northwestern Mandarin spoken in the Gansu Province, such as the Tangwang language. The presence of OV order in addition to VO in Tangwang is in general said to be due to contact with Mongolic OV languages spoken in the same area (cf. Chen Yuanlong 1985).

However, this claim does not bear further scrutiny. As demonstrated by Djamouri (2013, 2015), the pre- vs. postverbal position of the object in Tangwang can be accounted for by precise syntactic-semantic constraints and thus contrasts with the generalized OV order in the Mongolic languages.

The main evidence for VO as unmarked underlying word order in Tangwang is the fact that noun incorporation respects VO order (cf. (57a)), and thus contrasts sharply with noun incorporation in Khalkha Mongolian, which displays OV order (cf. (58b)):

- (57) a. 我吃肉/洋芋/兔肉寮
 wɔ [Asp° [V° tʂhɿ-zɿ] /-jājɿ /-tʰu.zɿ] -ljɔ]
 1SG eat-meat /-potato /-rabbit.meat -PERF
 ‘I have eaten meat/potatoes/rabbit.’
- b. *我吃寮肉/洋芋/兔肉
 wɔ [Asp° tʂhɿ-ljɔ] zɿ /jājɿ /tʰu.zɿ
 1SG eat-PERF meat /potato /rabbit.meat
- (58) a. Ter xün [DP zurag -ig] [Asp° zur -dag]
 that man picture-ACC paint-HAB
 ‘That man paints (the) pictures.’
- b. Ter xün [Asp° [V° zurag -zur] -dag]
 that man picture-paint-HAB
 ‘That man is a picture-painter.’

Indefinite quantified phrases in Tangwang must likewise follow the verb, but unlike bare nouns cannot be incorporated (59b). When in preverbal position, a QP is necessarily analysed as definite (irrespective of the presence/absence of the demonstrative pronoun ‘this’) and must carry the objective suffix *-xa* (59c).

- (59) a. 我吃寮 (*这) 三/几个果子
 wɔ tʂhɿ-ljɔ (*tʂə) sɛ̃/tɕi kɛ kwɿtɿ
 1SG eat -PERF DEM three/few CL fruit
 ‘I have eaten three/some fruits.’

- b. *我吃三个果子寮
 wɔ̯ [Asp° [v° tʂhɿ-sẽ -kɛ-kwɤtsɿ]-ljɔ̯]
 1SG eat -three-CL-fruit -PERF
- c. 我(这)三/几个果子*(哈)吃寮
 wɔ̯ (tʂə) sɛ̃/tɕi kɛ kwɤtsɿ *(-xa) tʂhɿ-ljɔ̯
 1SG DEM three/few CL fruit -OBJ eat-PERF
 ‘I have eaten these/the three/few fruits.’

By contrast, definite DPs must occur in preverbal position; this also holds for the indirect object in a double object construction, irrespective of its semantic-syntactic properties. Accordingly, only (60a) is acceptable, where both the direct object and the indirect object precede the verb and are marked by *-xa*. The indirect object can neither be incorporated (cf. (60b)) nor follow the verb (cf. (60c)):

- (60) a. 我書哈 (三个) 老師哈卡寮
 wɔ̯ [ʂu -xa] [(sɛ̃ kɛ) lɔʂɿ -xa] kʰa -ljɔ̯
 1SG book-OBJ 3 CL teacher-OBJ give-PERF
 ‘I gave the book to (the) three teachers / the teacher.’
- b. *我書哈卡老師寮
 wɔ̯ [ʂu -xa] [Asp° [v° kʰa -lɔʂɿ]-ljɔ̯]
 1SG book-OBJ give-teacher-PERF
- c. *我書哈卡寮(三个) 老師(哈)
 wɔ̯ [ʂu -xa] [subAsp° [v° kʰa -ljɔ̯]] [(sɛ̃ kɛ) lɔʂɿ (-xa)]
 1SG book-OBJ give-PERF 3 CL teacher -OBJ

Tangwang thus largely displays OV order, but this surface OV order is conditioned by clearly identifiable constraints, thus indicating that VO is the underlying order. This VO order is confirmed by the head-initial nature of the projections within the extended verbal projection, where adverbs, negation and modal auxiliaries all precede the verb.

Moreover, many alleged OV characteristics in Tangwang likewise exist in Modern Mandarin. The fact that adjunct XPs must precede the verb mirrors the situation in Mandarin Chinese. Mandarin Chinese likewise has cases of argument PPs that must occur in preverbal position. Postpositions have existed alongside prepositions in Mandarin since the 1st c. BC. Tangwang is clearly a Sinitic language, hence VO. Its ‘mixed’ nature is superficial only, as demonstrated by our careful syntactic analysis. Whether ultimately the high frequency of surface OV sequences is due to contact with the neighbouring OV languages or not is not our concern here, the more so as there are no means to convincingly demonstrate such an influence.

7. Conclusion

Chinese, and more generally, Sinitic languages have always had an underlying VO order. The alleged OV characteristics observable in different varieties can only be fully understood and analysed against the backdrop of this robust VO order.

Evidently, there have been changes in Chinese in the past 3000 years. However, the changes observed cannot be formulated in terms of reducing ‘disharmony’ etc. Quite on the contrary, the emergence of SFPs and postpositions could be presented as ‘increasing’ the already existing ‘disharmony’ displayed by the combination of VO order and head-final NP.

Although statistical correlations can be established in terms of harmony and disharmony, these correlations do not result in viable concepts with explanatory force for linguistic theory. Even a language such as Japanese, which had been claimed to be *the* prototype of a fully harmonic language, turns out to be of a ‘mixed’ type under a careful analysis that takes into account its array of functional categories (cf. Whitman 2001). Moreover, the alleged harmonic or disharmonic nature of a language has no influence whatsoever on acquisition, and hence no influence on change, either (change being ‘incorrect’ acquisition) (cf. Newmeyer 2005, Chapter 3 and references therein). Chinese nicely confirms that ‘(dis)harmony’ indeed is an artefact, not part of UG.

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Against V2 in Old Spanish

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In this article, using rich data from 13th C. Spanish, it is argued that Old Spanish does not belong to any known V2 type of language, even the most flexible/relaxed attested type – the latter defined as mandatory verb movement from T-to-Fin/Force without the necessary raising of an XP to the preverbal field (as is the case in prototypical V2 languages such as German); neither does it constitute a new one for lack of evidence for formal movement of the verb to a C-related head. Instead, it is claimed that V2 effects in Old Spanish are due either because (i) verb movement is associated with some discourse effect or polarity; or, (ii) it is simply linear V2. Such V2 effects are trivially found in non-V2 languages and may also relate to rhetorical schemata and the discourse tradition.

1. Introduction

Medieval Romance languages have long been argued to present V2 systems *à la germanique*: see Thurneysen (1892), Foulet (1928), Herman (1954), von Wartburg (1971), Benincà (1983–1984, 1995, 2004, 2006), Vanelli (1986, 1999), Adams (1987a, b, c, 1988), Roberts (1993, 2007), Vance (1997), Salvi (2000, 2012), Poletto (2005, 2006a, b, 2014), and Ledgeway (2007, 2008). The same argument has been extended to Old Spanish: see Lema & Rivero (1991), Rivero (1991, 1993), Salvi (1991), Fontana (1993, 1994, 1996, 1997), Cho (1997), Danford (2002), Fernández-Ordóñez (2008–2009), Rodríguez Molina (2010), Poole (2013), Pinto (2015), and Wolfe (2015). However, the V2 analysis is far from wholly accepted: see Wanner (1989), Bossong (2006), Elvira (2015), Sitaridou (2011, 2012, 2015). This polarized discussion is also true for the other Ibero-Romance languages with Ribeiro (1995), on the one hand, arguing in favour of V2 in Old Portuguese, and Galves & Galves (1995), Galves & Paixão de Sousa (2005) arguing the same for Classical Portuguese; on the other hand, a V2 analysis is argued against by numerous authors for Old Portuguese, for instance, see Kaiser (1999), Martins (2002), Fiéis (2003), Eide (2006), Rinke (2007);

for Old Catalan, see Fischer (2002), Batllori & Hernanz (2015), Pujol i Campeny (2019); and for Old Leonese, see González-Planas (2009).

According to traditional V2 definitions, in V2 languages the verb must move to Force⁰ and an XP must move to Spec-ForceP. This sort of V2 system is considered a prototypical one, and one language which instantiates it is Modern German. However, for the purpose of this paper, we accept even more relaxed definitions of V2 whereby a language qualifies as V2 as long as there is formal movement involved and the landing site for the verb is either Force or Fin⁰ (Grewendorf 2010; Holmberg 2015: 376) or, in fact, any position within a split-CP (*à la* Rizzi 1997) (see, for instance, Benincà & Poletto 2004). It follows that these and only these languages will exhibit structural V2 – all other languages exhibiting the verb in second position will merely be linear V2 languages as is in fact the majority of non-V2 languages (e.g. Modern Greek).¹

In this article, we argue that Old Spanish is not: (i) like any other known V2 system; or (ii) a new type of V2; or (iii) a V2 involving formal movement of the verb to some C-head. Through a careful examination of possible V2 microcues in Old Spanish, we show that none can be found to trigger structural V2 at all times. Thus we postulate non-V2 as our null hypothesis and we engage with some recent arguments regarding the nature of V1 in Old Spanish showing that V1 cannot be treated as resulting from some instance of topic drop or a null operator. Finally, we argue that Old Spanish is non-V2, with T-to-Pol in affirmative declaratives, and InfoFoc⁰ to the left of the verb.

The paper is organized as follows: in Section 2 we present the sources and methodology used in order to develop our argumentation; in Section 3 we present arguments as to why Old Spanish does not fit any V2 description; in Section 4, having shown that Old Spanish is not matching any known V2 language, we argue that it cannot be claimed to be a new type of V2 with T-to-Force/Fin as the only requirement; in Section 5 we search for any V2 microcues while in Section 6 we argue that we cannot justify all V1 to be underlying V2; in Section 7 we present our proposal for the clausal architecture of Old Spanish; finally, we conclude in Section 8.

2. Sources and methodology

Empirical studies were conducted using the *General Estoria* because as Fernández-Ordóñez (2006) succinctly puts it: “Los manuscritos originales del scriptorium alfonsí surgen así como piedras miliare que nos permiten referenciar con

1. For the remainder of the paper when we refer to V2 we mean structural V2.

seguridad nuestro camino de reconstrucción histórica” (The original manuscripts of the Alfonsian scriptorium prove to be milestones, which allow us to safely infer the trajectory for historical reconstruction) (Fernández-Ordóñez 2006: 1). The nontrivial merits of this text are: (i) that there is an original, and not just copies of the manuscript; (ii) it enjoys a fairly precise chronology (ca. 1280); and (iii) although there is no single author, it was written by the members of the *scriptorium alfonsí*.

Based on this text, two corpora have been developed following the Hamburg model (see Rinke & Sitaridou 2004; Sitaridou 2012) by (a) Rainsford 2006 (500 matrix clauses) and Rew 2011 (250 embedded clauses) – to be referred to as Corpus I – and Pujol i Campeny² (700 matrix and 700 embedded clauses) – to be referred to as Corpus II – giving rise to 2150 tokens in total.³

Moreover, as needed, the Oslo ISWOC (Information Structure and Word Order Change) corpus⁴ was also consulted.

3. Why Old Spanish is not like any other known V2 system

Old Spanish by no means conforms to V2 orders as found in prototypical V2 languages or in fact any other known V2 system. In this section we will explore first the statistics and then the syntactic contexts which do not yield V2 in Old Spanish, contrary to what we find in other V2 languages.

When surveying corpora I and II (see Table 1), all word orders are robustly represented and there is no doubt that no word order, not even V3, can be considered marginal or marked. It is particularly striking that V1 order is almost the most frequent one in both corpora.⁵

2. I would like to thank Afra Pujol i Campeny for allowing me to use these data.

3. Corpora I & II were both developed by my Cambridge students, all following the same Hamburg methodology; however, given that the annotation was not carried out by the same annotators, there exist some minor differences and thus it is deemed more appropriate to also present the statistics per corpus as well.

4. For the ISWOC corpus, see Sitaridou & Eide (2014) and <<http://www.hf.uio.no/ilos/english/research/projects/iswoc/>>

5. The difference regarding V1 between Corpus I, on the one hand, and Corpus I (longer version) and Corpus II, on the other, has to do with the fact that in Corpus I the only V1 orders which were counted were the ones without subject continuity (see Section 6).

Table 1. Corpus results of verb positions in main clauses in *General Estoria*

	Corpus I (<i>n</i> = 295) (as published in Sitaridou 2012)	Corpus I longer version (<i>n</i> = 500) which subsumes Corpus I	Corpus II (<i>n</i> = 700)	Total (<i>n</i> = 1200)
V1	20.3% 60) (only non-conjoined were counted)	43.2% (216)	52.3% (366)	48.5% (582)
V2	68% (203)	51% (255)	37.1% (260)	42.9% (515)
V3	10.8% (32)	5.8% (29)	10.6% (74)	8.5% (103)

Let us now consider the contexts, which are normally associated with known V2 systems. First, *contra* Cho (2005), adverbial clauses in Old Spanish do not matter to V2, as we see in (1):⁶

- (1) a. E ellos [cuando esta razón oyén a Noé] riyén se
and they when this reason hear.d3PL to Noe laughed.3PL REFL
d' ello
of this
'When they heard this reason from Noé, they laughed about it.'
(GE III, 12v)
- b. e Alexandre [desque ovo el can] maravillóse
and Alexander since had.3SG the dog enchanted.3SG=REFL
mucho de la grandeza d' él
much of the greatness of him
'And Alexander, since he had the dog, he was very much enchanted by his
greatness.'
(GE1, 6RE)

Second, Old Spanish V3 orders cannot be all accounted for as topicalisation because it cannot be argued that all first elements in V3 sequences are extra-clausal, see (2). Although CLLD is not stable, it is nevertheless plentiful (Bouzouita 2014, 2017; Elvira 2014) and as such it can serve as evidence against the extra-clausal status of the initial XP.

6. All examples unless otherwise stated are from Old Spanish; the source is indicated after the translation. The abbreviations used in this paper are: CL = clitic, FUT = future, EF = Edge Feature, GE = *General Estoria*, GEN = genitive, INF = infinitive, IPFV = imperfective, LEX = lexical, ModSP = Modern Spanish, OE = Old English, OHG = Old High German, OSp = Old Spanish, PRT = (past) participle, PL = plural, PRON = pronominal, REFL = reflexive, SUB = subjunctive, SG = singular, S = subject, V = verb.

- (2) a. Sos castiellos a espada los metrás
his castles to sword them seize.FUT.2SG
'You will seize the castles by the sword.' (Faz: 135 *apud* Bouzouita 2008a)
- b. A los ricos e al ganado grueso no los
to the rich and to=the cattle big not them
quiso matar
wanted.3SG kill.INF
'He didn't want to kill the wealthy and the many cattle.'
(Faz: 106 *apud* Bouzouita 2008a)
- c. E los reis a estos tales no los pueden matar
and the kings to these such not them can.3PL kill.INF
'And the kings couldn't kill these ones.'
(GE4, 35 *apud* Fernández-Ordóñez 2008–2009: 6)

Third, Old Spanish V1 orders are unlike Old High German V1 exceptions (Hinterhölzl & Petrova 2009, 2010; Schrodtt 2004: 144, and especially Alboiu, Hill & Sitaridou 2015: 1081–1084). While (4) and (5) are attested in both, (3), in which a clause-initial verb is followed by an XP, followed by a pronominal subject, is only attested in Old Spanish.

- (3) V-XP-subject_{pro} (OK OSp; *OHG)
Parió un fiyo ella
gave-birth.3SG a son she
'She gave birth to a son.'
(GE XXII, 8v)
- (4) V-subject_{pro} (OK OHG; OSp)
a. Flog [er] [súnnun pad], stérrono stráza (OHG)
flew he sun.GEN path, stars.GEN route
'he (= the angel Gabriel) flew the path of the sun, on the route of the stars.'
(O I5, 5 *apud* Axel 2007: 114)
- b. E amonestava los él que ... (OSp)
and warn.IPFV.3SG them he that
'And he warned them that ...'
(GE IV, 12v)
- (5) V-XP-subject_{LEX} (OK OE; OSp)
a. Com [þa] [to lande] lid-manna helm (OE)
came then to land sailors.GEN protector
'Then the protector of the sailors came to the shore.'
(Beo 1623 *apud* Hinterhölzl & Petrova 2010: 315)
- b. E començara la a poblar un nieto dulixes ...
and start.IPFV.SUB.3SG her to inhabit a grandson of.Ulysses
(OSp)
'And Ulysses' grandson had started to inhabit it.'
(GE1 5V, 1, 39)

- c. E depues que troya fue destroyda salieron ende
 and after that Troy was.3SG destroyed.FEM left.3PL from-there
 dos hermanos (OSp)
 two brothers
 ‘And after Troy was destroyed the two brothers left.’ (GE1, 3v, 30)

Fourth, Old Spanish V3 orders are unlike Old High German V3 exceptions (Lippert 1974: 15; Tomaselli 1994; Alboiu, Hill & Sitaridou 2015: 1081–1084): while (8) is attested in both, (6) and (7) are only attested in Old Spanish. In particular, in Old High German, the verb could not be preceded by two XPs or a subject pronoun and an XP, in contrast to Old Spanish, which allowed both options, as shown in (6)–(7). However, we see in (8) that if the subject and the XP are switched, namely the XP precedes the subject, then this order becomes possible in Old High German, as well as in Old English.

- (6) XP-XP-V (OK OSp; *OHG)
 En este lugar d’esta razón tornó Moisés
 in this place of=this reason returned.3SG Moses
 ‘Moses returned to this place for this reason.’ (GE XXVI, 9r, 62)
- (7) Subject_{pro}-XP-V (OK OSp; *OHG)
 E ellos cuando esta razón oyén a Noé riyén se d’ello
 And they when this reason heard.3PL to Noe laughed.3PL REFL of this
 ‘And when they heard this reason from Noé, they laughed about it.’
 (GE III, 12v)
- (8) XP-subject_{pro}-V (OK OE/OHG; OSp)
- a. [Hiora umtrymnesse] [he] sceal ðrowian on his heortan (OE)
 their weakness he shall atone in his heart
 ‘He shall atone their weakness in his heart.’
 (Beo 1623 *apud* Hinterhölzl & Petrova 2010: 316)
- b. Et otrossi [uos los Etiopianos] [a la mi espada] seredes
 and furthermore you the Ethiopians to the my sword be.FUT.3PL
 muertos (OSp)
 killed
 ‘And furthermore, you, the Ethiopians, will die by my sword.’
 (Crónica General de España, 4Dan, 39465)

Fifth, in some linear V2 orders the first element is a non-constituent in Old Spanish (for hyperbaton see Mathieu & Sitaridou 2005); such constructions would never be possible in a V2 grammar, as we see here comparing Old Spanish (9a) with German (9b):

- (9) a. Mucho fueron maravillados de la grant mortandat que
 much were surprised of the big death-toll that
 fallaron de los moros (OSp)
 found.3PL by the moors
 ‘They were very surprised by the high death-toll of those that died at the
 hands of the Moors.’ (EE-II, 253r *apud* Elvira 2015: 37)
- b. *sehr waren sie überrascht (German)
 much were they surprised

Finally, if we accept that Old Spanish has an unparalleled flexible V2 grammar in matrix clauses, then typologically it becomes even stranger: as detailed in Table 2 the embedded domain does not show (i) a V2 symmetry since V1 is the majority pattern (somewhere between 60 and 70% of the tokens show the verb in first position in embedded clauses); nor (ii) an asymmetry⁷ like the one found in other asymmetric V2 systems since in the latter the embedded verb is always in final position; crucially, this is not the case in Old Spanish; or (iii) a limited embedded V2 system (as in Faroese, Danish, Norwegian and Swedish). Therefore, the only conclusion is that the Old Spanish embedded domain is not like any other known V2 embedded domain (as we can see in Table 2), given that V2 in embedded clauses is by no means a hard and fast rule, nor the most common.

Table 2. Corpus results of verb positions in embedded clauses in *General Estoria*

	Corpus I (n = 250)	Corpus II (n = 700)	Total (n = 950)
V1	69.6% (174)	61.7% (432)	64.1% (606)
V2	30.4% (76)	32.4% (227)	31.8% (303)
V3	0% (0)	5.86% (41)	4.1% (41)

7. Asymmetric V2 languages show V2 in all matrix environments, but in embedded clauses the verb occupies the final position since the second position is occupied by an overt complementiser. German and Dutch are languages that principally exhibit this kind of V2. Symmetric V2 languages show V2 across both domains (for a typology, see Biberauer 2002; Holmberg 2015).

4. Why Old Spanish is not a new type of V2 with T-to-Force/ Fin as the only requirement

Having demonstrated that Old Spanish is unlike any other known V2 language (be it Modern German, Old High German or any other Germanic one), and given the existing rich typology of V2 languages, we cannot exclude – at this stage at least – that Old Spanish constitutes a new, previously undocumented, type of V2 language. The core of the argument is that a language can still be identified as V2 as long as there is formal movement and the landing site of the verb is either Force or Fin⁰. From this premise, it follows that although phenomenologies of (linear) V2 orders might be irrelevant, evidence for formal movement must be maintained at the core of the structural V2 analysis; otherwise the division between structural and linear V2 will be blurred since the latter is extremely frequent in both structural and linear V2 languages. Crucially, we shall demonstrate that Old Spanish does not constitute a new type of V2 language.

First, evidence derives from previously dubbed Long Head Movement involving participle fronting, which has been argued to involve formal T-to-C movement. In Alboiu, Hill & Sitaridou (2015) and Sitaridou (2015) it has been argued that this is not the case. We replicate part of the argument, which we shall also use to evaluate (finite) verb movement. To this end, consider interpolation effects in Old Spanish (see Bouzouita 2008a, 2008b; Sitaridou 2015; Eide & Sitaridou 2014; Poole 2013; Castillo Lluch 1996, 1998; Batllori, Sánchez & Suñer 1995), as shown in (10):⁸

- (10) a. Mando al omne que les esta mj carta mostrare
 ordered.3SG at.the man that them this my letter show.FUT.SUB.3G
 ‘He ordered the man to show them my letter.’
 (DLE 244, 42 *apud* Castillo Lluch 1996: 305)
- b. Todas las bocas que la non besaron
 All the mouths that her not kissed.3PL
 ‘All the mouths that had not kissed her.’
 (LFU 111 *apud* Castillo Lluch 1998: 411)

Clitics signpost the edge between the CP and the TP domain, as was claimed to be the case in Old Portuguese by Martins (2002, 2011), see (11)–(13) (from Sitaridou 2015: 120):

- (11) (XP) – AUX – XP – PRT (short scrambling: OSp/ModSP)
 (12) COMP – CL – XP – AUX – PRT (middle scrambling: OSp/*ModSP)
 (13) (XP) – PRT – CL – AUX (CP domain: OSp/*ModSP)

8. Interpolation in matrix clauses is quite rare in Old Spanish, see Castillo Lluch (1991, 1998).

Therefore, if we find participles to the left of the clitic they must have moved into the left periphery. Crucially, the movement is not to ForceP/FinP, but it is for focus reasons, see (14). Further evidence comes from rhetorical schemata such as antimetabole (Sitaridou 2015), which exhibits abundant participle fronting (15).

- (14) Lázaro, engañado me has Juraré yo a Dios que has
Lázaro mislead CL have.2SG swear.FUT.1SG I to God that have.3SG
tú comido las uvas tres a tres
you eaten the grapes three to three
'Lázaro, you have misled me. I will swear to God that you have eaten the grapes
three by three.' (Lazarillo, I, 129)
- (15) Perseguido me han encantadores, encantadores me
persecuted.3PL CL have.3PL enchanters enchanters CL
persiguen y encantadores me perseguirán
persecute.3PL and enchanters CL persecute.FUT.3PL
'Enchanters have persecuted me, enchanters persecute me still, and enchanters
will continue to persecute me.' (Cervantes, Quijote, II, 32, 896 *apud*
Rodríguez Molina 2010: 1354 in Sitaridou 2011: 180)

Moreover, there is competition between participle fronting and focus, which results in the unavailability of the former, as shown in (16), whereby *todo esto* 'all this' bears focus:

- (16) E, señor, *todo esto* vos avemos declarado largamente
and lord all this CL have.1PL declared in-length
'And, Sir, we have told you all of this at length.' (Libro de Doce Sabios, Fol 1r)

We can thus conclude that even Long Head Movement cannot be formal movement in Old Spanish (see Sitaridou 2015; Alboiu, Hill & Sitaridou 2015: 1081–1084). If we now extend the same argumentation, namely that clitics signpost the edge of the T-domain and whatever comes to their right cannot be in the C-domain, we can see ample evidence as to why there is no verb movement of the finite verb to the C-domain. Consider (17) which shows that the subject appears in a position indisputably below C^0 , given that the subject sits to the right of the clitic. Crucially, preverbal subjects in V2 languages are always in Spec-CP.⁹ It follows that if the preverbal subject is not in Spec-CP the verb cannot be in C^0 either.

9. Note that according to asymmetrical V2 analyses, provided by Travis (1996) or Zwart (1997), for prototypical V2 languages the finite verb only moves to C^0 in connection with the occurrence of a non-subject phrase in sentence-initial position, while in clauses with a preverbal subject the subject remains in IP/TP.

- (17) XP-XP-CL-S-V
 elo que yo quis nunca lo uos contradixiestes
 and.it that I wanted.1SG never CL you contradicted.2SG
 ‘And what I wanted you never contradicted.’ (Alexandre, v. 2248d)

5. The unsuccessful quest for V2 microcues in Old Spanish

The quest for (micro)cues for setting the V2 parameter in the child’s grammar (for a similar endeavour, see Westergaard 2006, 2008) leads to an exclusion of word orders, which, although perfectly grammatical in a V2 grammar, are also grammatical in non-V2 grammars. This trivially rules out (18) and (19) (see Sitaridou 2012: 581):

- (18) SVO
 (19) XP-V-S, whereby the subject is lexical

Verb movement to C would be unambiguous only if the subject can be shown to have moved to Spec-TP, acting as a boundary between the C- and the T-domain. However, subject-verb inversion as such is ambiguous because: (i) either the finite verb preceding a subject in Spec-TP has unambiguously moved to C (Germanic inversion), or (ii) the subject has stayed in situ (Spec-VP), in which case there may be an XP occupying Spec-TP (Romance inversion) (Zubizarreta 1998) and possibly acting as an EPP-satisfier (see Sifaki & Tsoulas 2018 for such an analysis in Greek) or not. Crucially, the mere fact that we have inversion cannot provide enough evidence to the child for T-to-C.

While the word order XP-V-S, whereby the subject is lexical, has been stable in the history of Spanish (see Zubizarreta 1998), the word order XP-V-S whereby the subject is pronominal, is odd in Modern Spanish unless the postverbal pronominal subject bears a contrastive/disambiguating reading (see Sitaridou 2011, 2012); consider (20):

- (20) a. ^{??}Ayer presentó ella su renuncia (ModSP)
 yesterday presented.3SG she her resignation
 ‘She presented her resignation yesterday.’
 a. [?]Ayer ella presentó su renuncia
 yesterday she presented.3SG her resignation
 ‘She presented her resignation yesterday.’
 b. Ayer presentó María su renuncia
 yesterday presented.3SG Maria her resignation
 ‘Mary presented her resignation yesterday.’
 c. ^{??}Presentó María su renuncia
 presented.3SG Maria her resignation
 ‘Mary presented her resignation.’

Interestingly, the word order XP-V-S_{pron} is attested in Old Spanish (21a) and is very common in German (21b) too:

- (21) a. Estonce dixo ella que ... (OSp)
 then said.3SG she that
 ‘Then she said that ...’ (GE1 6V, 1, 20)
- b. Am Morgen liest er Bücher (German)
 in morning read.3SG he books
 ‘He reads books in the morning.’

Leaving aside the issue that (21a) and (21b) are not exact equivalent – the former but not the latter involves narrative inversion – it would be important to consider what are the percentages of XP-V-S_{pron} in Old Spanish. To this end, consider Table 3: the low percentage of the word order XP-V-S_{pron} in Old Spanish suggests it was not robustly represented in the input, and does not seem to be out of line with the marked acceptability of this order in Modern Spanish.

Table 3. XP-V-S orders in *General Estoria*

XP-V-S (S=pronominal)	Occurrences/out of total number of sentences/out of total V2	Percentage out of total number of sentences/ percentage out of V2
Corpus I	8/295/203	2.7%/3.9%
Corpus II	6/700/260	0.8%/2.3%
Total	14/995/463	1.4%/3%

However, the quest for V2 cues cannot stop here. Westergaard (2006, 2008) argued for a microparametric approach to V2 whereby different clause types have different heads in the CP domain, some of which require verb movement (e.g. the interrogative head in Modern English), while others do not (e.g. the head involved in declaratives). Thus, she argued, on the basis of Norwegian child data, there can be several cues for V2, but only the relevant clause type is considered when children scan the PLD. This means that the cues are still robustly expressed in the input but do not affect all clause types. Given how successfully such a model can account for intra-linguistic V2 variation in Norwegian, it follows that it can equally well predict inter-linguistic V2 variation and, therefore, could be used to discover a new V2 grammar, hypothetically, Old Spanish. To this end, consider Table 4:

Crucially, as shown in Table 4, we cannot identify any such trigger in the corpora. In other words, there does not seem to be a single trigger (for instance, *if*-clauses, temporal clauses, etc.) which consistently yields 100% V2.

The same empirical conclusion is reached by Wolfe (2015), namely that we cannot identify specific triggers for V2 in Old Spanish, thereby leading to the conclusion that the preverbal field is non-specialised. However, rather than interpreting this as evidence against V2, Wolfe maintains that it is indicative of a significant

Table 4. Preverbal constituents in V2 across the corpora

	Corpus II (n = 700)	Corpus I (n = 300)
Object DP	2.7% (7)	11.3% (23)
Object infinitive	5% (13)	0.5% (1)
Indirect Object PP	23.1% (60)	3.4% (7)
Adverb	20.8% (54)	23.5% (48)
Adverbial Phrase	14.2% (37)	1% (2)
Lexical Subject	22.3% (58)	30.4% (62)
Pronominal Subject	15% (39)	16.7% (34)
Temporal Clause	Total = 3.4% (9) <i>before/after</i> -clauses = 0% <i>when</i> -clauses = 1.9% (5) other = 1.5% (41)	Total = 12.2% (26) <i>before/after</i> -clauses = 3.9% (8) <i>when</i> -clauses = 7.8% (16) other = 0.5% (1)
<i>If</i> -clause	0	0
Reason clause	Total = 3.5% (9) <i>porque</i> = 2.3% (6) <i>por que</i> = 0% <i>pues que</i> = 1.2% (3)	Total = 7.9% (16) <i>porque</i> = 0% <i>por que</i> = 6.9% (14) <i>pues que</i> = 1% (2)
Total count V2 (n=)	260	204

trend in Old Spanish, namely for the preverbal field in XP-V_{Fin} orders not to be specialised for subjects. This claim, which is originally attributed to Sornicola (2000), has to be tempered because as we can see in (22)–(26) the Modern Spanish equivalents of the Old Spanish examples provided by Wolfe (2015) in order to illustrate the nature of the preverbal field do not behave differently from their older counterparts.¹⁰

- (22) a. El conde Lucanor fablava con Patronio, su consejero, en
the count Lucanor spoke.3SG with Patronio his adviser in
esta manera
this way
- a'. El conde Lucanor hablaba con Patronio, su consejero, de
the count Lucanor spoke.3SG with Patronio his adviser of
esta manera
this way
'Count Lucanor spoke with Patronio, his adviser, in this way.'

10. Nonprimed examples are from OSp and (double-)primed examples are the Modern Spanish equivalents.

- b. Et eso mismo fizo a las arcas
and that same did.3SG to the chests
- b'. Y eso mismo les hizo a las arcas
and that same CL did.3SG to the chests
'And he did the same thing to the chests.'
- (23) a. Otra fablava el conde Lucanor con Patronio, en esta guisa
again spoke.3SG the count Lucanor with Patronio in this way
- a'. Una vez más hablaba el conde Lucanor con Patronio, de
one time more spoke.3SG the count Lucanor with Patronio of
esta manera
this way
'Count Lucanor spoke with Patronio once more, in this way.'
- b. Et aviendo esto asi acordado apartose el alcalde
and having this thus agreed left.3SG=REFL the mayor
- b'. Y habiendo acordado esto así el alcalde se apartó
and having agreed this like-that the mayor REFL= left.3SG
'And this having been agreed, the mayor left.'
- (24) a. Un dia fablava el conde Lucanor con Patronio su
one day spoke.3SG the count Lucanor with Patronio his
consejero, en esta guisa
adviser in this way
- a'. ?Un día habló el conde Lucanor con Patronio su
one day spoke.3SG the count lucanor with Patronio his
consejero de esta manera
adviser of this way
- a''. De esta manera, un día habló el conde Lucanor con
of this way one day spoke.3SG the count Lucanor with
Patronio su consejero
Patronio his adviser
'Count Lucanor spoke to his adviser, Patronio, in this way one day.'
- (25) a. Et desque nascieron, dixo el Mal al Bien
and after were-born.3PL said.3SG the Bad to.the Good
- a'. Y después de que nacieran, (le) dijo el Mal
and after of that were-born.SBJ.3PL CL told.3SG the Bad
al Bien
to.the Good
'And after they were born, the Bad said to the Good...'
- (26) a. Et commo el levava grand carga, çafondava mas
and since he carried.3SG great load REFL=sank.3SG more
- a'. Y como él llevaba una gran carga, se hundía más
and since he carried a great load REFL= sank.3SG more
'And since he carried a heavy load, he sank more.'

All in all, even if it is true that the Old Spanish “preverbal field is not specialised for subjects, so that it hosts topical subjects as well as all kinds of fronted complements” (Leonetti 2017: 917), for some of the cases involving XP-V-S there is invariably at least one parse available in which the XP can be argued to be in Spec-TP and not Spec-CP. Even for subjects *per se*, the issue has not been settled (for a recent treatment of XP-V-S in Greek, see Sifaki & Tsoulas 2018). Assuming that children only set syntactic parameters on the basis of unambiguous evidence (Yang 2002; Fodor & Sakas 2011), it is debatable – to say the least – how children can postulate the existence of T-to-C on the basis of a more permissive field, given that some orders can receive ambiguous parses.

6. Why Old Spanish V1 clauses cannot be underlying V2

It has been argued (see Wolfe 2015) that matrix V1 clauses in Old Spanish, albeit plentiful, are heavily restricted because most of them are introduced with the conjunction *e* ‘and’. To this aim, consider Figure 1 (see also Pujol i Campeny, in this volume, for a discussion on V1 orders in Old Catalan):

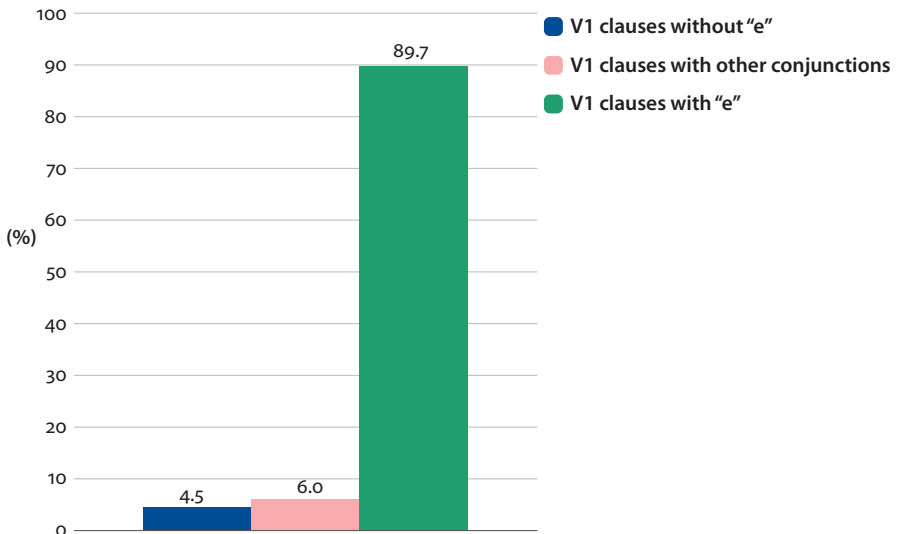


Figure 1. 426 occurrences of V1 in the corpora

Indeed, as shown in Figure 1, there is a significant number of V1 introduced by *e* ‘and’ (henceforth *e*V1). Wolfe (2015), who essentially follows Willis (1997), claims, nevertheless, that matrix V1 clauses in Old Spanish are licensed when a phonologically null topic operator is satisfying the EF on the C-head; otherwise *e* ‘and’ itself

can satisfy V2. However, if *eV1* is underlying V2 because *e* ‘and’ is in Spec-CP, then the total percentage of V2 would raise overwhelmingly, which would, in turn, force us to conclude that Old Spanish is a strict, that is, a prototypical V2 language. If so, we would also expect some of the other licensing conditions typically found in prototypical V2 languages. Clearly, this is not borne out. In a similar vein, if *e* ‘and’ counts towards satisfying V2 then all linear V2 clauses introduced by *e* ‘and’ would count as V3 clauses, i.e. as evidence against a V2 analysis (see Zimmermann & Kaiser 2010 for a discussion of the controversial and inconsistent status of *et* (and *ne*) in Old French).

Furthermore, according to Diesing (1990: 56 fn. 14), V1 in Yiddish (which is claimed to be underlyingly V2) is possible when “the sentence has a corollary status with respect to the narrative that precedes.” Sigurðsson (1990: 45) makes a similar claim for V1-clauses in Icelandic, namely that they indicate strong discourse cohesion, and cannot initiate a discourse. This is not necessarily the case in Old Spanish, as shown in (27) where we find *e* ‘and’ opening a paragraph:

- (27) {RUB. AQVI SERA POBLADA LA GRANT CIBDAT}
 E puso alli seys pilares de piedra muy grandes.
 and put.3SG there six pillars of stone very big
 ‘And he put there six very big stone pillars.’ (GE I, 5R, 2)

Moreover, if *e/y* ‘and’ in V1 clauses had acted as a topic continuity marker, as has been argued by Wolfe (2015), and therefore, potentially filled a position in the CP layer (Top or Fin), we would expect no other preverbal constituent; crucially, this is not the case, as shown in (28). Not to mention the nontrivial issue of how *e/y* ‘and’ would be distinguished when it is a coordinator (and therefore outside the CP) from a topic continuity marker (and therefore, inside the CP).

- (28) e tanto duró esto
 and so-much lasted.3SG this
 ‘And this lasted so much.’ (GE XXII, 8r)

Furthermore, *e/y* ‘and’ have always been taken as sentence-external, particularly in dealing with word order effects such as enclisis – as shown in (29) – since first noted by Menéndez Pidal (1926). In fact, proclisis with *e/y* is almost non-existent in our corpus (see Figure 2 and also Bouzouita 2008a, 2008b).

- (29) e començó lo fazer
 and started.3SG CL do
 ‘And he started doing it.’ (GE, 18v)

So far, we have argued against an analysis of *eV1* as being underlyingly V2. Still, however, we need some explanation as to why *eV1* is so plentiful. Philological arguments can easily be established given that the conjunction often functions instead of punctuation or subordination: “al ser el ‘románico común’ era una lengua, o un

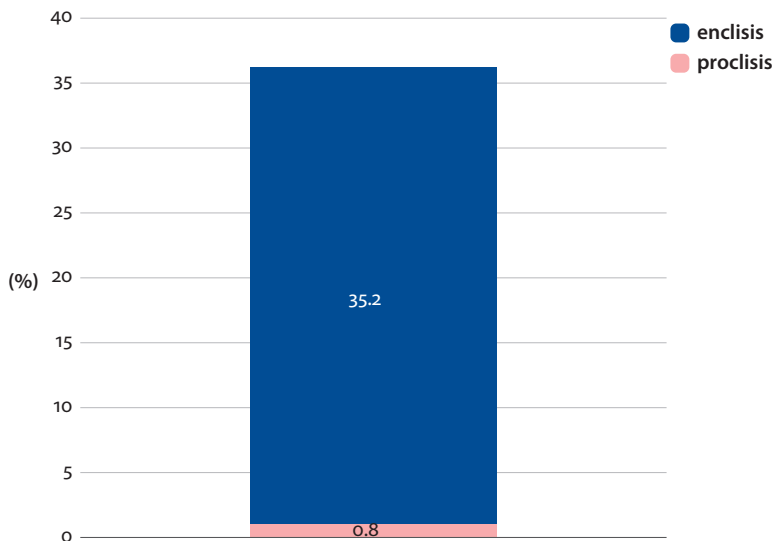


Figure 2. Proclisis and enclisis with eV1 clauses

conjunto de modos de hablar, exclusivamente de uso oral, se hundió el sistema latino de conjunciones, del que sólo sobrevivieron los nexos básicos, únicos comunes a toda la Romania.” (Upon its creation the ‘common Romance’ was a language, a group of registers, exclusively of oral use, the Latin system of conjunctions collapsed, of which only the basic ones survived, the only commonly shared ones across the Romance-speaking world) (Cano Aguilar 2001: 125). In this respect, the use of Old Spanish *e* follows the Western philological tradition – as for instance in the case of repetitive *kai* ‘and’ in the historic record of Greek, especially after speech verbs/reported speech, as shown in (30):

- (30) καὶ ἐξάλειψω τὸ γένος τῶν ἀνθρώπων, καὶ οὐκέτι ἦ κόσμος. καὶ εἶπεν ὁ προφήτης καὶ πῶς ἔχει δοξάζεσθαι ἢ δεξιὰ σου; (Biblical Greek)
 ‘And I will annihilate the race of man, and there will be world no more. And the prophet said: and how will your right side be glorified?’
 (Apoc. Esdrae, 27–15)

7. Any instance of T-to-C in Old Spanish declaratives?

Having shown that Old Spanish does not have verb movement to either Force or Fin, we will now show that verb movement to a head in the left periphery was indeed possible under certain conditions, namely discourse and polarity. Following Batllori & Hernanz (2008, 2009, 2013) and Rodríguez Molina (2014), we agree that in affirmative declaratives the strong feature of PolP attracts the verb (31b). Crucially,

the motivation for such verb movement is not self-driven, but forced independently by the featural needs of Pol⁰ as manifested by the overt exponence of the positive polarity adverb/particle *sí*, as in (31a); thus, movement to Pol⁰ is not triggered by ‘Greed’ but is rather ‘self-enlightened’ (on these notions, see Chomsky 1993).¹¹

- (31) a. Rey, *sí* traemos, los mejores que *nós* avemos
king yes bring.1PL the best that we have.1PL
‘King, we will bring indeed the best we’ve got.’
(AutMagos, 129 *apud* Rodríguez Molina 2014: 862)
- a’. [ForceP [TopP [FocP *sí*_j [Foc’ V_i [Pol’ t_i [FinP ... [TP t_i [VP t_i t_j]]]]]]]]]
(Hernanz 2006: 138, fn. 54, 2007; González Rodríguez 2007; Batllori & Hernanz 2008; Rodríguez Molina 2014)
- b. Llegóse a él *essora* Jacob e besól
arrived.3SG=REFL to him at-this-time Jacob and kissed.3SG=CL
‘At this time Jacob reached him and kissed him.’ (GE1, 1, 343)
- b’. [ForceP ... [PolP [Pol’ V_i [FinP... [TP [T’ t_i [VP t_i...]]]]]]]]]
(Rodríguez Molina 2014: 889)

Further evidence for this analysis comes from embedded affirmative clauses, which cannot encode positive polarity because their truth value depends on the matrix clause. Hence, we predict that negation (the overt exponence of negative polarity) will give rise to CL-NEG-Verb orders, that is, interpolation. It follows that in embedded clauses there must be a Neg position, distinct from PolP, below the Clitic position.¹² This prediction is borne out (32) – in fact, it is this lower Neg position, which, *cum tempore*, will become the only available Neg position in Spanish.

- (32) todas las bocas que la non besaron
all the lips that CL no kissed.3PL
‘all the lips that hadn’t kissed her.’ (LFU 111 *apud* Castillo Lluch 1996: 302)

8. Clausal architecture in Old Spanish

In this paper we have argued extensively against a V2 analysis of Old Spanish. Elsewhere, we put forward the proposal of a modified left periphery vis-à-vis the one in Modern Spanish (see Sitaridou 2011). Although Batllori and Hernanz (2015),

11. Further movement to Foc is indeed postulated under Rodríguez Molina’s (2014) analysis, see (31a’).

12. A reviewer notes that if there is a Neg position below the clitic position in embedded clauses (i) how the ‘normal’, i.e. “non-interpolated” word order can be derived; and (ii) where the Neg position in matrix clauses is. It is possible to entertain two negation positions in Old Spanish and this is what we adopt here.

Sitaridou (2011, 2012) and Batllori (in prep.) all agree that the nature of the focus position is not identical in Old and Modern Spanish, and that in fact we need one extra preverbal focus position, the crucial question is how ‘low’ this unmarked/broad/information focus position is: see (33) and (34) for the two possibilities.

- (33) Above TP (as in Sitaridou 2011)
 [ForceP [TopP [FocusP_{contr} [FinP [FocusP_{info} [TP [...]]]]]]]]
- (34) Above FinP (as in Batllori and Hernanz 2015, Benincà 2004)
 [ForceP [TopP [FocusP_{contr} [FocusP_{unmarked/broad} [FinP [TP [...]]]]]]]]

For Sitaridou (2011, 2015), a lower InfoFoc⁰ (33) seems to be at work on the basis of:

- i. Objects occurring to the left of the verb above an overtly realised *de* in Fin⁰, as in (35):

- (35) *ca menester les era de consejo tomar*
 since need CL was.3SG COMP advice take.INF
 ‘since they required taking counsel’ (Libro de Alexandre, 1974)

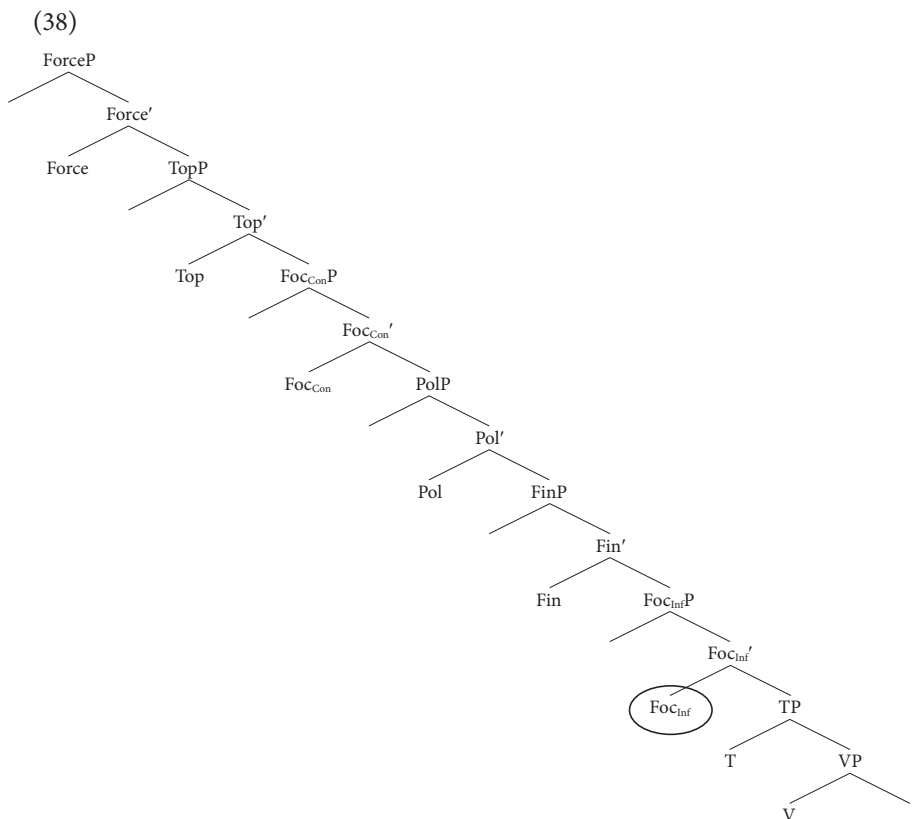
- ii. Adjacency between the fronted constituent and the predicate, especially in cases where the predicate is the verb ‘be’ or ‘have’ as in (36) (see also Batllori & Sitaridou, submitted):

- (36) *Diz el Sennora cansado está de muy luengo camino*
 said.3SG he Lady tired am.1SG of very long way
que e andado que me non puedo mandar
 which have.1SG gone which me not can.1SG send.INF
 ‘He said: Lady, I am tired of the long road which I have taken and I cannot go.’ (GE4, 20v)

- iii. Participle fronting below (37a) and above (37b) the clitic boundary: thus indicating two focus positions:

- (37) a. *Estas apreçiaduras myo Çid presas las ha*
 this appraisal my Cid taken CL has.3SG
 ‘My Cid made these appraisals.’
 (PMC, 3250 *apud* Rodríguez Molina 2010: 1428)
- b. *pues lo perdido auemos*
 since CL lost have.1PL
 ‘And we had already lost Hector, who was our good, our hope and our deffence. And from today, we will not have any more advice or deffence, since we have lost him.’
 (VRT, 100v, 213 *apud* Rodríguez Molina 2010: 1449)

To sum up, the proposal for the clausal architecture of Old Spanish is shown in (38) (but see Batllori (in prep.) as to why the unmarked/broad focus position is above FinP):



However, such a proposal creates another puzzle: if there is a focus position which hosts non-contrastive foci below Fin^0 , then it follows that this middle-field position is not an ‘escape hatch’ from focus as is claimed to be the case in Old Portuguese (Martins 2002, 2011). Instead, in Old Spanish, to the extent we can tell, it relates to some form of highlighting.

9. Conclusions

In this article we have argued extensively that Old Spanish does not belong to any known V2 type of language, even the most flexible/relaxed type. Crucial to our argumentation was the fact that we could not find evidence for T-to-Fin/Force. Even more crucial, it turns out to be, is whether we maintain formal movement to the C-field as an integral mechanism for a V2 system. If not, ridding the analysis of a formal feature would essentially grant any language V2 status given that V2 effects are possible when: (i) verb movement is associated with some discourse effect or polarity; (ii) it is simply linear V2. It is important to note that many non-V2

languages, such as Modern Greek, for which no V2 proposal has ever been made, has both (i) and (ii). At this stage, hopefully, it has become clear that we cannot have it both ways: either they all are V2 or only some are.

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V1 clauses in Old Catalan

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This paper explores verb initial clauses in Old Catalan, contributing to the debate surrounding Old Romance verb placement. Using data from *El Llibre dels Feyts*, a 13th century Catalan chronicle, it is established that analyses proposed for V1 clauses for other Old Romance languages do not generally hold for Old Catalan. Instead, V1 clauses from *El Llibre dels Feyts* behave like Modern Catalan V1 clauses, that is, like V1 clauses of an SVO language. V1 clauses are examined in relation to information structure and predicate types, and systematically compared to their Modern Catalan counterparts. Through this analysis it is established that the uses and structure of Catalan V1 clauses have remained stable through the centuries.

1. Introduction

The present paper studies V1 clauses in Old Catalan, showing that they are absolute V1 clauses and that they support a non-V2 analysis of the language. After decades of extensive study, the position of the verb in Old Romance languages remains a controversial issue. Proponents of the V2 hypothesis (Benincà 1984, 2004, 2006; Adams 1987; Roberts 1993; Vance 1993; Ribeiro 1995; Poletto 2005, 2014; Ledgeway 2007, 2008; Vance, Donaldson & Steiner 2010; Donaldson 2016, among others) argue that in main declarative clauses, the verb raised to a projection in the CP layer (understood cartographically, see Rizzi 1997) and that a phrasal constituent moved to its specifier. Other authors, however, have argued that no such constraint existed (Martins 1994, 2005; Fischer 2002; Sitaridou 2011, 2012, 2015; Batllori 2015).

The abundance of V1 clauses in the Old Romance languages has often been used as an argument against the V2 hypothesis (Kaiser 2002; Sitaridou 2012, in this volume; Eide & Sitaridou 2014). Nevertheless, there have been several attempts to accommodate V1 orders within V2 approaches (Vance 1993, 1997 for Old French; Poletto 2005, 2014 for Old Italian; Wolfe 2015a, 2016 for Old Spanish and Old Western Romance respectively).

In this paper, Old Catalan V1 clauses from *El Llibre dels Feys* will be contrasted against these hypotheses. It will be established that they were absolute verb initial clauses in all cases and that the V1 word order is unmarked, as expected in the output of a non-V2 language with V-to-T movement. The paper is organised as follows: in Section 2, the methodology and the data used for this paper will be presented. Section 3 exposes the arguments in favour of a non-V2 analysis of Old Catalan. In Section 4, Old Catalan V1 clauses will be analysed, considering whether or not they are preceded by the coordinating particle *e*, and taking into account the clause's predicate and its information structure. Finally, in Section 5 it will be concluded that Old Catalan V1 clauses are unmarked, absolute verb initial clauses, and that there is continuity in the syntax of V1 clauses from Old to Modern Catalan.

2. Methodology

The data used for this article are extracted from *El Llibre dels Feys del Rey En Jacme*, a 13th century Catalan chronicle. This text was chosen based on two factors: (i) it is the first *crònica* 'chronicle', a genre that did not have a precedent in Catalan historiography, and that broke with the established *annales* tradition;¹ (ii) King James I is the intra-homodiegetic narrator² (the story is narrated in the first person plural, the majestic plural). It is likely that he was tightly involved in its production (commentaries of intimate events of his life, and references to the composition of the text itself are abundant throughout text).³ These two factors are important for the diachronic study of Catalan: on the one hand, by being the first Catalan instance of a *Chronicle* and not having a readily available Latin counterpart, we can rule out strong stylistic influence from a previously established literary tradition. On the other hand, the active involvement of King James I in the production of the book, as argued by Bruguera (2012) and Ferrando i Francès (2012), approaches us to the modern idea of authorship in spite of the fact that the text was certainly written down by a scribal body, the *Cancelleria* (Soldevila 2007).

Data from *El Llibre dels Feys del Feys del Rey en Jacme* database (henceforth 'the LFRJ database') contains 1000 main and 1000 embedded clauses. All clauses'

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1. See Aurell (2005, 2008), and Martí i Castell (2002), for an overview of the evolution of Catalan historiographical literature.
 2. For a thorough overview on types of narrator and their interaction with genre see de Jong (2015: Chapter 2).
 3. Bruguera (1998, 2012) and Ferrando i Francès (2012) offer compelling arguments in favour of the king's authorship of *El Llibre dels Feys*, among which the oral nature of the text. For additional discussion of the Medieval concept of authorship, see Partridge & Kwakkel (2012).

constituents were parsed and labelled according to their syntactic functions and information structure roles. Clauses were drawn from three parts of the text (introduction, middle, and denouement), in equal proportions, so as to control for the intervention of different scribes as well as variation in the two periods of composition of the text (1244 and 1274).⁴

The edition of the text used to construct the database is Bruguera (1991).

3. Old Catalan: A V2 language?

Old Catalan is not a V2 language, as has been proposed for other Romance varieties (Martins 1994; Martins 2005; Batllori & Hernanz 2011; Batllori 2015; Sitaridou 2011; Sitaridou 2012; Sitaridou 2015; Fischer 2002). This view is supported by the fact that Old Catalan did not display the defining features attributed to Old Romance V2 languages (Poletto 2014, Wolfe 2015): (i) V-to-C movement, (ii) Germanic-style subject-verb inversion, (iii) a non-specialised pre-field that can notably host non-CLLD DOs, (iv) asymmetric *pro*-drop between main and embedded clauses, as exposed in Pujol i Campeny (2017).

- i. Lack of V-to-C movement: in Old Catalan, the verb in main declarative clauses systematically occurs above low TP adverbs and below high TP adverbs (Cinque 2009).
- ii. Lack of unequivocal cases of Germanic-style subject-verb inversion (no cases of subjects occurring between auxiliaries and lexical verbs, or between inflected verbs and their complements).
- iii. The preverbal field is specialised for hosting subjects. Subjects are postverbal for information structure reasons, and this obtains with predicates which are cross-linguistically known to favour postverbal subject placement (viz. unaccusative and unergative verbs).
- iv. Null subjects present the same frequency in main and embedded clauses.

In what follows, we briefly explore these features in main clauses. We refer the reader to Pujol i Campeny (2017, 2018) for a more extensive analysis of verb position in the LFRJ database, including an analysis of verb position in embedded clauses.

4. There is controversy around the double date hypothesis. See Riquer (1964) for the arguments in favour of the double date of composition.

3.1 Lack of V-to-C movement in declarative clauses

Cinque (1999) proposed a universal adverbial hierarchy, postulating the existence of fixed Tense, Mood and Aspect heads throughout the clause, each being able to host adverbs expressing related semantic notions. He distinguishes three types of adverbs according to their location within the clause: CP, TP and VP adverbs. Thus, if the verb raises from VP to TP, it will appear above VP adverbs but below high TP ones. If it raises from TP to CP, then it will appear above VP and TP adverbs, but below CP ones. The following examples contain adverbs that can be located within Cinque's hierarchy, helping us determine the position of the verb within the clause. Modern Catalan (henceforth MC) translations of the Old Catalan examples are provided so that both stages of the language may be compared. In all examples, the verb appears in bold and the relevant adverb is underlined:

VP Adverbs: Voice

- (1) E no us **porem** servir bé.
and not to.you can-1PL.FUT serve-INF well
'And we will not be able to render you good service.' (Fol. 29v, l. 4)
- (2) I no us **podrem** servir bé.
and not to.you.CL can-1PL.FUT serve-INF well
'And we will not be able to render you good service.' (MC)

TP adverbs (i): Tense – Anterior (i.e. 'already')

- (3) E ja **vench** la ora del vespre.
and already came-3SG the hour of.the evening
'And it was already evening.' (Fol. 33r, l. 9)
- (4) I ja **era** el vespre.
and already was-3SG the evening
'And it was already evening.' (MC)

TP adverbs (ii): Aspect – Proximative (i.e. 'soon')

- (5) E sempre **faem** armar bé ·l· cavalers.
and soon made-1PL arm.INF well 50 knights
'And soon after that, we had 50 knights armed.' (Fol. 24v, l. 14)
- (6) I aviat **férem** armar una bona cinquantena de cavallers.
and soon made-1PL arm.INF a good 50 of knights
'And soon after that, we had 50 knights armed.' (MC)

These examples point towards the verb being located above VP adverbs and below TP adverbs, i.e. in the articulated TP. It could be argued that preverbal adverbs are located in the left periphery. Nevertheless, adverbs in these examples receive a

neutral reading and cannot be interpreted as frame setters (i.e. located in the Frame Field, Benincà 2004); therefore it can safely be assumed that they are located in their base position.

3.2 Lack of Germanic-style inversion

The term ‘Germanic-style inversion’ is used in the literature on Romance syntax in contrast with ‘free inversion’. While the former is characterized by the possibility of the subject occurring between the auxiliary and the past participle in compound verb tenses, the latter refers to the possibility of the subject occurring postverbally, before all other arguments. Poletto (2014) relates the occurrence of Germanic inversion with the raising of the verb to the CP layer, with the subject remaining in SpecTP, as shown in Examples (7) and (8):

- (7) E per questi intendimenti **ha** catuno **trovata** sua legge
 and by these meanings has each one found his law
 ‘And through this meanings, each one has found his law.’
 (Il Libro dei Vizzi e delle Virtude, 75, *apud* Poletto 2014: 4)
- (8) E [_{CP} ... [_{SpecFocP} per questi intendimenti [_{Foc} ha_i] [_{TP} [_{SpecTP} catuno_j] [_T t_i] [_{VP} [_V t_j] [_{VP} trovata [_V [_{DO} sua legge]]]]]]]]]]]

Not a single case of Germanic-style inversion whereby the subject occurs between the auxiliary and the lexical verb is found in the LFRJ database, while cases of AUX V SUB are, as shown in (9):

- (9) E can los haguem tolt la vila, a cap d’i·a peça,
 and when them-CL had-1PL taken the village after a while
anaven vinén alguns de Tamarit.
 came-3PL coming some from Tamarit
 ‘And when we had taken the village from them, after a while, some of those from Tamarit kept coming.’ (Fol. 22v, l. 13)

Furthermore, in the LFRJ database, the order AUX V SUB COMPLEMENT is also found. The fact that the subject occurs below the lexical verb and above its complement suggests that it can remain in its base position in VP, as shown in (10) and (11):

- (10) E per la batayla, no cessava lo fenèvol de tirar.
 and during the battle not ceased-3SG the catapult of throw-INF
 ‘And during the battle, the catapult did not stop firing.’ (Fol. 7v, l. 16)
- (11) E [_{CP} ... [_{SpecFocP} per la batayla] [_{TP} [_T no cessava_i] [_{VP} [_{DP} lo fenèvol [_V [_{VP} [V t_i] [PP de tirar]]]]]]]]]]]

In the light of this evidence, it is clear that data from the LFRJ database do not display German-style subject-verb inversion.

3.3 The preverbal field is specialised for hosting subjects

The Old Catalan data from the LFRJ database shares structural features with null-subject SVO languages, and in particular type a-languages in the classification of Biberauer and Roberts (2008); that is, languages with “[r]ich agreement and rich tense inflection: hence V-to-T and null subjects, e. g. Italian, Greek, Spanish, etc.” (Biberauer & Roberts 2008: 23). Sheehan (2015: 1) lists other surface features linked to null subject languages (group (a) in Biberauer & Roberts (2008), such as the obligatoriness of (non-referential) null expletive subjects, and the availability of free inversion. These features are found in Old Catalan. Consider (12):

- (12) **Context:** *Les gèns d’aqueles terres* que dessus havem dites vengren a nostre pare e dixeren-li que él podia ésser seyor d’aqueles terres (...).
 ‘And the people from those regions that we have mentioned above, came to my father and told him that he could be lord of those lands.’
 E d’una part, li ó **daven** de paraula (...)
 And from.one side to.him it gave-3PL of word
 ‘On the one hand, they gave it to him by word.’ (Fol. 4v, l. 14)
- (13) e **féu** tanta de mar, que (...)
 and did-3SG so much of sea that
 ‘And the sea was so rough, that...’ (Fol. 33r, l. 21)

In (12), the 3rd person plural subject co-refs with a 3rd person plural DP previously introduced in the discourse: *les gèns d’aquelles terres* ‘people from those lands’. In (13), the subject of the verb *féu* ‘s/he did’ is null and non-referential, which is expected to be possible with weather verbs too, such as the verb ‘to rain’ (as in Modern Catalan (14)):

- (14) Plou.
 rains
 ‘It rains.’

Furthermore, as we have seen in Section 3.2, the LFRJ corpus lacks instances of Germanic-style inversion but does contain cases of free inversion. This is listed by Sheehan (2015) as a feature associated to V-to-T null-subject SVO languages. For a complete discussion of Old Catalan subject position, we refer the reader to Pujol i Campeny (2017, 2018).

3.4 Null subjects in main and embedded clauses

Contrasting with Old French, Old Catalan, as portrayed by the LFRJ data, does not show asymmetries in the distribution of subjects in main and embedded clauses. This is shown in Tables 1–2:

Table 1. Null and overt subjects in main and embedded clauses

	Main clauses	Embedded clauses
Null subjects	468 (48.6%)	476 (47.6%)
Overt subjects	532 (53.2%)	524 (52.4%)

Table 1 shows that there is no asymmetry in the frequency of null and overt subjects in main and embedded clauses. This suggests that Old Catalan patterns with Old Spanish in being a symmetric *pro*-drop language and differs from asymmetric *pro*-drop Old Romance languages like Old French, which show significantly higher rates of *pro*-drop in main clauses (see Adams 1987; Roberts 1993; Vance 1997: 182; Labelle 2007; Vance, Donaldson & Steiner 2010; Sitaridou 2010; Steiner 2014, and Meklenborg Salvesen & Walkden 2017 for Old French; Poletto 2013 for Old Italian; Wolfe 2015c on Old Romance in general).

A closer look at the distribution of nominal and pronominal overt subjects in main and embedded clauses strengthens the notion that the syntactic principles governing their distribution are symmetric:

Table 2. Frequency of postverbal and preverbal overt subjects in main and embedded clauses

		Main	Embedded
Preverbal	Nominal	42%	41%
	Pronominal	58%	59%
Postverbal	Nominal	76%	75%
	Pronominal	24%	25%

Therefore, unlike other Old Romance languages, data from the LFRJ database suggests that Old Catalan allows for the same distribution of overt nominal and pronominal subjects in main and embedded clauses. Once more, for a more thorough analysis of subject position in Old Catalan, we refer the reader to Pujol i Campeny (2017, 2019).

In this section, data in favour of a non-V2 analysis of Old Catalan based on the LFRJ database has been presented. In what follows, we focus on V1 clauses.

4. V1 clauses: Types and frequency

In Old Catalan, V1 is the most frequent verb position in main clauses, followed by V2 and V3*.⁵ As can be observed in Table 3, most clauses are preceded by the coordinating conjunction *e* ‘and’, regardless of the position of the verb Sitaridou (in this volume):

Table 3. Linear verb position in Old Catalan main clauses

V1	476	47.6%	<i>e</i> V clauses	439	92.2%
			V clauses	37	7.8%
V2	439	43.9%	<i>e</i> V clauses	361	82.2%
			V clauses	78	17.8%
V3*	85	8.5%	<i>e</i> V clauses	77	90.6%
			V clauses	8	9.5%
			Total <i>e</i> V clauses	877	88.33%
			Total V clauses	123	11.67%
Total	1000	100			

For those proposing a V2 analysis of the Romance languages, the frequency of declarative V1 clauses in the Old Romance languages posits a challenge, since they should not be a possible output within a strict V2 grammar (Kaiser 2002; Sitaridou 2012).⁶ Nevertheless, several authors have accounted for the presence of V1 in Old Romance by identifying the contexts in which it appears and postulating that in these cases, *e* does not act as a coordinating conjunction, but a homophonous topic continuity marker.

Here, we explore V1 clauses and contrast them against the analyses proposed for them to fit a V2 grammar (Benincà 2004; Poletto 2005, 2014; Wolfe 2015a). Firstly, we will explore *e*V clauses, the most numerous type of V1 clauses. This will be followed by an examination of V1 clauses in association with two predicate types cross-linguistically prone to exhibit this word order. Finally, we will consider absolute verb initial clauses.

4.1 V1 clauses preceded by *e*

As shown in Table 1 above, *e*V clauses are much more frequent than absolute verb initial ones (although it is worth noting that *e* precedes 88.33% of main clauses, regardless of the position of the verb within the clause). In the literature on Medieval

5. ‘V3*’ will be used to refer to clauses in which two or more constituents precede the verb.

6. Holmberg (2015: 353) notes that certain seemingly V1 orders can be generated in V2 grammars when covert elements such as operators fill the sentence initial position. This hypothesis was put forward earlier in literature (Katz & Postal 1964).

Romance word order, this type of clause has captured authors' attention, since they present a challenge for a V2 analysis of the Old Romance languages. Well studied V2 languages such as Modern German or Swedish lack the possibility of producing clauses in which the verb is merely preceded by a coordinating conjunction (Holmberg 2015: 375), since the coordinating conjunction is always clause-external, and cannot satisfy the V2 requirement. However, there have been analyses that propose that the *e* found in most *eV* clauses is not a coordinating conjunction, but a particle associated to topic continuity. This has been proposed for Old Italian (Poletto 2005, 2014), Old French (Vance 1997), and comparatively, for Old French, Old Italian, Old Spanish, and Old Occitan in Wolfe (2015c). In contrast, Old Catalan *e* presents syntactic and semantic features that are more akin to Modern Catalan *i* than to the features described for topic continuity *e* in other Old Romance varieties.

To account for enclisis in verb-initial clauses (*eV* as well as *e*-less), Benincà (2004: 288) proposes that when the verb moves to the CP layer, with the Focus projection being empty, it raises to a higher projection (Hanging Topic, henceforth HT, or Left Dislocation, henceforth LD), whose specifier is filled. In *eV* sentences, the specifier of TopP would be filled by a *pro*-like element, the 'default' topic, interpreted on the basis of the context. Since FocP is empty, enclisis would follow, given that proclisis arises when FocP is filled.

Poletto (2005, 2014) builds on Benincà's idea of a null *pro*-like element to explain the occurrence of *eV* clauses within the V2 grammar of Old Italian. Poletto identifies two homophonous elements that derive from Latin *e(t)* in Old Italian: the coordinating conjunction *e* 'and', and the "Continuation of the same Discourse Configuration" (CDC) marker *e(t)*, associated with the presence of a null topic in the clause. The function of the CDC marker is to establish that what follows is to be added to the established universe of discourse.

E(t) CDC marker differs from *e* coordinating conjunction semantically and syntactically: (i) it can precede both main and embedded clauses, (ii) it can occur between main and embedded clauses, giving the impression that they are coordinated, (iii) it licenses null topics that need not be the subject of the preceding clause, (iv) since it can be followed by other topics, it is located in the highest topic position (HT within Benincà & Poletto's (2004) analysis of the Old Romance left periphery) and hence, it triggers enclisis. (15) shows how *e* CDC marker can 'seemingly' coordinate main and embedded clauses, as well as the difference between the coordinating conjunction and the topic continuity marker. In (16), the coordinating conjunction and the CDC marker have the same form, but the coordinating and the topic continuity functions can be distinguished:

- (15) quando entrò nella chiesa, **et** uno parlò e disse
 when got-3SG in.the church and one spoke-3SG and said-3SG
 ‘When he entered the church, one of them spoke and said...’
 (Nov, XXV, 189, cf. Poletto 2014: 24, Example (38))
- (16) **e**, innebriato il pane dell’ odore che n’ uscia, del
 and put the bread in.the smoke that from.it came out of.the
 mangiare, e quelli lo mordea, e cosò, il consumò di
 food and he it bit-3SG and thus it finished-3SG of
 mangiare, ricevendo il fumo e mordendolo
 eat-INF getting the smoke and biting=it
 ‘And, once the bread was soaked with the smell that was coming out from it,
 from the food, and he would bite it [the bread], and in this way, he finished
 eating it [the bread], receiving the fumes [of the food] and biting on it.’⁷
 (Nov. VII, 147, Poletto 2014: 25)

In (15), *et* occurs between an embedded adverbial temporal clause and the main clause, two elements that cannot be coordinated. The main clause is followed by the conjunction *e*, which coordinates it with the following clause. In the first three instances in (16), *e* is the CDC marker, while in the last one, it coordinates the two gerunds. Poletto (2005: 232) sketches the syntactic structure of *e* coordinating conjunction and *e* null topic marker as shown in (17) and (18) respectively:

- (17) [_{CoP} XP [_{Co’} e [XP]]]
 (18) [_{TopicP} (Null)Top [_{Topic’} e [TopicP [_{CP}]]]]

Poletto (2005) points out that both elements have the same structure: the specifier and the complement of *e* coordinating conjunction and *e* null topic marker have to be of the same type. Note, however, that TopP in (18) is the highest projection of the clause (CP), and that it is described as recovering features from the preceding discourse. By locating the null topic element within the clause, it can satisfy the V2 requirement of Old Italian syntax.

The distribution and uses of *e(t)* in Old Italian are not paralleled by Modern Italian *e*, which is merely a coordinating conjunction and does not have a topic marker entry in the lexicon. However, according to Poletto (2005), some residual topic marker uses persist in the modern language in cases in which the CP layer is activated by the presence of an operator (mainly interrogative and exclamative clauses). Since the verb in Old Italian moves to the left periphery in main declarative clauses, *e* is licensed in a wider range of contexts. (19) and (20) illustrate such uses of *e* in Modern Italian in an interrogative and an exclamative clause respectively:

7. This translation is my own (with the help of Kim Groothuis and Libero Iaquinto). Poletto’s (2014: 25) translation is reproduced here: ‘He put the bread close to the smell which came from the meat and then he ate the bread up.’

- (19) E adesso?
and now
'Now what?' (Poletto 2014: 26)
- (20) E che vestito che ti sei comprato!
and what dress that yourself are bought
'What a dress you've bought yourself!' (Poletto 2014: 26)

In sum, by postulating the existence of null topic elements, Poletto makes *eV* clauses conform with the V2 grammar that she proposes for Old Italian. The null topic checks the EPP feature in FinP, and then moves to SpecHT, the projection targeted by the verb in verb initial clauses (Benincà 2006).

Wolfe (2015a, 2015b), following Benincà and Poletto (2004) and Benincà (2006) refines this hypothesis by labelling the *pro*-like element for *eV* clauses as *pro*_{top}. *Pro*_{top} must be co-referent with a preceding nominal expression, establishing topic continuity, as already proposed for *eV* clauses by Vance (1997) and Poletto (2014). *Pro*_{top} is assumed to be a variant of *pro*, bearing phi-features that allow for it to satisfy the EPP feature on FinP. However, it also bears an underspecified [*u*Top] feature that causes it to raise to TopP in *eV* clauses, licensing V-to-Top, a movement operation that accounts for V-cl orders in *eV* clauses.

These accounts have in common the presence of a null topic element and verb raising to a high position in the left periphery, TopP. While we will resort to null elements to account for instances of Old Catalan V1 featuring certain predicate types, we maintain that Old Catalan *eV* clauses behave like Modern Catalan V1 clauses. There is no reason to postulate the existence of a null topic element to explain the distribution of V1, given that (i) in Old Catalan the verb did not raise to the CP layer in declarative clauses and there was no EPP feature to be satisfied, and given that (ii) the distribution of *e* in Old Catalan differs substantially from the distribution of *e* in Old French and Old Italian, and can readily be translated into Modern Catalan by means of the corresponding coordinating conjunction.

As we saw in Table 1, *eV* clauses make up for 92.2% of verb-initial clauses. Here, we will show that Old Catalan *e* is in all located outside the clause, above ForceP. This is shown in (21):

- (21) E dixem-li: "Donchs, nós farem així com fer
and said-1PL=to.him then we do-1PL.FUT as do-INF
devem: nós citarem altra vegada, e siran ·iii, e, si
must-1PL we cite-1PL.FUT again and be-3SG.FUT 3 and if
vol fer dret, nós lo prendrem.
wants do-INF right we it= take-1PL.FUT
'And we said to him: 'Then, we shall do as we must: we will cite them again,
and it will be the third time, and, if he wants to act righteously, we shall accept
it.' (Fol. 21v, l. 24)

(22) e [_{ForceP} [_{HTT} si vol fer dret [_{Foc} nós [_{Fin} [_{TP} ho prendrem]]]]]

(21) contains an instance of reported speech that contains two instances of e , both coordinating conjunctions that create a chain of three main clauses. The subject of the second coordinated clause is not co-referent with the subject of the first clause, but with an adjunct, *altra vegada* ‘one more time’. The subject of the third clause is not co-referent with any of the elements present in the preceding coordinated clauses, but with one of the three individuals participating in the conversation. One could thus suppose that in the latter case, e is associated with the presence of a generic ‘discourse topic continuity’ null element, which according to Poletto (2014) should be placed in the Topic field, in the same projection as Hanging Topics. Nevertheless, as shown in (22), (21) already contains an *if*-clause, which, according to Munaro (2010) is located in the high-left periphery, just below ForceP, in HangingTopicP. The *if*-clause is followed by a focalised personal pronoun in FocP, signalled by proclisis.⁸ Therefore, the position where the null topic marked by e would be expected to appear is already filled with other material, yielding an unproblematic V3 clause. This suggests that e is located above ForceP. For the time being we will consider its position to be extra-clausal, but as will be discussed below, other analyses are possible.

Furthermore, unlike in Old Italian (see Example (15)), e is never found between embedded and main clauses in the corpus investigated: if it precedes a clause, it precedes all its constituents, including frame setters and Hanging Topics, as shown in (23) and (24):

(23) E, quan la comtessa no havia a qui recórrer
and when the countess not had-3SG to whom turn-INF
posqués, sinó a nós, per ·ii· raons és venguda
could-3SG.PST.SBJ but to us for 2 reasons is come
denant vós.
in front of you

‘And, when the countess did not have anyone to turn to but you, for two reasons she came in front of you.’ (Fol. 22r, l. 6)

(24) E pus a él plach, bé deu plaure a nós de
And since to him pleases indeed must-3SG please-INF to us of
tot en tot.
all in all

‘And since in pleases him (God), it must please us in every way.’ (Fol. 30r, l. 14)

8. Fischer (2002) accounts for Old Catalan clitic placement by invoking V-to- Σ P, a polarity related projection between TP and CP. Data from the LFRJ database suggests that Old Catalan clitics interact with the saturation of FocP, rather than V-to-Pol/ Σ P. However, this discussion falls outside the scope of this paper and will be tackled in future research.

In (23), *e* precedes the adverbial clause introduced by *quan*, located in FrameP, and containing information that sums up the countess' situation (as exposed in the preceding discourse), namely that she could not find anyone to offer her assistance. This contrasts with the Old Italian example reproduced in (15), in that *e* does not occur between the embedded clause, located in FrameP, and the core of the main clause, but it occurs in a position external to the main clause or above ForceP, as will be suggested below. In (24), like in (23), *e* precedes an adverbial embedded clause located in FrameP, instead of appearing between the embedded clause and the core of the clause, as expected if *e* were indeed a topic continuity marker, as is the case in (15). On the basis of this evidence, Poletto's (2005, 2014) analysis cannot be applied to the Old Catalan data.

The use of *e* to bind a string of sentences that share the same discourse topic is undeniable in examples like (25):

- (25) E nostra mare, sempre que nós fom nats, envià·ns
 and our mother as soon as we were-1PL born.PPT sent-3SG=US
 a Sancta Maria e portaren-nos en los braces; e deÿen
 to Saint Maria and took-3PL=US in the arms and said-3PL
 matines en la església de Nostra Dona.
 morning mass in the church of Our Lady
 'And our mother, as soon as we were born, sent us to Saint Mary's, and they
 carried us in their arms, and they were singing the morning mass in the church
 of Our Lady.' (Fol. 3v, l. 14)

In (25), all V1 sentences are adding new information on the same discourse topic: the birth of King James I. While *e* cannot be linked to the presence of a null topic below ForceP and the raising of the verb to a Topic projection, as has been shown above, it is clear that it has a particular informational value linked to discourse continuity that transcends the boundaries of V2/SVO grammars. This is demonstrated by the following fact: when translating examples containing *e* into Modern Catalan (26), a null subject SVO language with the verb in TP,⁹ we can preserve the coordinating conjunction in the same positions where it is found in the old language, the result being completely grammatical:¹⁰

9. Vallduví (1993, 2008) analyses Modern Catalan as a VOS language. Nevertheless, Forcadell (2013) convincingly argues for it to be a null subject SVO language by showing that Vallduví's VOS orders are only grammatical in a limited set of contexts (Forcadell 2013: 57). As a native speaker, I agree with Forcadell (2013) that some of Vallduví's VOS clauses are truly ungrammatical.

10. Old Catalan *e*, [e], raises and becomes Modern Catalan *i*, [i].

- (26) I la meva mare, tan punt vaig néixer, em va
 and the my mother as point go-1SG be.born-INF me go-3SG
enviar a Santa Maria, i em **van** portar a coll, i
 send-INF to Saint Mary and me go-3PL carry-INF to neck and
deien matines a l'església de Nostra Dona.
 said-3PL morning mass in the church of Our Lady
 'And our mother, as soon as we were born, sent us to Saint Mary's, and they
 carried us in their arms, and they were saying morning mass in the church of
 Our Lady.'

Even though the grammaticality of (26) is robust, the fact that the referents of 'servants' and 'clergymen' are not active in the mind of modern speakers renders it bizarre. Therefore, so as to double check that this type of *eV* strings is allowed in the modern language, we provide a further example in (27), translated into Modern Catalan in (28):

- (27) E **dixem** nós: "Con la vila tenen éls?" e sempre le~~x~~am
 and said we how the village have-3PL they and soon left-1PL
 los cavals als escuders e **avalam**; e **prenguem** nostres
 the horses to.the squires and descended-1PL and took-1PL our
 armes e **anam** -los combatre e **tolguem**-los
 weapons and went-1PL -them fight-INF and took-1PL=them
 la vila.
 the village
 'And we **said**: "What? They have the village?" and quickly we **left** the horses
 to the squires and we **made up** our mind, and we **took** our weapons and we
 went to face them and we **took** the village back.' (Fol. 15v, l. 1)
- (28) I nosaltres **vam** **dir**: 'Com que han pres la ciutat?'
 and we go-1PL say-INF how that have-3PL taken the city
 i ràpidament **vam** **deixar** els cavalls als escuders, i
 and quickly go-1PL leave-INF the horses to.the squires and
vam **baixar**, i **vam** **prendre** les nostres armes, i
 go-1PL get off-INF and go-1PL take-INF the our weapons
vam **anar**-los a combatre, i **vam** **prendre**'ls
 and go-INF=them to combat-INF and go-1PL take-INF=them
 la vila.
 the village
 'And we **said**: "What? They have the village?" and quickly we **left** the horses
 to the squires and we **made up** our mind, and we **took** our weapons and we
 went to face them and we **took** the village back.'

In Examples (25)–(28), the distribution of *e/i* is parallel in Old and Modern Catalan, with the grammaticality of Modern Catalan examples having been confirmed by

five native speakers. Thus, I propose that in Old Catalan, like in Modern Catalan, *e* can act as a discourse cohesion marker, instead of a marker of topic continuity. Cohesion markers contribute to conveying the underlying structure of the ideas in a text (Schiffrin 2001: 55), specifying the relationship between two segments of discourse, creating a sequence (Fraser 1998). This is exactly what we find in Old and Modern Catalan. *E* can contribute to the cohesion of a certain fragment of text by syntactically coordinating main clauses, but its meaning is not always strictly additive.¹¹

By considering *e* a discourse cohesion marker that links a clause with the common ground that is being updated, it could be argued that it is located within the Speech Act layer immediately dominating CP in the left periphery. Haegeman (2014) describes the existence of two Speech Act projections above ForceP: a higher one, which hosts performative discourse markers, and a lower one, which hosts grounding discourse particles. It is possible that *e/i*, when functioning as a discourse cohesion marker, occupies the latter projection. Haegeman labels these projections Part(icle)P1 and PartP2 respectively, without committing herself a particular definition of the concept of particle. The resulting structure is as in (29):

(29) [PartP1 [PartP2 [e] [FP1 [FP2 [ForceP ...]]]]]

Following Haegeman (2014), we hypothesise that *e*V1 clauses from the LFRJ database have a structure similar to (29), where *e* is located outside of the clause, in a Speech Act projection (Hill 2007), that encodes the syntactic relations between an utterance and the discourse.

This would suggest the existence of two homophonous lexical items: *i/e* as a coordinating conjunction and *i/e* as a discourse grounding particle/discourse cohesion marker. On the other hand, if *e* were truly a coordinating conjunction located outside the clause, it could be hypothesised that instead of coordinating CPs, it coordinates clauses at the level of the Speech Act layer, where a null discourse continuity operator could be postulated. It would be interesting to further pursue this line of inquiry in future work.

While the location of *i/e* within (or outside) the clause falls outside the scope of this paper, it has to be noted that the discourse cohesion properties associated with coordinating conjunctions transcend the boundaries of V2 or SVO grammars. Usages of the coordinating conjunction ‘and’ similar to the ones described here for *e* in Old Catalan have been described by Diesing (1990: 56) for Yiddish, and by Sigurdsson (1990: 45) for Old Icelandic. Furthermore, it has just been shown in Examples (26) and (28) that the Modern Catalan coordinating conjunction *i* can also function in the same way. Furthermore, this analysis also explains the pervasive use of *e*, across the board, not just with verb initial clauses.

11. See Fraser (1998, 2009) for more on discourse connectors, and Cuenca (2008, Section 31.2.2.1) for usages of *i* in Modern Catalan beyond coordination in a purely additive sense.

The repetitive use of a conjunction as a figure of speech is referred to as *polysyndeton*. In a literary register, it is often used deliberately to convey swiftness in the succession of events. However, in Medieval texts this does not seem to be the case. The abundance of *e* has often been associated to a supposedly ‘paratactic’ stage of Old Romance languages (Martí i Castell 2002). While I do not think that that is the case, I consider the pervasive use of this conjunction to be linked to the lack of maturity of Old Romance literary traditions and the oral nature attributed to them (it has indeed been argued that the text was dictated by the king himself).¹²

In Modern Catalan, *polysyndeton* is associated with oral discourse and children’s speech production.¹³ Within oral texts, a factor that contributes to a high frequency of *i* is the linear nature of text’s narrative,¹⁴ and the absence of secondary plot lines: all clauses share the same discourse topic, the same ‘ground’, to which new referents and new information are added for the narrative to advance. In Serra & Prunyosa (2008), the capacity of Modern Catalan *i* to concatenate independent clauses that do not seem coordinated in an additive sense is listed as a property of the coordinating conjunction. This function resonates with the discourse cohesion marker proposal that we have made for Old Catalan *e*, which has been shown to hold for Modern Catalan in Examples (26) and (28). The unmarkedness of *iV* clauses in Modern Catalan, together with the parallelisms between the Old and the Modern language in the usages of *e* and *i* respectively, allow us to qualify *eV* clauses as unmarked for Old Catalan.

Summarising the findings so far, it can be stated that (i) in Old Catalan, the coordinating conjunction *e* is an element located above CP that is used pervasively and not only with V1 clauses; that (ii) it can act as a cohesion marker, and not just a copulative coordinating conjunction with an additive meaning; that (iii) the use of *e* in linear narrations as a discourse cohesion marker is cross-linguistically attested and not dependent on the grammar of a given language. With this evidence in hand, it can be established that *eV* clauses are truly unmarked verb initial clauses.

12. The oral nature of *El Llibre dels Feits* is uncontested, and it is one of the key arguments used in favour of the authorship of King James I (Bruguera 1991, 2012; Ferrando i Francès 2012).

13. While we have no specific data on this matter, 4/5 speakers consulted for the grammaticality of (26) and (28) commented on it sounding “child-like” due to the high frequency of *i*. A quick browse through the *Corpus de Català Contemporani de la Universitat de Barcelona* confirms that it is indeed the case in oral narrations directed to children: <<http://hdl.handle.net/2445/11603>>, where the story is linear and there is topic continuity.

14. Berman (2015: 461) identifies the use of clause initial *and* for the “temporal chaining of clauses in sequence” in narratives as the second stage of acquisition of the coordinating conjunction. This is found cross-linguistically in many languages (French, Hebrew, German and English are among the languages cited in Berman 2015), with different basic word order patterns.

4.2 Two particular cases: *Verba dicendi* and unaccusative verbs

In the previous section, we have established that Old Catalan *eV* clauses do not involve the presence of a null topic operator. This section focuses on two types of predicates that are cross-linguistically commonly found in verb initial clauses: *verba dicendi* and unaccusative verbs (see Borer 1980 for Hebrew; Belletti 1988, 1999; Cinque 1993 and Tortora 2001 for Modern Italian; Devine & Stephens 2006 for Latin; Petrova & Hinterhölzl 2010 for Old High German; see Alexiadou et al. 2003 for unaccusative verbs in general). To explain this tendency, null elements have been called upon: a null narrative operator has been postulated for *verba dicendi*, while V1 orders with unaccusative predicates have been related to the presence of a null locative.

V1 in Old Catalan is by no means limited to those predicates that are cross-linguistically prone to occurring in V1 environments, even though they do represent a significant share of the total, as shown in Table 2. Transitive verbs, not associated to V1 orders, present the highest frequency of V1 in the LFRJ database, followed by *verba dicendi* and unaccusative verbs.

Table 4. Occurrence of specific predicates in V1 clauses

Verb type	Total number of occurrences	%/ total V1
Transitive	176	37
<i>Verba dicendi</i>	114	24
Unaccusative	108	22.7
Copula	28	5.8
Unergative	22	4.6
Imperatives	13	2.7
Reflexive	9	1.9
Passive	6	1.3
Total	476	100

The fact that the verbs in V1 clauses do not exclusively belong to the class of *verba dicendi* or unaccusative/existential predicates contrasts with the distribution of V1 clauses in uncontroversial V2 languages, as described by several authors (Sigurdsson 1990; Axel 2007; Thráinsson 2007).

In this section, *verba dicendi* and unaccusative predicates will be considered. It will be shown that (i) the use of *verba dicendi* in the LFRJ is parallel to the use of *verba dicendi* in Modern Catalan, and that (ii) the behaviour of unaccusative verbs fits within their behaviour in the Modern Romance SVO null-subject languages.

4.2.1 *Verba dicendi*

Verba dicendi, or verbs of saying, are transitive verbs that can take full CPs that constitute a separate proposition as their complement. In Table 4 we saw that 114 (24%) V1 clauses contain a *verbum dicendi*. Table 5 shows that, while there is an overwhelming tendency for *verba dicendi* to occur in V1 clauses, they can also occur in V2 and V3 sentences.

Table 5. Distribution of *verba dicendi* in LFRJ

<i>Verba dicendi</i> in...	Number of occurrences	%/total <i>verba dicendi</i>
V1	114	72.2
V2	37	23.4
V3	7	4.4
Total	158	100

Following Zwart (1997), Wolfe (2015a: 24) proposes the existence of a null discourse operator, a variant of *pro_{top}*, which triggers the attested VS order by the same inversion mechanism that was discussed in Section 4.1. Rodríguez Molina (2010: 1280) makes a similar claim for Old Spanish. The existence of a narrative operator in the case of *verba dicendi* is not clear in Old Catalan: while VS orders are the most common, SV orders are possible, as for example in (30) to (34).

- (30) Context: the King and his loyal men are skirmishing against Sir Pero Ahonés and his men. After following him and his men for a while, Sir Pero Ahonés' horse becomes tired. While they are climbing up a hill to change horses, Ahonés' men start throwing stones downhill, so that the king and his men would not be able to climb up. The king knows an alternative way to access the hill, and he tells his men.

E Don Pero Ahonés mudà·s en aquel cavayl. E
 and Sir Pero Ahonés changed-3SG=himself on that horse and
nós **dixem** a Don Assalit e a Don Domingo Lópeç de
 we said-1PL to Sir Assalit and to Sir Domingo Lópeç de
 Pomar, (...) que per ·i_a· pujada que y havia podien
 Pomar that for one slope that there= had-3SG could-3PL
 venir là on éls eren
 come-INF there where they were

‘And Sir Pero Ahonés changed horse. And we said to Sir Assalit and to Sir Domingo Lópeç de Pomar (...) that because there was only one sharp bend there, that they could go to where they were.’ (Fol. 15r, l. 28)

- (31) Context: the King is talking to several knights, among which, Guillem de Cardona.

E **dix** En Guillem de Cardona: “Séyer, fétz -me
and said-3SG Sir Guillem of Cardona Lord make-2PL =me
guiar, e anar -me·n hé”. “E no y
guide-INF and go-INF =REFL-1SG=·ADV CL=have-1SG and not there=
fariets àls? - **dixem** nós. E él **dix** que no.
do-2PL.COND other said-1PL we and he said-3SG that no
‘And Guillem de Cardona said: ‘Sir, get someone to guide me and I will be
gone.’ ‘And wouldn’t you like to do something else?’, we said. And he said that
he would not.’ (Fol. 22r, l. 25)

- (32) Ab aytant **respòs** -los en Guillem de Montpestler e
with much answered-3SG =them Sir Guillem de Montpellier and
son conseyl que d’altra manera no seria.
his council that of.other way not be-3SG.COND
‘And in the meanwhile, Sir Guillem of Montpellier and his council replied to
them that it would not happen in any other way.’ (Fol. 2v, l. 14)

- (33) E **dix** ela que tot ço faria (...)
and said-3SG she that all this do-3SG.COND
‘And she said that she would do all of this.’ (Fol. 34v, l. 12)

- (34) E En Pere Martel **dix**-los que-ls diria
and Sir Pere Martel said-3SG=them that=to.them say-3SG.COND
noves (...)
news
‘And Sir Pere Matel told them that he would give them news.’ (Fol. 27r v2)

Examples (30) and (31) contain several *verba dicendi*, all with overt subjects that have already been introduced in the discourse and that are overtly expressed in the discourse to signal a topic shift. Nevertheless, even though the discourse value of all subjects is the same, their position with respect to the verb is not. In (30), the pronoun *nós* ‘we’ that shifts the topic back to King James I occurs preverbally. In (31), we see that it is also possible for topic shifting subjects to occur postverbally. First the topic shifts to *En Guillem de Cardona*, a postverbal subject. After Sir Guillem’s intervention, the King replies, and the postverbal pronoun *nós* ‘we’ indicates topic shift. Sir Guillem answers the King’s reply, and this time, the topic shifting pronoun *él* ‘he’ occurs preverbally, as in (31). It is worth noting that when the object of the *verbum dicendi* is a complement clause, in spite of its heaviness, can occur preverbally and postverbally, and its position does not affect that of the subject. This is apparent in (31), where the first clause containing a *verbum dicendi*

presents the order VSO, while in the following sentence, the order is OVS. This is not the case with reported speech complement clauses, which consistently occur postverbally, in clauses displaying either VSO or SVO, as in (32) and (33). In (34), we can see that VSO orders do not necessarily require the presence of a preverbal constituent. No VOS clauses are found with *verba dicendi*.

In sum, these examples show that, while *verba dicendi* tend to present postverbal subjects (when overt), they can also have preverbal ones, with the same discourse value, topic shift, as postverbal ones. Furthermore, both in cases in which the subject is preverbal and in those in which it is postverbal, there is undeniable discourse topic continuity. Therefore, arguing for a presence of a null operator in the left periphery that triggers VS sequences cannot account for the whole picture.

Modern Catalan *verba dicendi* behave in a similar way to Old Catalan ones, as shown by Examples (35) and (36):

- (35) Context: a group of children wants to raise funds for a friend who is suffering from a serious illness and whose family cannot afford the costly treatment. They come up with the idea of creating a zoo with countryside animals in the middle of Barcelona to collect funds. They seek the help of the parish's priest.¹⁵
- Ah, ja... - **féu** el mossèn. I rumià una mica.
Ah yes made-3SG the priest and thought-3SG a bit
 - Al cap d'un moment **digué**:
at.the head of.a moment said-3SG
 - En primer lloc, hauríeu de nomenar una junta.
in first place should-2PL of name-INF a committee
 - Ja la tenim - **digué** en Tanet -. Nosaltres!
already it have-1PL said-3SG the Tanet we
 - I un president.
and a president
 - El president és en Tanet - **exclamà** en Manelitus.
the president is the Tanet exclaimed-3SG the Manelitus
 - I un secretari.
and a secretary
 - El secretari sóc jo - **intervingué** en Juli.
the secretary am I intervened the Juli
 - I un director tècnic.
and a director technical
 - El Fleming - **cridaren** tots a l'hora.
the Fleming shouted-3PL all at the.hour

15. Note that the verbal forms in bold are in the past simple tense, a tense that would not be used in spoken discourse, where the periphrastic past perfect would be used (*to go* + infinitive), with the same semantic value.

- I jo sóc el seu ajudant – **exclamà**, tot orgullós,
and I am the his assistant exclaimed-3SG all proud
en Cigró.
the Chickpea
- I jo sóc el director de caceres – **digué** al seu torn
and I am the director of hunting said-3SG at.the his turn
en Manelitus.
the Manelitus
- ‘Oh, I see... – said the priest. And he pondered for a bit. After a while, he said:
- Firstly, you should name a Committee.
- We already have! – said Tanet – Us!
- And a president.
- The president is Tanet – exclaimed Manelitus.
- And a secretary.
- I am the secretary – intervened Juli.
- And a technical director.
- Fleming! – they all shouted at the same time.
- And I am his assistant! – exclaimed, very proudly, Chickpea.
- And I am the hunt director – said, when his turn came, Manelitus.’
(*El Zoo d’en Pitus*, p. 21)

(36) Context: official visit of Donald Trump to France. He and his wife meet Emmanuel and Brigitte Macron.

El nord-americà va saludar Brigitte i li va **dir**:
the north-american goes greet-INF Brigitte and to.him goes say-INF
“estàs en molt bona forma”; després es va **adreçar**
are-2SG in very good shape afterwards REFL-3SG goes address-INF
al president francès: “està en molt bona forma, és preciosa”.
to.the president french is in very good shape is beautiful
‘The North American [president] greeted Brigitte and said to her: ‘you are in great shape’; afterwards, he turned to the French president: ‘she is in great shape, she is beautiful’
(Diari ARA, 14/07/2017)

(35) and (36) reproduce two fragments of Modern Catalan texts containing reported speech. As can be appreciated in (35), when the reported speech is direct, the tendency is for the reported clause to precede the verb (OV(S)). On the other hand, when the speech is simply reported, and the dialogue is not reproduced, the tendency is for the reported clause to follow the verb, as in (36), often yielding verb initial clauses. When the reported clause occurs preverbally, the subject tends to appear postverbally and verb-adjacent, but this is not a requirement in either Modern or Old Catalan.

The evidence presented here shows that Old Catalan behaves very much like its modern counterpart when it comes to reported direct speech. Both SVO and

VSO can obtain without obvious information structure differences (in both cases, subjects are active in the discourse and therefore, are candidates for topic shift).

4.2.2 *Unaccusatives*

Romance unaccusative verbs have a tendency to have postverbal subjects. It is also the case of unaccusative verbs in Old Catalan. This is shown in Table 6:

Table 6. Overt subject position in clauses with unaccusative predicates

Clauses with unaccusative predicates – overt subjects	Preverbal subject	Postverbal subject
130	42 (32.3%)	88 (67.7%)

As shown in Table 6: 22.7% (108/476) of V1 clauses have an unaccusative predicate, 35 of which have an overt postverbal subject. V1 clauses with unaccusative predicates and postverbal subjects make up 39.7% (35/88) of the total of clauses. Therefore, the VS configuration is not uniquely associated with the verb being in sentence initial position. In Modern Romance languages the possibility for unaccusative verbs to feature preverbal as well as postverbal subjects is referred to as ‘free inversion’ (Hulk & Pollock 2001). The availability of unmarked postverbal subjects has been linked to information structure (Pinto 1997), as well as to the presence of a null locative in SpecTP (Tortora 2001). Here, I consider Old Catalan data on the light of this analysis, and I establish that it is possible to account for the tendency for unaccusative predicates to have postverbal subjects by postulating the presence of a null locative, as is the case in Modern Romance.

Pinto (1997) relates the apparent optionality of preverbal and post-verbal overt subjects with unaccusative verbs to information structure, broad focus favouring SV orders, and narrow focus and contrastive topicalisation preferring VS. Tortora (2001), on the other hand, associates the same alternation in Italian to the presence or absence of a *pro-loc* element (a locative equivalent of *pro* that would occupy the same position, namely SpecTP). According to the author, in clauses such as (37a), the presence of *pro-loc* accounts for the postverbal subject. The interpretation of *pro-loc* is deictic: it makes reference to the context in which the speaker utters the clause, to the *hic et nunc*. This can be clearly seen in (37a), since Met can only arrive here and not in Antarctica, for instance.

- (37) a. **Arriba** en Met. MC
 arrives the Met
- b. En Met **arriba**. MC
 the Met arrives
 ‘Met arrives.’

Like many of the Old Romance languages, Old Catalan had a locative clitic pronoun: *hi*. Its usage in Old Catalan differs from the Modern Catalan one. In Old Catalan, it could stand for prepositional complements, as well as for certain adjuncts, which include those indicating location. 22.8% (8/35) of the instances of *vs* with unaccusative predicates from the LFRJ database feature the locative clitic *hi*, co-referent with a location previously introduced in the discourse. The others do not.

- (38) E sobre açò fom en secret conseyl a una part, e
and about this went-1PL in secret council in one place and
foren **-hi** los richs hòmens.
went-3PL -there.CL the rich men
'And after this we gathered secretly in council somewhere, and the noblemen came there.' (Fol. 29r, l. 6)
- (39) E dixem a la companya 'Aturats-vos, e nós irem
and said-1PL to the company stop-2PL=you and we will.go-1PL
aenant ab ·iii· o ab ·iiii· cavallers de nostra companya'. E
ahead with 3 or with 4 knights of our company and
fo **-y** En Rochafort ab ·iii· altres cavallers (...).
went-3SG =there.CL Sir Rochafort with 3 other knights
'And we said to the company: 'Halt, and we will go ahead with three or four knights from our company'. And Sir Rochafort came, with 3 other knights.' (Fol. 22v, l. 22)
- (40) E depuys tornam a Pertusa. E **vench** l' arquebisbe
and then returned-1PL to Pertusa and came-3SG the archbishop
de Terragona, per nom N' Espàrech.
of Tarragona for name Sir Espàrech
'And afterwards we went back to Perusa. And the archbishop of Tarragona, called Sir Espàrech, came.' (Fol. 17r, l. 26)
- (41) E ab aytant, él se n' anà, e nós
and with such he REFL-3SG ADV.CL left-3SG and we
faem -li l' altra citació e **vench** En Guillem de
made-1PL=him.CL the other citation and came-3SG sir Guillem of
Cardona al dia.
Cardona in.the day
'And in the meanwhile, he left, and we requested another meeting, and Sir Guillem of Cardona came the following day.' (Fol. 22r, l. 26)

In (38) and (39) we see the verb *anar*, 'to go', followed by the adverbial clitic *hi*, followed by a postverbal lexical subject. In both cases, the referent of the clitic can be recovered in the immediate context. The context also tells us that the intra-

homodiegetic narrator finds himself in the same location. In (40) and (41), the motion referred to is also towards the narrator's location, which is not recoverable from the immediate context of the clause; therefore, there is no locative clitic *hi*. However, in (40) the choice of the verb makes it is unambiguous that the motion action aims is directed to 'here', suggesting that the clitic is not present in the clause because the location has not been overtly introduced in the immediately preceding context. As a result, the locative is present in the clause as *pro-loc*.

If we accept Tortora's analysis for VS orders with unaccusative predicates in Modern Italian as valid for Old Catalan, it could be hypothesised that in the absence of an overt expression of location, a null element occurs in SpecTP and prevents the subject from raising. The possibility for the null locative to raise to a position in the left periphery – as would be expected within a V2 analysis – can be ruled out, given that it has already been established that the behaviour of Old Catalan V1 clauses is parallel to that of Modern Catalan, an SVO language.

4.3 Absolute V1 clauses

Let us now focus on the remainder 7.8% of V1 clauses, not preceded by *e*. Wolfe (2015c) states that absolute V1 can be explained within a V2 grammar either by broad focus or by narrative inversion. Devine & Stephens (2006) describe three triggers for V1 in Latin: (i) discourse cohesion (including discourse cohesion operators, and conjoined structures), (ii) the argument structure and semantics of the predicate (V1 being preferred with passives, verbs of mental state, and imperatives, i.e. predicates which could also present the unmarked SOV word order, or other variations, depending on the information structure of the clause) and (iii) some contexts associated with a particular information structure (including polarity focus, and presentational clauses). We have already discussed types (i) and (ii) in Sections 4.1 and 4.2 respectively. Here, we will focus on (iii), while also considering the possibility of the presence of a narrative operator interacting with verb movement.

As shown in Table 1, in the LFRJ database there are 37 cases of *e*-less verb initial clauses. These clauses present clear distributive features:

- i. 36/37 belong to the first third of the *El Llibre dels Feys*. The one example that does not, belongs to the last third of the text.
- ii. 26/37 occur in direct reported speech.

The first third of the text does indeed present a higher proportion of direct reported speech than the other two thirds. In addition, the first third of the text also harbours the highest percentage of *verba dicendi* introducing indirect reported speech (71.21% of all instances of *verba dicendi* in the LFRJ database).

We will first consider whether narrative inversion and broad focus cannot be called upon to account for *e*-less V1 clauses: only 2/37 (5.4%) cases of *e*-less V1 clauses contain a *verbum dicendi* and could be accounted for by postulating the presence of a covert narrative operator. Due to the fact that narrative inversion would only account for 5.4% of *e*-less V1, and bearing in mind that the tendency for *verba dicendi* to present postverbal subjects is cross-linguistically attested not only in V2 languages, but also in SVO languages (cf. Section 4.2), we dismiss the presence of a narrative operator to account for *e*-less V1 clauses.

The information structure configuration of V1 clauses varies. However, those *e*-less V1 clauses that appear in reported direct or indirect speech present topic continuity. This is illustrated in Examples (42) and (43):

- (42) Dixem-li: “En Guillem de Cardona, vós no havets aduyta
said-PL=to.him Sir Guillem of Cardona you not have-2PL brought
aquí procuració neguna d’ En Guerau; l’ altre vós no volets
here capacity any of the Guerau the other you not want-2PL
respondre a dret. **volem** saber encara vós si
answer-INF righteously want-1PL know-INF furthermore you if
volets respondre a la demanda que· N Guillem Sasala
want-2PL answer-INF to the request that Sir Guillem Sasala
vos fa”
to.you does

‘We said to him: ‘Sir Guillem of Cardona, you have not brought any document here proving your capacity to act on behalf of Sir Guerau, the other one, you have not wanted to reply righteously. We want to respond to the request that Sir Guillem Sasala does to you.’ (Fol. 21v, l. 22)

- (43) E aquel matí que nós hi fom devalaren dels
and that morning that we there= were-1PL descended of.the
hòmens de la vila a nós bé ·xx·, e el castlà
men of the village to us well 20 and the castle-governor
ab éls. E dixem-los per què havien enviat per nós.
with them and said-1PL=to.them for what had-3PL sent by us
E dixeren éls: “**Demanam**-vos de conseyl, del castell,
and said-3PL they ask-1PL= you of advice of.the castle
què·n farem ne què no”
what=of.it do-1PL.FUT and.not what not

‘And that morning when we were there, a good 20 men from the village, as well as the castle governor with them. And they said: ‘We ask you for advice, about the castle, what should we do or not do.’ (Fol. 26v, l. 25)

In (42) and (43), *e*-less verb initial clauses present discourse topic continuity. In (42), there is topic shift carried out by the null subject of the *e*-less clause, shifting

from the 2nd person plural subject of the preceding clause, to a 1st person plural subject, co-referring with that of the *verbum dicendi dixem*, ‘we said’, which introduces the direct speech fragment containing the *e*-less V1 clause. In (43), the subject of the *e*-less V1 clause is co-referent with the subject of the *verbum dicendi* that introduces the direct reported speech, mentioned two clauses earlier: *dels hòmens de la vila (...) bé ·xx·, e el castlà ab éls*, ‘of the men, a good 20, and the castle-governor with them’. Furthermore, *el castell* ‘the castle’ is also an active topic, rendered active by the presence of the *castlà*, ‘castle-governor’. Therefore, we can discard the possibility that the absence of *e* is linked a broad focus articulation. A further datum that provides evidence in this direction is the proportion of *e*-less null subject clauses: 28/37 (75.7%) of V1 *e*-less clauses feature a null subject, whose referent has already been introduced in the discourse. Like in (41) and (42), null subjects either signal topic continuity or topic shift, given the same discourse topic.

Those clauses that do not appear in direct speech fall in two categories: (i) *e*-less main V1 clauses containing unaccusative predicates, and (ii) broad focus clauses. (44) and (45) are examples of (i), (46) is an illustration of (ii):

- (44) E sí y havia bon pujador e qui fer-ho
and yes thee had-3SG good climber and who do-INF
volgués. Havia ·i· escuder, lo nom del qual a
wanted-3SG.PST.SBJ had-3SG I squire the name of.the which to
nós no membre, [...].
us not remember-INF
‘And there was indeed a good climber and someone who wanted to do it. There was one squire, whose name I do not remember [...].’ (Fol. 7v, l. 25)
- (45) [...] e hac-se vestit ·i· gonió e ·i· capel de ferre en
and has=himself dressed 1 chainmail and 1 hat of iron on
lo cap e l’ espaa en la mà; e veé que la batayla
the head and the sword in the hand and saw-3SG that the battle
anava cessan, mochs-se tant con los peus lo
went-3SG ceasing moved-3SG=himself much as the feet him
pogren levar, e comença a pujar [...].
could-3PL bring-INF and started-3SG to climb-INF
‘And he dressed himself with a chain mail, and an iron hat on the head, and the sword in his hand, and he saw that the battle was calming down, and he moved as much as his feet allowed him, and he started to climb.’ (Fol. 7v, l. 28)

In (43), we see the presentational structure *haver-hi* ‘to be there’, which adds a new referent to the discourse, with a null locative element co-referent with the locative clitic of the preceding clause. In (44), it is the unaccusative verb *moure*’s

‘to move’ that occurs in sentence initial position. Both cases involve discourse topic continuity.¹⁶

(45) reproduces the opening line of the manuscript, a case of *e*-less V1 unambiguously conveying broad focus, one of the configurations that Wolfe (2015) associates with absolute verb initial orders:

- (46) Retrau mon seyor sent Jacme que fe sens obres morta és.
 states my lord saint James that faith without deeds dead is
 ‘My lord Saint James states that faith without deeds dies.’ (Fol. 1r, l. 1)

(46) is the only case in the LFRJ database in which an *e*-less V1 clause features clear broad focus. Since an overwhelming majority of *e*-less V1 clauses (36/37, i.e. 97.3%) feature topic continuity, as in the examples shown in (26) and (27), calling upon broad focus to explain *e*-less V1 clauses is not an appealing option. We can conclude that Old Catalan *e*-less V1 clauses are unlikely to be associated with specific discourse configurations, or to involve a narrative operator.

A similar distribution of *e*-less V1 clauses can be found in Modern Catalan, as illustrated by (47) and (48), where *verba dicendi* are found in absolute sentence-initial position, followed by postverbal subjects. Furthermore, (48), like (46) from *El Llibre dels Feyts*, is the opening line of the text, and conveys broad focus (i.e. all the information is new).

- (47) **Afirmen** els Mossos que cap altre cos policial de l’Estat no
 state-3PL the Mossos that no other body police of the State Not
 és tan estricta amb el règim disciplinari.
 is as strict with the regime disciplinary
 ‘The Mossos state that no other security body of the (Spanish) State is as strict with their discipline regime.’¹⁷
- (48) **Diu** el Fiscal que l’edifici industrial de Can Fàbregas i
 says the prosecutor that the building industrial of Can Fàbregas and
 de Caralt a la ciutat de Mataró, encara estava protegit pel
 of Caralt in the city of Mataró still was-3SG protected by=he
 pla Especial del Patrimoni Arquitectònic i Cultural (...)
 plan especial of=the patrimony architectural and cultural
 ‘The Prosecutor says that the industrial building of Can Fàbregas and of Caralt, in the city of Mataró, was still protected by the Special Architectural and Cultural Patrimony plan.’¹⁸

16. On the tendency for unaccusative verbs to occur in sentence initial position, see Section 4.2.

17. From *Autocrítica als Mossos d’Esquadra*, by Saura (2014), accessed on 23 March 2018.

18. From *Diu el Fiscal*, by Saurinyach (2010), accessed on 23 March 2018.

SVO language that can produce broad focus verb initial clauses. It has also been shown that *e*-less V1 clauses cannot be explained only by means of a narrative operator, since only two of the 37 cases found in the LFRJ database contain a *verbum dicendi*. Nor can they be explained by associating this word order pattern with broad focus, since in most instances, there is clear discourse topic continuity, as well as topical subjects (marking either topic continuity or topic shift). The fact that *e*-less V1 clauses are compatible with topic continuity shows that *e* is not a requirement to convey discourse topic continuity.

5. Conclusion

This paper has explored verb initial clauses in Old Catalan with the objective of showing that they are unmarked clauses, which do not correspond to specific configurations that would make them compatible with a V2 grammar.

It was argued that *e*, the copulative coordinating conjunction that precedes not only V1 clauses, but 88.33% of the clauses in the whole LFRJ database is homophonous with a discourse cohesion marker, and that the location of this element is above the CP layer (Haegeman 2014). The use of *e* in linear narrations as a discourse cohesion marker is cross-linguistically well attested. We dismissed the possibility of accounting for V1 orders with *verba dicendi* by means of a narrative operator. In addition, the high frequency of V1 orders with unaccusative predicates was explained by calling upon the analyses proposed for the same phenomenon in Modern Romance. Finally, absolute verb initial clauses were shown to be different from certain configurations that have been discussed in the literature which assumes a V2 grammar for Old Romance: most notably V1 orders in Old Catalan cannot be accounted for by linking broad focus to the lack of *e*, since a great majority of *e*-less V1 clauses (97.3%) features topic continuity.

In the light of this evidence, it can be concluded that Old Catalan V1 clauses were unmarked clauses that do not abide by a V2 requirement. On the contrary, they pattern with V1 configurations in Modern Catalan, showing diachronic stability, and they provide yet another piece of evidence for a non-V2 analysis of Old Catalan.

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Competition, stability and change in the emergence of Brazilian Portuguese

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This chapter discusses morphological variation in Brazilian Portuguese, namely the clitic/tonic pronoun alternation and the variation in the morphological realization of subject-verb agreement. We argue on diachronic and synchronic grounds that while the alternation between the clitic and tonic pronoun in the 3rd person is clearly a case of competition between the conservative European grammar and the innovative Brazilian grammar, the other cases of variation are produced by the latter. Both in the case of 1st and 2nd person clitics and in the case of verbal agreement, conservative forms have innovative uses. This supports the claim that they have been reanalyzed in the new system. Clitic doubling of tonic pronouns without a preposition suggests that there was a functional specialization of the 1st and 2nd person clitic forms. As for subject-verb agreement, the licensing and interpretation of null subjects shows that the inflection is too weak to referentially identify empty categories in subject position, even when person and number are overtly realized on the verb. We conclude that part of the morphological variation due to linguistic contact is indeed integrated to the innovative grammar, with morphological elements of the old grammar surviving in apparent, but not actual, competition with new forms.

1. Introduction

The aim of this chapter is to bring the case of Brazilian Portuguese to the debate on stability and change in language evolution, specifically in the situation of linguistic contact. We shall see that changes induced by contact, in particular with the African languages taken to Brazil during the slave-trade period, led the variety of Portuguese emerged in Brazil to diverge from European Portuguese and, more generally, from the Romance languages. This situation also led to an apparently stable morphological variation between innovative and conservative forms in the context

of an innovative grammar. One of the effects of such variation is the emergence of morphological doublets in the language, which is the phenomenon at the basis of Kroch (1994)'s discussion of competition of grammars. We shall see that recently reported innovations in the use of clitics, namely clitic doubling of tonic pronouns, points to a solution of the existence of morphological doublets through a functional specialization of the conservative form. Another case of variation is found in the morphological realization of subject-verb agreement. Here, it will be argued that although such variation is strongly influenced by factors like the urban norm and education, it is not the effect of grammar competition as defined by Kroch (1994), but it is a by-product of the innovative grammar.

The chapter is organized as follows. Section 2 describes structural innovations in Brazilian Portuguese, arguably due to contact with the African languages brought by the slave trade, essentially from the Niger-Congo area. In Section 3, we observe several cases of tension between conservative and innovative morphology leading both to stable and instable variation. Part of this variation is a consequence of the prestige associated to obsolete forms in spoken language, and constitutes a classic case of grammar competition. It will be argued, however, that the other part is compatible with, and produced by, the new grammar. Section 4 concludes the chapter by discussing the relationship between acquisition, competition and change.

2. Structural innovations in Brazilian Portuguese due to contact

Structural innovations appear in virtually all the domains of the grammar of Brazilian Portuguese (henceforth BP) when compared with European Portuguese (henceforth EP).¹ I shall focus here on two central aspects of natural language morphosyntax: subjects and personal pronouns.

2.1 The morphosyntax of subjects

One of the most described grammatical aspects of BP is the variability of subject-verb agreement, which affects both number and person agreement, as illustrated in sentences in (1) and (2), where we see that the non-agreeing form is always the 3rd person singular.

1. Cf. Galves (2018) for an overview.

- (1) a. os meninos foram para a praia
 the.PL boys went.3PL to the beach
 b. os meninos foi para a praia
 the.PL boys went.3SG to the beach
 ‘The children went to the beach.’
- (2) a. tu foste para a praia ontem?
 You went.2SG to the beach yesterday
 b. tu foi para a praia ontem?
 You went.3SG to the beach yesterday
 ‘Did you go to the beach yesterday?’

Table 1 below shows that the rate of verbal agreement with the 3rd person plural varies from 16% in isolated rural Afro-Brazilian communities to 94% in urban university-educated people. In between we find non-educated people from the city of Rio de Janeiro, for whom verbs equally agree and non-agree with their subject.

Table 1. Verbal agreement with 3rd person plural 1980–2000 (Lucchesi et al. 2009: 348)

Afro-Brazilian communities, Bahia hinterland	16%
Uneducated fishermen communities, North of the State of Rio de Janeiro	38%
Uneducated people from the city of Rio de Janeiro	48%
Educated people from the city of Rio de Janeiro	73%
University-educated people from the city of Rio de Janeiro	94%

This phenomenon has been taken by many scholars as the main evidence of the effect of the history of contact of the language, and for many of them, of the existence of a process of creolization at some point of its history (cf. Coelho 1967; Guy 1981 a.o), since the loss of verbal morphology is a constant in Creole languages (McWorther 1998). The lack of subject-verb agreement has been also one of the innovative phenomena that has been fought by the norm, mainly through the action of education. Table 1 clearly shows the correlation of the rate of agreement with two main factors: urbanity and education.²

The importance given to the variable subject-verb agreement phenomenon has hidden for a long time an apparently opposite direction of change. It is the fact, initially observed by Pontes (1987), that agreement may occur between topics and verbs, as exemplified by Examples (3)–(6) (from Avelar & Galves 2014).

- (3) As ruas do centro não tão passando carro.
 the streets of-the downtown not be.3PL passing car
 ‘No cars are passing through downtown.’

2. There are also some regional variations. In the city of Porto Alegre, for instance, people in all the social layers use the 2nd person pronoun *tu* with 3rd person agreement on the verb.

- (4) algumas concessionárias tão caindo o preço [do carro]
 some dealerships be.3PL falling the price of-the car
 ‘The price of cars is dropping in some dealerships.’
- (5) As crianças tão nascendo o dente.
 the children be.3PL growing the tooth
 ‘The teeth of those children are growing.’
- (6) conheço pessoas que fizeram isso e caíram o cabelo
 know.1SG people that did that and fell.3PL the hair
 ‘I know people who did that and their hair fell out.’
 <<http://br.answers.yahoo.com/question/index?qid=20081119080133AAFPQLS>>

In (3) and (4), as shown by the translation, the pre-verbal phrases are interpreted as locative. In (5) and (6), they are a complement of the nominal head of the post-verbal NP. The former have been called “locative subject” and the latter ones “genitive subjects”. It is important to emphasize that both constructions are extremely productive (cf. Avelar & Galves 2011, 2014 and references therein). Locative and genitive subject constructions are very likely to be due to the contact with the languages transported to Brazil by millions of enslaved African people, since they are typical, for instance, of Bantu languages, as shown in the next examples. (7) and (8) illustrate the phenomenon of “locative inversion” in which it is the pre-verbal locative phrase that agrees with the verb and not the post-verbal subject. Examples (9) and (10) show constructions that are parallel to (5) and (6), in which the verb agrees with the pre-verbal genitive phrase and not with the post-verbal subject.³

- (7) Omo-mulongo mw-a-hik-a (?o-)mu-kali
 LOC.18-village 18s-T-arrive-FV (AUG)-CL1-woman.1
 ‘At the village arrived a woman.’ *Kinande* (Baker 2003: Example (25))
- (8) Mú-mú-siirú mw-á-kwá-mó kú-mú-saala
 18-3-forest 18s-PST-fall-18L 3-3-tree
 ‘In the forest fell a tree.’ *Lubukusu* (Diercks 2011: 703)
- (9) Mavuto a-na-f-a maso
 Mavuto SM-PST-die-FV eyes
 ‘Mavuto became blind.’ (Lit. ‘Mavuto died eyes’)
Chichewa (Simango 2007: Example (23))
- (10) Omwaana n-aa-shaash’ omutwe
 child PR-he-ache head
 ‘The child has a headache.’ (Lit. ‘The child is aching the head’) \ *Haia* (Hyman 1977 *apud* Simango 2007)

3. Abbreviations for Examples (6)–(10): AUG = augmentative vowel CL = noun classifier prefix – FV, fv = final vowel – LOC = locative affix / adposition / clitic – PST = past – PL = plural – PR = present – s, SM = subject-verb agreement marker – SG = singular – T = tense

Interestingly, locative and genitive subjects are also found in African varieties of Portuguese, as can be seen in (11) and (12), respectively from Mozambican and Angolan Portuguese.⁴

(11) Os olhos saíram lágrimas
the eyes came.3PL out tears
'Tears came out from his/her eyes.' (Gonçalves 2010)

(12) A Maria nasceu uma menina
the Maria was born a girl
'A girl was born to Maria.' (Bento 2010)

Anticipating the question of morphological stability that will be treated in Section 3, it is important to note that, while the syntactic construction might have been transferred from Bantu languages to Portuguese, the agreement morphology crucially remained Portuguese, based on a system of person-number agreement, and not on nominal classes.

2.2 The morphosyntax of pronouns

As for pronouns, we shall consider two phenomena that strongly distinguish BP from its European ancestor. One is morphological and affects the realization of case marking on pronouns. The other is syntactic and concerns the position of clitic pronouns in the clause.

2.2.1 *The reduction of case marking*

The reduction of case marking affects both tonic pronouns and clitic pronouns. As for the former, we observe in (13) and (14), that the same form, respectively *ele* 'he' and *você* 'you', can be used in both subject (13a), (14a) and object (13b), (14b) positions. This is impossible in EP, where clitics are obligatory in object position (13b'), (14b').

(13) a. Ele foi visto na escola
he was seen in-the school
'He was seen in the school.'
b. A Maria viu ele na escola
the Maria saw he in-the school

4. Many Bantu languages are in contact with Portuguese in the former Portuguese colonies. Studies on specific contact situations have been performed in Angola with Kimbundo (cf. Araújo et al. *forthc.*) and with Chockwe (Inverno 2009), and in Mozambique with Changana (Gonçalves 2010). See the discussion in Galves (2018).

- b'. A Maria viu-o na escola (EP)
 the Maria saw-3SG.CL.ACC in-the school
 'Maria saw him in the school.'
- (14) a. Você segue a Maria.
 You follow the Maria
 'You follow Maria.'
- b. Eu sigo você.
 I follow you
 'I follow you.'
- b'. Eu sigo-te
 I follow-2SG.CL.ACC
 'I follow you.'

The invariability of the pronoun is also likely to be an effect of contact, since, as noted by Creissels (2000: 233), "in the majority of African languages, both subjects and objects are unmarked for case, that is they do not exhibit any marking (affix, adposition or prosodic contour) distinguishing noun phrases in subject and object function from noun phrases quoted in isolation. This is in particular true of the overwhelming majority of Niger-Congo languages"⁵

However, clitic pronouns did not disappear from BP. Dative-marked clitics continue to be productively used. Table 2 shows the reorganization of the pronominal clitic paradigm in BP, when compared with EP paradigm of clitic pronouns (for sake of clarity, only singular forms are considered):

Table 2. The paradigm of singular clitic pronouns in EP and BP

	EP	BP
1st person:	me	me
2nd person:	te	te/lhe
3rd person:	o-a	* (replaced by null objects and tonic pronouns)
	lhe	* (replaced by P + tonic pronouns)
reflexive:	se	se

5. Creissels's statement finds echo in Inverno (2009)'s description of Cokwe: "a given P/N marker in Cokwe (e.g. 1SG) typically has the same morphological form regardless of the grammatical role it plays (e.g. subject vs. object) and differs only in terms of the position it occupies within the internal structure of the verb." (Inverno 2009: 210), as well as in the first description of Kimbundu by Padre Dias in his grammar written in Brazil in the 17th century: "personal pronouns do not have declinations, nor variety of cases as Latin pronouns do. They are used in nominative and in other cases without varying" (2006 [1697]: 8). (cf. Avelar & Galves 2014)

We see that two main changes have affected the expression of 3rd person in spoken BP. First, the accusative clitic *o-a* became obsolete. Duarte (1986: 17) shows that it only appears with a frequency of 4.9% (97 occurrences) among all the possible strategies to refer to the 3rd person referent. In her study, the use of the tonic pronoun *ele* (cf. Example (13b).) is found with a frequency of 15.4% (304 occurrences), and the more frequent strategy is null objects – 62.6% (1235 occurrences).⁶ Additionally, Correa (1991) provides empirical evidence that the use of 3rd person accusative clitics is acquired at school, and is therefore not part of the spontaneous language acquisition of Brazilian children.⁷ The other change affecting 3rd person is the shift of the dative clitic *lhe* to the 2nd person, where it is used to refer to the 2nd person form *você* (“you”), which has replaced *tu* (“you”), in many Brazilian dialects (Lopes & Cavalcante 2011). As a 2nd person pronoun, *lhe* varies with the clitic form *te*, as well as with the tonic pronoun *você* (cf. Example (14b). above and Section 3). Last, but not least, in some Brazilian dialects (cf. Table 6 below), *lhe* can be used to refer to direct objects, that is, as an accusative marker.⁸ This is an important piece of evidence of the role of the Niger-Congo languages in the reorganization of the paradigm since, in those languages, there is no distinction between dative and accusative markers. It is worthwhile noting that the same phenomena are found in the African varieties of Portuguese (cf. Inverno 2009 a.o).

2.2.2 *The change in clitic position*

In addition to their paradigmatic reorganization, BP clitics underwent a syntactic change affecting their position. In EP, when there is a compound form, clitics climb to the inflected auxiliary. In BP, they stay cliticized to the verb of which they are the argument. This is illustrated in the minimal pair provided in (15) and (16) for BP and EP respectively.⁹

6. The remaining 17.1% of a total amount of 1974 occurrences concern anaphoric nominal expressions.

7. Tarallo (1993: 84) shows that the use of accusative pronominal clitics (*o-a*) drops between the first and the second half of the 19th century, from 83.7% to 60.2%, and decreases to 18.2% at the end of the 20th century.

8. Note that in contrast with Standard Spanish, dative *lhe* does not depend on doubling with the preposition *a*. About doubling in BP, see Section 3.2.

9. (15) and (16) are respectively from the original novel of Paulo Coelho *The Alchemist*, and its Portuguese revised edition. The phenomenon considered here has to be distinguished from clitic-placement (enclisis-proclisis alternation). In the context of a WH-clause, proclisis is obligatory in EP. Therefore, the position of the clitic in (15) cannot be interpreted as an EP-style enclitic position to the auxiliary.

- (15) e da praça onde haviam se encontrado um dia
 and of-the square where had RFL.CL met one day
- (16) e da praça onde se tinham encontrado um dia
 and of-the square where RFL.CL had met one day
 ‘and, from the square where they have met one day...’ (Galves et al. 2005)

The same position of clitic pronouns is observed in African versions of Portuguese, and can as well be attributed to the Niger-Congo languages influence. In effect, Baker (2008: 196, fn. 29) notes that “... complex tense object markers always stay on the main verb in Bantu languages, *whereas in IE languages object clitics climb onto the finite auxiliary*, as shown by the contrast between Kinande and French... Thus object markers stay close to the *v* projection in Bantu, as expected if they are agreement on *v*, in contrast to object clitics in IE languages, which are attracted to the T node.”

The contrast between EP and BP therefore parallels the contrast between respectively French and Kinande. We shall come back to the agreement nature of BP clitics in the next section.

3. Morphological stability under norm pressure and beyond

The preceding sections evidence that in BP, at the same time we observe innovations affecting the syntax of subjects, on the one hand, and the morphology of pronouns, on the other hand, we also find a tendency to morphological stability manifested both in verbal agreement and in pronoun morphology. As for subjects, Table 1 shows that agreement on the verb exists even in the less agreeing dialects. It also shows that its frequency increases with urbanization and education, which can be understood as the effect of the norm. However, it cannot be said to be exclusively dependent on normative pressure, since, first, it appears even in the speech of non-urban, non-educated people, and, second, it occurs in innovative constructions. As for the evolution of the morphology and syntax of clitics, we observe two different kinds of diachronic stability, understood as the persistence of old forms and patterns in the context of language change. One is clearly the effect of the normative pressure, and can be formulated in terms of grammar competition between a conservative prestigious variety and an innovative popular variety, or in Kroch (1994: 197)’s terms, “between the grammar of the spoken language of a given time and an archaic but still influential literary standard”. The fate of this kind of competition is for the innovative form to win and override the old one, even if this takes a long time to come to completion, mostly in written language, where it can survive as part of the grammar of educated speakers. The other kind of diachronic stability is found in spoken BP, and corresponds to another form of competition

between an old form and a new one, in which the former resists to the pressure of the latter even in the vernacular, and enters with it in what is likely to become a stable coexistence. The two cases are described below.

3.1 Clitics in the history of Brazilian Portuguese: A non-homogeneous evolution

As we have seen in Section 2, BP 1st and 2nd clitic pronouns vary with strong pronouns. One could think that this reflects the fact that the former have been overridden as a whole by the latter, and are no more part of the Brazilian grammar, in other words that BP has no longer got clitics. This claim is contradicted by the fact, discussed in the previous section, that EP and BP instantiate a different clitic syntax, which entails that BP does have clitics. What can be inferred from both synchronic and diachronic approaches of the grammar of pronouns in BP is that a distinction has to be done between the 3rd person, on one hand, and the 1st and the 2nd person, on the other hand.

Table 3, from Cyrino (1993) nicely shows the differentiation between the evolution of the two types of clitics.¹⁰

Table 3. The evolution of the use of object pronouns in plays (Cyrino 1993: 175)

Período	Clítico 1 ^a p.	Clítico 2 ^a p.	Clítico 3 ^a p.	Clítico “neutro”	Tônico 1 ^a p.	Tônico 2 ^a p.	Tônico 3 ^a p.
XVI/1	29.0	29.4	34.8	6.8	0	0	0
XVI/2	30.6	12.6	43.3	13.5	0	0	0
XVII	20.3	16.4	52.3	11.0	0	0	0
XVIII/1	36.5	19.3	37.8	6.4	0	0	0
XVIII/2	40.1	15.8	37.0	7.1	0	0	0
1838–44	32.5	10.7	51.2	5.1	0	0	0.5*
1857	23.3	11.4	57.9	2.8	0.6*	0	4.0
1891	15.9	12.1	48.1	2.8	0	0	11.1
1940	49.1	22.4	26.7	0	0.9*	0	0.9*
1960	51.1	0	16.3	0	2.2	11.9	18.5
1973	28.0	24.0	4.0**	0	0	0	44.0

Table 3 describes the distribution over time of pronominal forms in direct object position according to the person. As for the third person, it distinguishes between

10. Cyrino analyses 2,308 pieces of data drawn from theatre plays, mostly comedies, written between the first half of the 16th century and the second half of the 20th century. From the 2nd half of the 18th century onwards, the authors are Brazilian. She does not provide the absolute number of occurrences but the percentage marked with a star means only one occurrence.

referential (NP) clitics and propositional clitics, like the one exemplified in the dialogue in (17):

- (17) Que é isto, sobrinho?
 What is this, nephew?
 ‘What is this, nephew?’
 Eu o não sei, em minha consciência.
 I 3SG.ACC.CL not know, in my conscience
 ‘I don’t know, I swear.’ (Antonio José, p. 236, in Cyrino 1993, Example (15))

We first see that 3rd person clitics first disappear in plays in their propositional function. They cease to occur from 1940 on. At the same time we observe a decrease of the use of the referential (NP) 3rd person clitics, going from 26.7% to 16.3% in 1960, and finally to 4% in 1973. The use of 3rd person tonic pronoun first appears as a substitution strategy in the middle of the 19th century, it represents 11.1% of the total of pronouns in 1891, 18.5% in 1960, and finally 44% in 1973.

The dynamics of 1st and 2nd person pronouns is clearly different as there is no decreasing of the relative frequency of the clitic forms over time. On the contrary, the 20th century plays display twice as many 2nd person clitics as the 19th century plays, with the only exception of the 1960 play that contains no occurrence at all. The frequency of 1st person clitics does not seem to drop either, but keeps fluctuating along time. This can be due to the nature of the plays. For the 2nd person in particular, we see the emergence of a variation between clitic and tonic pronouns that does not correspond to a clear diachronic process.

Recent findings from Souza (2014) complement Cyrino’s data on 2nd person. We can see the emergence and the increase of the use of the tonic pronoun *você* (“you”) (18), to the detriment of the clitic ‘te’ *you* (19) in personal letters during the 20th century.¹¹ Table 4 shows that the frequency of the innovative form is 1/3 in the second half of the century.

- (18) Eu no sábado espero você
 I on Saturday wait.1SG you
 ‘I will wait for you on Saturday’ (letter 1937 – Souza 2014)
- (19) Te acompanharei em muitas orações
 2SG.CL will accompany in many prays
 ‘I’ll support you with many prays’ (letter 1920 – Souza 2014)

11. It is worthwhile noting that the absolute clause initial placement of the clitic in (19) is another innovation of BP w.r.t. EP, where in all the periods of the history, we observe a strict constraint against clitic-first (cf. a.o Martins 1994; Galves et al. 2005)

Table 4. The evolution of the use of the 2nd person clitic ‘te’ vs. the 2nd person full pronoun ‘você’ in diachrony (letters) – *Souza 2014*

Period	<i>te</i>	<i>você</i>
1906–1930	132–97.1%	4–2.9%
1931–1955	123–93.9%	8–6.1%
1956–1980	38–69.1%	17–30.9%

However, synchronic studies from the beginning of the 21st century show a strong resistance of the clitic form. This can be seen in Table 5, which presents data from three different studies.¹²

Table 5. The use of ‘te’ (/’lhe’) and ‘você’ in synchrony: Variation studies in several Brazilian regions

	<i>você</i>	<i>te</i>	other 2P. pronouns	Source
Salvador (2007)	43–8%	247–46%	<i>lhe</i> : 251–46%	Almeida (2009: 128)
Rio de Janeiro (21st century)	16–13%	109–85%	<i>tu</i> : 3–2%	Pimienta (2013: 86)
Brazilian movies (2000–2008)	31–16.7%	151–81.2%	<i>lhe</i> : 4–2.2%	Silva (2011: 37)
Rio de Janeiro	22–22%	77–77%	1–1%	
São Paulo	8–14%	48–84.2%	1–1.8%	
Porto Alegre	1–3.4%	26–89.7%	2–6.9%	

Table 5 shows that, although the relative frequency of tonic pronouns and clitics varies from region to region, the use of the former does not seem to have increased since the end of the third period of Table 4, that is, the eighties of the 20th century. On the contrary, if we compare the results on Table 4 and Table 5, it has moved back. In all the cities of the different studies included in Table 5, the use of 2nd person clitic is far more frequent than the use of the tonic pronoun. Even the highest frequency of the latter (movies taking place in Rio de Janeiro, 22%) is more than 10% lower than the result reported for the personal letters in the third period considered – 1956–1980 (30.9%). The case of Salvador is the most interesting since we find the lowest frequency inside a three-way competition between the tonic form

12. Almeida (2009)’s corpus is composed of interviews recorded in Salvador in 2007. Pimienta (2013)’s study is based on the *Concordância* Corpus <www.concordancia.letras.ufrj.br>, on a corpus of Facebook chats and on evaluation questionnaires. Both studies follow socio-linguistic methods in the construction of the corpora and the analysis of the data. Silva (2011) analyses address forms in 13 Brazilian movies taking place in three different cities between 2000 and 2008. She also approaches her data from a socio-linguistic perspective.

and two clitic forms, *te* and *lhe*.¹³ As for the almost non-existence of accusative *você* in Porto Alegre, it is due to the fact that in the dialect spoken in this city the nominative form for the 2nd person is not *você* but *tu*. For the evolution of the paradigm of address forms in BP, see Lopes (2008).

The variation found in the study done on Brazilian movies (Silva 2011) is illustrated below:

- (20) *Você vem buscar [e] e eu te vejo [...].*
 You come take (it) and I 2SG.CL see
 ‘You come to take it, and I meet you’ (Os 12 trabalhos 2006 – Silva 2011)
- (21) *Eu sigo você. Vá devagar.*
 I follow you. Go slowly
 ‘I am following you. Don’t run.’ (Meu tio matou um cara 2004 – Silva 2011)

In conclusion, we see two distinct, and opposite, evolutions in the use of clitics over time. While 3rd person clitics, both accusative and dative, disappear from speech, for the benefit of full pronouns and null objects, 1st and 2nd person clitics resist to the use of full pronouns, and enter in an apparently stable variation with them, which ultimately paves the way to the emergence of morphological doublets.

This notion brings us back to the issue of grammar competition. In effect, Kroch (1994) claims that such doublets cannot be tolerated by a single grammar and cannot be but the effect of the competition of two different grammars in use. Interestingly, Kroch raises the question of the existence of such competition in speech:

Since the cases of grammar competition we have studied are all historical cases based on written texts, it is perfectly possible that it reflects stylistic options limited to the written language, with its known peculiarities and tendencies to linguistic unnaturalness. Thus, we might see in historical contexts competition between the grammar of the spoken language of a given time and an archaic but still influential literary standard. If this is so, then grammar competition will have no purely linguistic significance, but will still be important in the interpretation of texts. *Only work on possible cases of competition in living languages can determine whether it exists in unreflecting vernacular speech, a question to which we do not yet know the answer* [emphasis mine, CG].” (Kroch 1994: 197)

The facts reported in Table 5 about the expression of 2nd person, in contrast with what we have observed with the 3rd person, provide us with a case of “competition in living languages”, since at the same point in time, around 2010, both forms are

13. We also observe a marginal use of *tu* as direct object in the movies taking place in Rio de Janeiro. This corresponds to the use of the subject pronominal form “*tu*” instead of “*você*”. This is a non-standard use rejected by many speakers (cf. Pimienta 2013: 124)

used in the vernacular spoken language. Additionally, we have seen that such a coexistence has been lasting for one century (see Table 4) without the loss of the clitic form, in contrast with what happened in the 3rd person. Finally, it is worthwhile mentioning that speakers evaluate both forms as fully acceptable and natural (cf. Pimienta 2013: 119).¹⁴ The immediate question is whether such a competition can durably stay in the language. Another question is how it comes to existence in the mind of the speakers. Yang (2000)'s interpretation of grammar competition as produced in the speakers' mind by the acquisition process in the context of heterogeneous linguistic evidence brings an answer to both questions.

...heterogeneity in the linguistic evidence, however introduced, is a prerequisite for language change. Once the homogeneity is punctured, language learners *form internal representations of coexisting grammars*. The propagation of such grammars in successive generations of individual learners defines the dynamics of language change. (Yang 2000: 241)

language use is inherently variable, and *there is evidence of multiple grammars in mature speakers during the course of language change*. The model formalizes historical linguists' intuition of grammar competition and directly relates the statistical properties of historical texts (hence, acquisition evidence) to the direction of language change. It is important to recognize that, while sociological and other external forces clearly affect the composition of linguistic evidence, *grammar competition as language acquisition (the locus of language change) is internal to the individual learner's mind*. (Yang 2000: 248)

For Yang, the fate of such a competition will be inevitably the loss of one grammar after successive generations. In the next section, I argue that such a model cannot fully account for the case of BP personal pronouns. I suggest that BP provides evidence that the acquisition of doublets is compatible with the acquisition of a single grammar and that the variation produced by the existence of doublets is dependent on functional specialization, as proposed by Kroch (1994) and Wallenberg & Fruehwald (2013).

3.2 Morphological doublets in a single grammar – evidence for specialization

The fact that there is an innovative syntax for clitics in BP provides empirical evidence that what is at stake in BP is not the competition of a conservative grammar G1, with a full paradigm of clitics, and an innovative grammar, G2, without any clitics. If it were the case, in effect, we would expect that clitics always behave like

14. The evaluation questionnaires were presented to people from the end of middle school (c. 15-year old) to the University level.

in G1.¹⁵ The contrast between (15)–(16) shows that this is not true. Clitics do exist in BP, but with a different syntax, and a different paradigm, as described in Table 2. Furthermore, we have seen that such syntax is likely to have been strongly influenced by the grammar of Bantu languages.

Additionally, as recently emphasized by the literature, some BP dialects display 1st and 2nd person clitic doubling (Diniz 2007; Machado Rocha 2010; Galves et al. 2016):¹⁶

(22) Eles te_i irrita $ocê_i$
 they 2SG.CL irritate you
 ‘They upset you.’

(23) Ele me_i arrastou eu_i
 he 1SG.CL dragged me
 ‘He dragged me.’

(Diniz 2007: 49)

Doubling is also found in acquisition data:

(24) Me_i espera eu_i
 1SG.CL wait me
 ‘Wait for me!’

(Raquel, 2; 0.5. Magalhães 2006: 118)

Such a construction is impossible in EP, in which the preposition ‘a’ is required in the cases of doubling, and doubling expresses contrastive focalization (Martins 2013: 2237), which is not the case in (22)–(23).

Let’s call the BP grammar without doubling BP1 and the one with doubling BP2. Machado Rocha (2010, 2011) argues that in BP2 clitics have been reanalyzed as agreement markers, which only codify the person features [speaker]/[addressee]. One piece of evidence for this is that “they do not make distinctions between the case of the DP pronouns with which they are associated (ACUS/DAT/ABL)”, as

15. This is in fact what happens with the 3rd person clitic *o/a* when it is used in written language. In Schei (2003)’s study of clitic placement in literary Brazilian Portuguese, 3rd person clitics never appear in innovative placements.

16. Consistently with the claim that 3rd person clitics are no longer part of the innovative paradigm, doubling never occurs with accusative 3rd person (cf. Example (i)). The absence of clitic doubling with full DPs straightforwardly derives from the same fact (cf. Example (ii)):

(i) * eu o vi ele
 I 3SG.CL saw him
 ‘I saw him’

(ii) * eu o vi João
 I 3SG.CL saw John
 ‘I saw John’

evidenced by the examples in (25), in which the clitic doubles a direct object (a), an indirect object (b) and a prepositional object (c):¹⁷

- (25) a. Eu vou te_i levá $ocê_i$ lá (ACUS)
 I go 2SG.CL take you there
 ‘I’ll take you there.’
- b. Deixa eu te_i perguntar $ocê_i$ um negócio (DAT)
 Let me 2SG.CL ask you a thing
 ‘Let me ask you something.’
- c. Eu não vou te_i falar com $você_i$ que... (ABL)
 I NEG go 2SG.CL speak with you that...
 ‘I am not going to tell you that...’
- (Machado Rocha 2011: 124, Example (30))

This analysis solves both the case problem and the doublet problem for BP2, since the clitic forms no longer compete with the tonic pronouns neither syntactically (for case), nor with respect to its function in the derivation. The fact that clitic and tonic pronoun cease to be in complementary distribution points to their distinctiveness. In other words, they are no longer functional equivalents.

Now, what about BP1 clitics? Are they full clitics or mere agreement markers, like in BP2? This is not an easy question to answer, but the second hypothesis seems to be supported by a couple of facts. First, as shown in the previous section, they do not syntactically behave like EP or Romance clitics in general. They do not climb to the inflected auxiliaries, but always stay affixed to their thematic verbs. This peculiarity can be detected in Brazilian Portuguese as early as the 19th century (Pagotto 1992; Carneiro 2005). Additionally, another curious peculiarity has recently emerged in speech. It is the fact that the 2nd person clitic *te* has increasingly been used as the oblique counterpart of the address form *O Senhor/A Senhora* (“Mister”/ “Mistress”), which conveys formality and respect, as illustrated in (26). This reveals that *te* is losing its familiarity feature normally associated with *tu* or *você*.¹⁸ Doubling of the respectful address form is even possible with *te*, cf. (27):

- (26) O Senhor_i vem amanhã? Eu te_i espero aqui.
 the Mister comes tomorrow? I 2SG.CL wait here.
 ‘You (RSP) come tomorrow? I wait for you here.’

17. Examples in (25) are from a spoken corpus from the hinterland of the State of Minas Gerais. ‘ocê’ in (25a,b) is a reduced form of the 2nd person form ‘você’ (you). In (25a), the form “levá” transcribes a pronunciation of the infinitival form, in which -r- is not spelled out.

ACUS = Accusative. DAT = Dative. ABL = Ablative.

18. One could argue that this happens only in the speech of speakers of BP2. More study is needed to provide a precise picture of the nature and limits of this dialectal variation.

- (27) Eu te_i dou este livro para a Senhora_i
 I 2SG.CL give this book to the Mistress
 'I give you (RSP) this book.'

Taken together, these two facts (affixation to the verb and loss of the [\pm formal] feature) strongly suggest that, even when not doubling the full pronoun, the clitic essentially functions as an agreement marker, whose only feature is [addressee]. In the absence of the tonic pronoun, the argument is the null object of the verb, as Machado Rocha (2010, 2011) suggests for BP2 clitic-only constructions. This is consistent with the very productive use of null objects in the 3rd person, as shown in Section 2.2.1 (cf. Table 2). From this point of view, the only difference between BP1 and BP2 would be the productivity of clitic-doubling of the full pronoun. In BP1, only one element can appear, not both.¹⁹

3.3 Consequences for the diachronic interpretation of the variation and change

This analysis permits us a fresh look at the diachronic facts observed above. In effect, what we observed was rather unexpected. The increasing use of the tonic pronoun *você* in object position during the first half of the 20th century in personal letters (cf. Table 4), would lead us to predict a gradual disappearance of the clitic pronoun *te* in the following times. But instead, we saw that this pronoun was extremely healthy in speech at the beginning of the 21st century (cf. Table 5). Although this might look like a paradox, it ceases to be one if the clitic pronoun present in the early 20th century letters is conceived as being different from the clitic pronoun of the 21st century spontaneous speech. After the discussion on the nature of clitic doubling, a new picture emerges. What we see in the 20th century letters is the competition between the old grammar (EP), where *te* is a pronominal clitic, and the new grammar (BP), which allows for tonic pronouns to appear in object position. What we see from the data from movies in Table 5 is the co-existence, in the new grammar, of the tonic object and the agreement marker *te* which identifies the null object as a second person pronoun. This new interpretation of the data can be applied to the evolution of the use of the pronouns in the plays studied by Cyrino (1993) (cf. Table 3). We can draw a parallel with the case of the letters, if we interpret the 1960 play, in which the use of tonic pronouns completely overcomes the use of clitics,

19. This could be due to a greater influence of the norm in the regions in which clitic-doubling is not attested, since clitics appearing alone look like standard clitics. A deeper dialectal study is needed to determine the regional and socio-cultural limits of the use of clitic-doubling.

as the turning point at which the new paradigm has defeated the old one.²⁰ From this point of view, in the play of 1973, what emerges is the new clitic form, whose function is to transmit 2nd person/addressee features to the null object.

3.4 Coming back to Subject-Verb agreement

In Section 2.1, we saw a sort of contradictory situation occurring in BP. While subject-verb agreement became a variable phenomenon (cf. Table 1), the contexts of verbal agreement broadened since they include agreement with locative and genitive phrases fronted to the pre-verbal position. We should now address the issue of the origin of the variation between agreement and non-agreement. Again, the question is whether such variation is due to grammar competition, i.e. the competition between an old agreeing grammar and a new non-agreeing grammar, or whether it is produced by a single (innovative) grammar. And again, the existence of innovative constructions involving agreement is an indication that the second hypothesis is on the right track, since there is no incompatibility between the new syntax and subject-verb agreement. What is needed then is to make explicit the nature of the innovative grammar in what regards its subject and agreement syntax.

I shall propose that the key to understanding the variability of agreement in BP lies in the articulation of two trends of analyses of the IP field, that have been proposed as parametric values for this language. First, many authors argue that in BP Tense – and/or Agreement – features are weak (Galves 1993; Ferreira 2000; Modesto 2000 among others). This claim, in its different forms, has intended to account for several features that characterize BP: its restrictive pattern of null subjects,²¹ the possible indeterminate interpretation of null subjects in tensed sentences,²² hyper-raising phenomena,²³ among others. Second, it has been proposed by Avelar and Galves (2011), following Chomsky (2008)'s framework, that BP constructions like (3)–(6) above are due to the fact that in this language, the EPP-features of Tense are independent of the phi-features of Comp. This means that Tense can attract a phrase from inside VP as soon as it is inserted in the derivation. When C is inserted, Spec/TP is already filled, either by the external argument

20. That the competition has deeper roots in time is clearly shown by what happens with the 3rd person clitic, which begins to enter in competition with tonic forms around 1850. It is also when the innovative clitic placement begins to increase (Martins 2018).

21. Cf. Galves 1987, Kato 2000, 2017; Modesto 2000, 2008; Rodrigues 2004; Kato 2017, a.o.

22. Cf. Galves 1987, a.o.

23. Cf. Martins & Nunes 2006; Avelar & Galves 2011; Nunes 2016 a.o.

the verb, or by a locative or a genitive phrase.²⁴ What I would like to suggest is that the optionality of agreement is a corollary of those two claims, taken together. First, the phi-independence of the EPP features of T entails that morphological agreement between the verb in T and a DP in Spec-TP is independent from the syntactic operation Agree, as defined by Chomsky (2001). In BP, the DP that shows up in Spec/T has not been probed by the phi-features of T. The agreement relationship between the DP in Spec/T and T is a genuine Spec/head agreement. Second, if the features of T are weak, entailing that they are not able to bear a referential index, the DP is in a structural position that enables it to control those features. From this point of view, the optionality of morphological agreement is due to the fact that both agreeing and non-agreeing forms are compatible with the fact that the DP controls the phi-features of the verb. The choice between them depends on several socio-cultural and linguistic factors, which have been widely described in sociolinguistic studies on the question.²⁵ As we saw above, both education and urbanization play an important role in it. However, this does not imply that morphological agreement be external to BP in the sense that it comes from another grammar.

4. Concluding remarks

In this chapter, we have considered three different morphological variations observed in BP, (i) the variation between the 3rd person accusative clitic *o/a* and the 3rd person tonic pronoun *ele*, (ii) the variation between the 2nd person accusative clitic *te* and the 2nd person address form *você* and, finally, (iii) the variation between agreement and non-agreement between verbs and subjects. All of them are arguably due to the strong contact situation that occurred in the history of Portuguese in Brazil, which produced heterogeneous linguistic data for generations of acquirers of Portuguese as a first language. We have seen that only in the first case, we can speak of competition of grammars in the sense given to this term by Kroch (1994: 197). In effect, the use of 3rd person accusative clitics has disappeared from the spontaneous spoken language, being only used in written texts and in very formal speech. They are acquired through formal education, and their use follows special grammatical rules of placement. In the other two cases, it has been argued that they are integrated into a unique, innovative, grammar, in which both agreement and clitics appear in new configurations. If this analysis is on the right track, this means that heterogeneous data do not obligatorily lead acquirers

24. Cf. Avelar & Galves 2011, 2018.

25. Cf. Naro & Scherre 2007 and the references therein.

to postulate two grammars, as proposed by Yang (2002). Going a step further, we can even doubt that the notion of heterogeneity has any meaning in acquisition.²⁶ What acquirers have to do is to make a grammatical sense of what they hear. If what they hear contains two different ways of expressing the same meaning, or codifying the same relationship, they have to find a grammar in which this is possible. The case of the 1st and 2nd person clitics in BP is particularly interesting to show that a form belonging to an old grammar can be reanalyzed in a new grammar in such a way that it can co-exist with an innovative form, producing what looks like a free variation, i.e. doublets, but is not.

Both in the case of clitics and in the case of verbal agreement, an important piece of evidence for this analysis is that the apparently conservative form has innovative uses. This supports the claim that it has been reanalyzed in the sense that its value in the new system is different from its value from the old system. In the case of verbal agreement, this is a crucial point, since it is a purely formal process, which does not involve any semantic differentiation of the two alternatives. However, we can rely on independent evidence that agreement in BP is different from agreement in EP, mainly from the licensing and interpretation of null subjects, which depend on an antecedent in A or A-bar position to be interpreted (Rodrigues 2004; Modesto 2000, 2008). This points to the fact that agreement is too weak to referentially identify empty categories in subject position, even when person and number are overtly realized on the verb. This strongly suggests that such features are not visible at the level of the interpretation. A strong empirical evidence for this analysis is that there is no correlation in the Brazilian dialects between the frequency of null subjects and the frequency of overt agreement marking. Lucchesi (2009: 176, Table 1) shows that the frequency of null subjects is the same in Afro-Brazilian communities (in which the frequency of overt agreement is 16% – see Table 1), and in the standard urban variety (in which the frequency of overt agreement ranges from 73 to 94% according to Table 1).

In conclusion, the result of strong linguistic contact is a new grammar with a great deal of morphological variation, and morphological variation is not always the result of the competition of an old and an innovative grammar. It can be the property of a new grammar. In the first case, we expect replacement of a form by the other, in the second case, we expect specialization, which means reanalysis of one of the forms. From this point of view, Wallenberg & Fruehwald's (2013) option simply depends on whether the conservative form was acquired or not. If not, it

26. The limit of this claim is obviously the case of the presence of two different languages, which, possibly, children discriminate early on the basis of their different prosodies and lexicon. This issue is far beyond the limits of this paper, for a recent comparison of monolingual and bilingual acquisition, see van Houwer (2002).

remains as a fossil, bound to disappear. It is the case of 3rd person accusative clitics. If acquired, it forces the paradigm to be rearranged, as in the case of 1st and 2nd person accusative/dative clitics. I propose here that the same happened with overt verbal agreement markers. A sufficient number of agreeing verbal forms were acquired to force the system to include verbal agreement, but this was not sufficient to characterize the system as a strong agreement system. The pressure of the norm is able to quantitatively influence the choice of inflected forms in detriment of non-inflected forms, as we saw in Table 1, but it is not able to revert the reanalysis of the T head. This explains both the variation in the frequency of agreement shown by Table 2 and the stability of the frequency of null subjects presented by Lucchesi (2009). This analysis, added to the analysis proposed for 2nd person clitics, ultimately shows that the permanence of old resilient forms in variation with new innovative forms, even if it is clearly sensitive to normative pressure, does not imply the competition of an old and a new grammar. If they resist, the old forms are likely to have undergone a reanalysis inside the new grammar.

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List of abbreviations

1SG	1st person singular
2SG	2nd person singular
3SG	3rd person singular
3PL	3rd person plural
1SG.CL	1st person singular clitic
2SG.CL	2nd person singular clitic
3SG.CL.ACC	3rd person singular accusative clitic
REFL	Reflexive
RSP	Respectful

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What is a diachronically stable system in a language-contact situation?

The case of the English recipient passive

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In this paper we present data showing that the development of the English recipient passive (RP) was linked predominantly to verbs of French origin, although Old French (OF) did not have an RP. We present two explanations of the role that contact with French could have played in this development. The first explanation builds on the fact that only structurally case-marked arguments can become subjects of passive clauses and assumes that the RP was developed with French verbs because the OF structural dative was copied to Middle English (ME). The second explanation is that clause-taking ditransitive verbs in Anglo-French (AF, the variety of OF spoken in England) showed case idiosyncracies that licensed the RP in AF and may thus have acted as a bridge construction. We relate both explanations to current approaches in contact linguistics as well as to the degrees of stability of the three languages involved, ME, OF, and AF.

1. Introduction

The aim of this contribution is twofold: (i) we intend to update the state of the art concerning the development of the English indirect passive, and (ii) we analyse this development in terms of the notion of stability under the language contact hypothesis. Our study focusses on the indirect passive with ditransitive verbs, and in what follows we will use Allen's (1995) more precise term *recipient passive* for these constructions as only arguments functioning as the Recipient can be promoted to the subject position. Sentence (1c) is an example of a Recipient passive of the active sentence (1a), whereas (1b) is the 'normal' Theme passive:

- | | | | |
|-----|----|---|---------------------------------|
| (1) | a. | Sue gave <i>Tom</i> presents. | active |
| | b. | Presents were given <i>to Tom</i> (by Sue). | Theme (or direct) passive |
| | c. | <i>Tom</i> was given presents (by Sue). | Recipient (or indirect) passive |

Almost forty years ago Rochelle Lieber presented the development of the English passive as a case of *Historical Rule Stability* (Lieber 1979). Quoting five debatable¹ Old English (OE) examples from Visser she tried to show that the indirect passive was a ‘possible, albeit rare construction from earliest OE times’ while admitting nevertheless that ‘further research into the precise development of the indirect passive is still necessary’ (*ib.*, 686). Lieber argues that the only change that affected the development of English passive constructions was the loss of case marking whereas no change occurred in the grammar. Indirect passives became possible as soon as dative objects were no longer lexically case marked and therefore became indistinct from regular accusative objects. Lieber’s argumentation is well suited to highlighting a notion of stability that was common in old-school historical linguistics: a system is stable when the grammar does not change. It is quite clear that we do not share this notion of stability since, amongst others, it is limited to a strictly internal view of change. And although ‘stability’ made it into the title of Lieber’s article she does not discuss it any further, reducing it more or less to the predictability of a development.

So how can we more satisfactorily define ‘stability’ in language change, including both internal and external factors? Let us take a closer look at contributions in the field of language contact. Heine and Kuteva (2005) briefly address the notion in the context of grammaticalisation. Although they point out that diachronic stability is widely associated with internal change (p. 14), they also distinguish between ‘idiosyncratic and temporally restricted use’ and ‘stability of expression’ in language contact (pp. 116–117): When speakers in a contact situation do not have a match for a model language phenomenon (e.g. articles), they tend to under- or overgeneralise it in the replica language. But when these idiosyncratic uses stabilise, it is more likely that a phenomenon is ultimately added to the replica language, if it is part of the inventory of the model language, than that it is dropped from the replica language, if it is not part of the inventory of the model language. The feature that Heine and Kuteva’s and Lieber’s notion have in common is that ‘stable’ refers to the predictability of language change.

Heine and Kuteva’s idea is elaborated on a broader typological level by Parkvall (2008). He proposes a method for measuring the likelihood for a feature to be transferred from one language to another. Based on the assumption ‘that certain characteristics lend themselves to borrowing more easily than others’ and on the data of the *World Atlas of Language Structure* (WALS), he distinguishes between genealogically stable, i.e., typically inherited, features, and borrowable or transferable features, i.e., features that are easily gained or lost in contact (Parkvall 2008: 234–5).

1. Cf. the critique by Russom 1982.

He measures stability by calculating the quotient of two indexes, genealogical cohesiveness and areality. Thus, for example, phonemic click sounds are highly stable (3.00) whereas the word for ‘tea’ is unstable (0.74). *Case* (in general, WALS no. 21.B) and *Passive constructions* (no. 107) are in the lower part of the scale, with values of 1.44 and 1.32 according to the figures in Parkvall’s appendix.

One of the few authors thoroughly dealing with ‘stability’ in language contact is van Coetsem (1988, 2002) which we will therefore discuss here in more depth. In his 2002 monograph with the title “A general and unified theory of the transmission process in language contact” he proposes a framework which is based on two guiding concepts, agentivity and stability. For van Coetsem (2002: 5) the most fundamental questions to come closer to an understanding of how languages interact are: (i) Which is the agent language in the contact-linguistic transfer, the source language or the recipient language?; (ii) How do language components and subcomponents differ in stability, and how does this affect the transmission of language material from the source language to the recipient language? Concerning the first question, van Coetsem assumes two types of transfer, recipient language (RL) agentivity, standardly referred to as borrowing, and source language (SL) agentivity, standardly referred to as imposition. The difference depends on linguistic dominance, i.e. on the degree of proficiency the bilingual speaker has in his languages. So if a speaker is more proficient in his recipient language (RL), he will apply RL agentivity; if he is more proficient in his source language (SL), he will apply SL agentivity. Lucas (2012: 278) suggests that it is more precise to associate van Coetsem’s notion of dominant language with the L1 of a speaker. Thus, RL agentivity is borrowing of material from an L2 source language into the L1 recipient language, and SL agentivity is imposing material from an L1 source language onto an L2 recipient language. Applied to our contact situation, RL agents are L1 English speakers using French structures in their English, whereas SL agents are L1 French speakers imposing French structures on their L2, English.

This difference is crucial for the stability factor which van Coetsem defines as “a marker of transferability of language material from one language to another” (p. 32). The property of transferability directly relates to the second question van Coetsem poses because it presupposes that there are less or more stable language components which are less or more prone to change in language contact. For example, lexical items are much more likely to be borrowed than phonological or grammatical items. In this way, van Coetsem’s concept of stability resembles Parkvall’s but instead of calculating stability on a broad typological basis, van Coetsem intends to define it for single, specific contact situations. To do so, he adds subtypes of stability by making a distinction between inherent stability which is primarily based on the structuredness of a language, and subsidiary stability which is determined by

circumstantial factors like the affinity between the SL and the RL and the attitude of the speaker towards these languages.

As a general principle, van Coetsem (2002: 58) assumes that “a language in contact with another language will tend to maintain its stable components”. In the case of RL agentivity, the agent speaker seeks to maintain the more stable components of his more dominant system, for example his articulatory habits, while transferring items belonging to the less stable components from the less dominant language, the SL (e.g. lexical items). In the case of SL agentivity, the agent speaker will also aim at maintaining the more stable elements of his more dominant system (now SL) which will, for example, result in transferring his articulatory habits to his less dominant system (now RL). Van Coetsem further states that whereas RL agentivity can be seen as preserving the system of the RL, SL agentivity is of a more aggressive character since it shapes the RL according to the needs of the SL agent. Therefore, the impact on the RL can be drastic but it decreases as acquisition progresses. If we translate RL and SL into first language (L1) and second language (L2) acquisition respectively, we can easily see that it is imperfect learning, i.e. the imposition of L2 properties on the L1, that is seen by van Coetsem as having (more) drastic effects in language contact.

Although linguistic dominance determines the interplay between languages in contact and, consequently, the stability factor, van Coetsem nevertheless also addresses the case of simultaneous bilingualism, where the distinction between the two transfer types of RL and SL agentivity is neutralized. As a result, “... stability forces of equal (or comparable) value oppose each other and thus cancel out or neutralize each other...” (van Coetsem 2002: 84). The difference between neutralized contact situations and those that are based on linguistic dominance then is that in the former case transfer is bidirectional and determined by selection due to factors like salience, frequency and social prestige rather than stability. Using van Coetsem’s notions of inherent stability and the stability factor/gradient we interpret the contact situation under scrutiny as follows: (i) Being a transitional stage in the history of English, Middle English was inherently unstable. It came into contact with the (more) stable languages Anglo-French (AF)/Old French (OF) (cf. the discussion at the end of Section 4). (ii) In the first phase of the contact situation OF was the sociolinguistically dominant language and therefore the stability factor was operational. However, there is evidence that by the 13th c. bilingualism prevailed among the upper and educated classes (Short 1980), in which case the contact relation was bidirectional and the stability factor was non-operational.

To define the contact scenario under scrutiny we will combine van Coetsem’s framework, which allows us to capture the role of the speakers as well as the distinction between L1 and L2, with Johanson’s (2002) integrative approach to language

interaction within a code-copying framework. Code-copying is defined as “a kind of interaction of linguistic codes” (Johanson 2002: 287). It occurs when copies of elements of a foreign ‘Model code’ are inserted into a Basic code (Johanson’s terms Model and Basic code correspond to the more widely used terms source recipient language, which we will use henceforth). Adopting the notion of code-copying has a number of benefits for our approach, and probably for historical studies more generally. First, it abstracts away from established concepts like borrowing, transfer, switch, etc., which often evoke situations that we don’t want to posit in a historical analysis (for example, ‘borrowing’ being more permanent than switching, or interference involving the availability of more than one code; Johanson (2002: 288) gives further reasons why he avoids these terms). Secondly, ‘copying’ applies to all kinds of structures: units of form and meaning in the case of *global* copies, but also properties on a specific linguistic level in the case of *selective* copies (e.g. restricted to phonetic form or meaning). Importantly, ‘copying’ overcomes the dichotomy between lexical and structural borrowing found elsewhere (e.g. Thomason and Kaufman 1988: Chapter 4). When it comes to contact on the level of argument structure, this separation is clearly not useful (cf. the criticism by Winford 2003: 61). Finally, ‘copy’ avoids the idea of “identity of originals and copies” (Johanson 2002: 288): in the recipient language the copy is a new entity that assumes a function that depends on the system it is inserted into.

Some of the concepts and terms proposed by Van Coetsem and Johanson are similar, for example ‘imposition’, others, like ‘dominance’, diverge. In a complex contact situation like the one at issue here it is difficult to define dominance on sociolinguistic grounds alone, as Johanson does. After the Norman invasion, French was for a time spoken largely by socially dominant monolingual native speakers, but then it became used largely by bilingual users of English as well, who increasingly became dominant in English. Van Coetsem’s more speaker-centered notion of dominance captures these interactions better, as well as the changes from an L1–L2 to a bilingual scenario (see also his remarks on this specific situation in van Coetsem 2002: 131–132).

To sum up, we will discuss the rise of the recipient passive under the language contact hypothesis in a composite framework (sketched out in Figure 1). We will analyse our historical data structurally, using Johanson’s code-copying (“What was copied?”), and we will relate our findings to the role of the speakers according to van Coetsem’s framework (“Who copied?”) in order to answer the question of how the language change occurred.

Concerning the rise of the RP under the language contact hypothesis we complement van Coetsem’s ideas with the notions of stability mentioned above, and define the following questions:

- Is the system of the RL stable during the period considered, or to what extent is it changing?
- Does the RL have the phenomenon p , or not?
- Does the copying of p produce a mismatch in the RL?
- Is p , the phenomenon copied from the foreign SL, stable?
- How learnable is p ?

(a) relates to van Coetsem's notion of inherent stability as well as the internal predictability of change used by Lieber, (b) and (c) follow Heine and Kuteva's line of argumentation and will be answered using the framework sketched out above, (d) pertains to feature stability as defined by Parkvall, and (e) adds learnability, i.e. the speakers' degree of competence, thus addressing the difference between L1 and L2 as well as van Coetsem's notion of dominance. In Section 5 we will answer these questions on the basis of our data presented in Sections 3 and 4.

The outline of the paper is as follows: in Section 2 we will deal with the rise of the RP in the history of English by summarising what has been said so far in the literature and by providing data from our corpus-based studies. Section 3 proposes an analysis of the rise of the RP which is based on the assumption that what was copied from AF/OF to ME was the feature "structural case" to express the Recipient of verbs of French origin. In Section 4 we discuss whether and to what extent AF clause-taking verbs could have functioned as a bridge construction in this process. Section 5 discusses our findings in the light of the notion of stability in contact. Section 6 presents our conclusions.

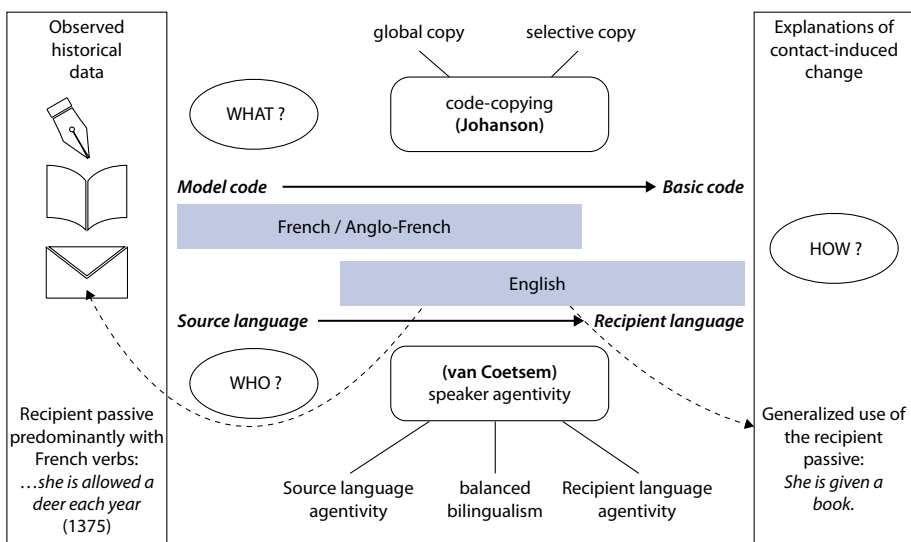


Figure 1. A framework for the analysis of contact-induced change

2. The Recipient passive in the history of English

The goal of this section is not to provide an exhaustive account of the development of the various English passive constructions. Rather, the focus will be on the Recipient passive and some other constructions directly connected to it. For a detailed account see the seminal study by Allen (1995) that inspired the corpus-based analysis presented here.

Our corpus-based studies are based on the syntactically annotated Penn Historical Corpora. In order to extract Recipient passive constructions, we searched for passive verb forms co-occurring with a subject NP and a direct object NP within the same IP. The queries explicitly excluded verbs governing an object predicative, e.g. *they made him [king]* (these constructions are annotated like ditransitives).²

2.1 Previous studies and first occurrences

According to Denison, the RP did not exist in Old English: “As for the indirect passive, [ref. to example omitted], this is not found in Old English, nor in most western European languages. However, Old English did have a passive where the Benefactive remained in the dative case” (Denison 1993: 103).³ The alleged first occurrences of the RP in Middle English are not indisputed. Allen (1995: Chapter 9.4) criticises the examples quoted by Van der Gaaf and others because they can be explained by a possessive dative (*some were cut the hals*) or cases of subject omission with a fronted object (*The Duke Mylon was given hys liff*). She concludes that it is difficult to provide unambiguous evidence for OE RPs and that “[t]here seem to be no early fourteenth-century examples which we could consider really convincing” (*ibid*, 392–3). Allen accepts the occurrence in (2) quoted by Visser from Wycliffe (1375) because dative fronting is not used in this text and because by that time unambiguous constructions occur with nominative subject pronouns.

- (2) *Item as for the Parke she is a lowyd Every yere a dere*
 ‘Item: as for the park, she is allowed a deer each year’
 AwardBlount p. 205 (1375) [=Allen’s example (256)]

Allen states however that clear Recipient passives “are not numerous” (394). She argues against the idea that RPs occur with a specific subset of verbs, favouring

2. Queries were adapted to the corpora. A sample query is the one for PPCEME given here: (IP* idoms NP-SBJ) AND (IP* idoms BE*) AND (IP* idoms VAN) AND (VAN idoms !made|maad|named|termed|created|fo[uw]nde|proclaimed|<list continues>) AND (IP* idoms NP-OB1).

3. This is confirmed by corpus-based studies, e.g. Koopman (1990) and Yanagi (2012).

the explanation that bare objects following the verbs were reinterpreted as direct objects (395). We took this assumption as a starting point for our empirical investigation.

2.2 Middle English data extracted from the PPCME2 and the PCEEC

We conducted corpus queries in the *The Penn-Helsinki Parsed Corpus of Middle English* (PPCME2, Kroch and Taylor 2000) and in the *Parsed Corpus of Early English Correspondence* (PCEEC, Taylor et al. 2006). As expected (cf. the first occurrence of an RP quoted in (2), given by Visser and Allen), in the PPCME2, the first examples occur no earlier than in period M3 (1350–1420), with several verbs of French origin (*acountede* ‘told’, *payed* ‘paid’, *servyd* ‘served’, *banschyde* ‘banished’, and *delyvirde* ‘delivered’), listed in (3):

- (3) a. *þat þe Emperourez court of Rome, ne none þrouz-out al*
that the emperor’s court of Rome nor none throughout all
þe worlde, was none acountede to Kyng Arthures...
the world was none accounted to King Arthur’s
‘... that neither the Emperor’s court in Rome nor any other [court] in the
world was comparable to King Arthur’s.’ BRUT3,78.2373
- b. *and þei þat took hem were treuly payed too þousand pound.*
and they that took them were truly paid two thousand pounds
‘and they who took them were truly paid two thousand pounds.’
CAPCHR,153.3587
- c. *and they were servyd nexte unto the quene every cours*
and they were served next unto the queen every course
coveryde as the quene;
covered as the queen
‘and they were served next to the queen any course covered like the queen.’
GREGOR,139.584
- d. *and there were cartayne personys done unto dethe, that ys to*
and there were certain persons done unto death that is to
wete, iij sowdyers were banschyde the towne of Caleys.
know three soldiers were banished the town of Calais
‘and there were certain persons put to death that is to say three soldiers
were banished from the town of Calais.’ GREGOR,176.1112
- e. *Than Ulphuns and Brastias were delyvirde three thousand men*
Then Alphons and Brastias were delivered three thousand men
of armys,
of arms
‘Then Alphons and Brastias were delivered three thousand men of arms.’
MALORY,21.633

The three attestations with the native verbs *geuin* ‘given’, *tawt* ‘taught’, and *asket* ‘asked’, are listed in (4). In (4b) and (4c), the direct object is not an NP but a demonstrative (*this*, *þat*) referring to a preceding clause. In these cases the verb governs a clausal complement and the case marking of the non-clausal complement is less clear (this question will be discussed in Section 4). This leaves us with (4a) as the only occurrence of an RP with a subject DP.

- (4) a. *for þe prioresse is geuin a mater to be proud in þe*
 for the prioress is given a matter to be proud in the
begynnyng of hyr ordinance...
 beginning of her ordinance
 ‘for the prioress is given a matter to be proud of at the beginning of her ordinance.’ BENRUL,43.1346
- b. *þe secounde maundement þat is seuen byddiþ þe loue*
 the second commandment that is seven bids thee love
þin neizebore as þow louest þiself, and þat art tow
 thine neighbour as though lovest thiself and that art thou
tawt by kynde.
 taught by kind
 ‘the second commandment that is seven bids you to love your neighbour as you love yourself and that are you taught by kind.’ WYCSER,293.1200-1
- c. *Then when þe pylgrym was asket þis, þen he sayde: þer as*
 then when the pilgrim was asked this then he said there as
Cryst ys bodylyche.
 Christ is bodily
 ‘When the pilgrim was asked this he said: there, as Christ is corporeally.’ MIRK,10.272-4

Note that the results of our queries (cf. footnote 2 for an example) needed to be cleaned manually in order to exclude the following ‘non-Recipient’ double object constructions: object predicatives with verbs like *name*, *call*, *proclaim* etc., as in (5a), pertinence datives depending on bodyparts, as in (5b), and adverbials tagged as direct objects, as in (5c).

- (5) a. *the skynnes of Salamon ben seid tho with which...*
 the skins of Salomon were said those with which...
 ‘The skins of Salomon were said to be those with which...’
 PURVEY,I,54.2180
- b. *a man of kyng Evelakes was smytten hys honde off*
 a man of king Evelakes was cut his hand off
 ‘a man of king Evelakes had his hand cut off’ MALORY,641.3972

- c. *þe firste zere of þis Constantyn... was i-founde a plate of gold*
 the first year of this Constantin... was found a plate of gold
 ‘In the first year of the reign of Constantin ... a plate of gold was found.’

POLYCHVI,271.1975

The PCEEC was included for several reasons in our diachronic study. First, since the Recipient passive occurs only late in Middle English, the PCEEC fills the gap between the ME and EME period, with texts spanning c. 1410 to 1695 (the parsed version actually overlaps with the PPCEME). Secondly, in line with Allen (1995: 395), we also expect the RP to be more frequent in less literary texts like letters because they were not directly influenced by Romance languages like Latin or Old French as were many of the texts from other genres, where a polished literary style on the model of these two languages was imitated:

Most prose texts from this time are translations from Latin or French, and even original texts were affected by the grammatical models of French and Latin, which did not allow recipient passives. It seems most likely that recipient passives were **first used in speech** and only gradually gained acceptance in writing.

Allen (1995: 395), our emphasis

Thirdly, since correspondence is less affected by other written sources, the data reflects the active competence of the writers. Therefore, differences between French-origin verbs and native verbs in this corpus are more meaningful than those found in texts from other sources where the presence of model texts (previous manuscripts, French or Latin original versions) can't be excluded.

In the PCEEC the earliest example of a potential Recipient passive is *en-fourmed* ‘informed’ from 1444 given in (6), however with anaphoric *as* as Theme. The first RP with a full Theme NP (*mo* ‘more’) is *a-lowyd* given in (7):

- (6) *for as I am enfourmed he is not lodged þer in nisi ad*
 for as I am informed he is not lodged there in nisi ad
voluntatem domini Fastolf, &c.
 voluntatem domini F.
 ‘for as I am informed he is not lodged there in ...’ PASTON,II,13.239.7099
- (7) *Notwithstandyng, if Ser Thomas thynk that he shuld be a-lowyd*
 Notwithstanding if sir Thomas thinks that he should be allowed
mo, he shall be.
 more, he shall be
 ‘Notwithstanding, if Sir Thomas thinks that he should be allowed more, he shall have more.’ PASTON,I,74.024.472

The next occurrences of the RP are with *assign*, 1456, *serve*, 1461, and *pay*, 1465. With native verbs, the RP first appears in 1538 with the verb *giffen* (Example (8)),

where according to the PCEEC annotation *hym self* is a subject NP,⁴ and *all* the direct object. The first indisputable occurrences, given in (9), (10) and (11) are *answered* (in the sense 4b ‘pay (duty)’ given in the *Middle English Dictionary*, MED) and *hindred* ‘deprived’ in 1581. Note that the MED (s.v. *hindren* 3.) cites quotations with a direct object Beneficiary and a PP Theme (e.g. *and mikil hyindren hym fro þe knowinge.. of gostli pinges*), whereas in (10) the Theme is the direct object (*above a thowsand marks*). All occurrences are verbs of transfer, except for *teach* which can at best be called a verb of figurative transfer. Table 1 shows that the figures for RP with native verbs increase only after 1600.

- (8) *But the trouthe is, hym self is giffen all upon pleasure, and spending but the truth is himself is given all upon pleasure and spending vnthriftely apon nunnes ther, that all the world knoweth this unthriftly upon nuns there that all the world knows this ‘but the thruth is that he is given all on pleasure and spending unthriftly on nuns there that all the world knows this.’* WYATT,67.008.225,1538
- (9) *and her Majestie so much the soner be answered her dette and her majesty so much the sooner be answered her debt ‘and her Majesty should very soon be paid her debt.’* PARKHUR,141.018.210,1572

Table 1. PCEEC: Occurrences of French-origin and native verbs in Recipient passives, per century, including spelling variants

Period	French-origin verbs	Native verbs
before 1450	1 enfourmed (1444)	–
1450–1500	1 a-lowyd, 1 asoynyd, 1 assigned, 1 delyveryd, 1 offered, 2 paijd, 4 payd, 1 payid, 1 promysyd, 1 remembred, 1 ren (?), 1 servid	–
1500–1600	1 advised, 3 allowed, 1 amerced, 1 appoynted, 1 assuured, 1 commaunded, 1 denid, 1 differed, 2 offered, 2 offred, 1 paied, 3 promised, 1 proved, 1 receined (?)	1 giffen (1538), 1 hindred (1581), 1 bidd (1592)
after 1600	1 accounted, 5 allowed, 2 banished, 1 censured, 1 debarred, 1 deceived, 1 delivered, 3 denied, 3 denyed, 1 dismissed, 5 fined, 1 fynd, 1 fyned, 1 married, 3 offerd, 3 offered, 1 offred, 1 paied, 2 payd, 2 promised, 1 promist, 1 prouided, 1 proved, 1 refused, 1 styled, 1 torn’d, 1 valewed	1 askt, 3 forbid, 1 given, 1 grown, 1 growne, 1 rayسد, 1 reckoned, 1 said, 1 sent, 1 shewed, 1 sworn, 1 sworne, 1 taken, 1 taught, 1 told, 1 tolde, 1 understood

4. It is not entirely clear what the status of *him* here is, but it is likely that it can no longer be interpreted as a fronted dative, since at that time *him* is not unambiguously associated with dative case; see also van Gelderen (2006) on the rise of reflexive pronouns.

- (10) *and the Auditors will testifie, her highnes is yerely hindred above
and the auditors will testify her highness is yearly hindred above
a thowsand marks.*
a thousand marks
'and the officials will testify that her highness is yearly hindered more than a
thousand marks.'
BRYSKET,19.001.20,1581
- (11) *It is fitt indeed he should be taught another doctrine,*
it is fit indeed he should be taught another doctrine
'It is appropriate indeed that he should be taught another doctrine.'
SMYTH,93.017.197,1628

The observation that French verbs appear first in RP constructions and that native verbs follow only later is made more significant by the relative frequencies of the RP compared to the active token frequencies of each verb. Table 2 clearly shows that despite the high token frequencies of native verbs like *senden* 'send' and *yeven* 'give' the percentage of Recipient passive occurrences is only 0.13 within this group of verbs. These figures contrast sharply with those for verbs of French origin like *paien* 'pay' and *promisen* 'promise': they have much lower token frequencies, but they account for a disproportionately and significantly larger number of tokens of Recipient passive (11.44%, chi-square $P < 0.001$, see also Stein and Trips 2018).

Table 2. Active and Recipient passive with ditransitive verbs in the PCEEC

French-origin verbs				Native verbs			
Verb	Active	RP	%RP	Verb	Active	RP	%RP
<i>paien</i>	162	10		<i>senden</i>	2502	1	
<i>promisen</i>	96	7		<i>yeven</i>	1545	2	
<i>offren*</i>	55	12		<i>tellen</i>	446	2	
<i>allouen</i>	40	7		<i>sheuen</i>	223	1	
<i>denien</i>	31	7					
<i>serven</i>	2	1					
<i>finen</i>	1	6					
	387	50	11.44		4716	6	0.13

* from Latin *offerre*, reinforced by French *offrir*

Whereas our data strongly indicate that the RP was absent from the writers' grammar in the letters written before about 1500, the 'normal' Theme passive, on the other hand, occurs with ditransitive verbs regardless of their origin. In (12), we quote examples for some of the native verbs listed in Table 1. They show that the frequent verbs *give* (12a), *tell* (12b), and *show* (12c) occur in Theme passives without any restriction and sufficiently frequently to make a general restriction bearing on passives with native as opposed to French origin verbs highly implausible.

- (12) a. ... *þe cuuent þat es undir þe, þat es giuin þe at yeme*
 ... the convent that is under you that is given you to govern
 ‘the convent that you are in charge of is given to you to govern’
 BENRUL,6.196
- b. *A, Ihesu, þy wundurful pyte, þy mercy þat may not*
 Ah Jesus your wonderful pity your mercy that may not
be told!
 be told
 ‘Oh, Jesus, your wonderful pity, your mercy that is ineffable.’
 AELR3,43.507
- c. *þe kynde þat hys to comen shal be shewed to our Lord*
 the kind that is to come shall be shown to our Lord
 ‘the kind that is to come shall be shown to our Lord’ EARLPS,25.1030

In the following sections of our paper we will develop an analysis of these rather puzzling facts by taking into account two factors: first, the transfer of an abstract feature of French grammar to English, i.e. structural case, with ditransitive verbs; second, the actuation of the change via the usage of RP with clause-taking verbs by bilingual users of French and English. We will start out discussing the copying of structural case features to ME in the next section.

3. Structural datives: A case of copying abstract case features?

Based on the data presented in Section 2 we firmly believe that language contact with French plays a considerable role in the development of the RP in English. However, since French has never had an RP construction, contact-induced change on the basis of copying only cannot be the explanation. According to Johanson (2002: 291) “global copying” occurs when a unit (morpheme, morpheme sequence) is copied from a foreign SL (source language in van Coetsem’s terms) as a whole, i.e. a block of different properties (material, semantic, combinational in syntax and word structure, and frequential). It seems plausible to assume that French verbs like *plesen* were copied as a block of these properties, i.e. along with their prepositional complements. This gave rise to constructions like (3), analogous to French *plaire à quelqu’un* (see Trips and Stein 2019):

- (13) *For God wasted þe bones of hem þat plesen to men;*
 for God wasted the petitions of them that please to men
 ‘Because God destroyed the petitions of those who please men’
 EARLPS,63.2771,M2

In our case, however, we need to identify a property of French that is more abstract, i.e. not directly linked to a (direct) surface structure, but nevertheless learnable, so that it could have become part of the speakers' grammar. We propose that this property is the case feature 'structural', as opposed to 'inherent'.⁵ According to Alexiadou et al. (2014: 2) the distinction between structural and inherent case is directly related to indirect passives because structural case is seen as a prerequisite for the "dative-nominative alternation" (i.e., the dative argument becoming the subject of a passive sentence). Therefore, only languages that have a structural dative also exhibit the indirect passive.⁶ In what follows, we will explain how the Recipient passive could first occur predominantly with French verbs, namely because the French dative was interpreted as structural case marked, differently from the English 'dative'.

In French, as in most of the Romance languages, the former Latin dative arguments were replaced by prepositional phrases introduced by Modern French *à* or their respective equivalents. It is currently assumed that these arguments are structural case marked. The diagnostics for the structural dative in Modern French are summarised by Herschensohn (1996: 46–50), quoting also earlier work. The main argument is that "[t]he preposition *à*, as *de*, acts as a semantically empty Case marker in many contexts ranging from noun compounding to possessives" (Herschensohn 1996: 47). The case marker *à* is different from the local preposition, for example, in that it cannot be elided under coordination (*Ils parlent à Marie et *(à) sa sœur* 'they speak to Marie and her sister'), and in that it is pronominalised by a dative clitic (*Ils ont parlé à Luc* → *Ils lui ont parlé* 'they spoke to him'). On the other hand the semantically full preposition as in *Ils sont allés à Paris* can be elided under coordination (*Ils sont allés à Paris et Rome* 'they went to Paris and Rome') and pronominalises with *y* (*Ils y sont allés* 'they went there'). Similar diagnostics are put forward by Arteaga and Herschensohn for Old French (where "francien" refers to the OF dialect spoken in the *Ile-de-France* including Paris):

As noted by Herslund (1980), Togeby (1974), Jensen (1990), among many others, dative verbs may be construed with or without *à*, which is required in Mod F. [...] The fact that in (35) above [The authors refer to *De moie part li dites* 'from my part you tell *him*', AS/RI/CT], only the dative pronoun in francien *li* is possible (as

5. We will retain this simplified opposition here since it is well suited to capture the relevant typological difference between French and English. For an in-depth discussion of the case features 'structural', 'inherent', and 'lexical' see Woolford (2006).

6. As a side effect, it also strengthens the argument of the RP not being dependent on the double object construction. If datives can have structural case, there is no need for the Recipient to become a direct object-like argument. Note that as early as 1978, Feldman drew attention to languages that form an RP although they do not have a DOC, like Ancient Greek (Feldman 1978).

opposed to the accusative pronoun *le*) further demonstrates that dative verbs took a dative complement in OF whether or not an overt preposition (*à*) introduced the full lexical DP. The complement of dative verbs is usually [+human] in OF as in Mod[ern] FR[ench]. (Arteaga and Herschensohn 2013: 33–34)

This is confirmed by Troberg (2008), who distinguishes the diachronically more variable dative complements of monotransitive verbs from the diachronically more stable ditransitive constructions and notes that the indirect objects (IO) of Old French ditransitives were structural case marked: “Structurally licensed IOs do not undergo a valency change, while IOs that are not structurally licensed are susceptible to change.” (Troberg 2008: 164)

One of the solutions to the ‘Recipient passive puzzle’ we propose here is therefore grounded on the following argumentation: dative arguments were inherent case marked (and morphologically case marked) in Old English. Middle English retained inherent datives for some time and, consequently, did not admit RP constructions. Structural datives appear in Middle English (for a detailed discussion of inherent vs. structural case in the diachrony of English see Lightfoot 1991: Chapter 3.5 and 5.2). We suppose that French played an important role in this process. These new ME prepositional phrases with *to* are different from the Old English directional *to*-PPs and therefore produced a mismatch in the RL. This mismatch was resolved by adopting the properties of the French IO for native possession transfer verbs but not for OE dative taking verbs in general, e.g. psych verbs (see Ingham 2017).

We find this argumentation corroborated on the typological level by the fact that the Recipient passive arose in English, unlike other West Germanic languages.⁷ Furthermore, Abraham notes the special status of English among the West Germanic languages due to “the total grammaticalization English has undergone in designating no more than one single preposition, *to*, to indirect Case” and highlights that “there is no English-like semantic equivocation between preposition Case and indirect object function, on the one hand, and verb-proximity and direct object function, on the other, in the rest of the Germanic languages” (Abraham 2006: 8).

7. Note that Haegeman (2016) recently observed a Recipient passive in the West Flemish dialect, suggesting that Dutch may also have an RP that is acceptable, at least for some speakers.

4. Clause-taking verbs: A possible bridge construction?

So far in the study the assumption has been made that Old French displayed greater stability than Middle English in the relevant respects, especially concerning indirect object marking. However, it must be kept in mind that the variety in contact with Middle English was the variety used in England, conventionally known as Anglo-French, rather than continental French (Rothwell 1988). As time went on, AF became influenced by English, and it will be argued here that this produced a degree of instability in the insular variety with regard to clausal complement-taking verbs which may have contributed to the development of the RP.

Allen's analysis of ME treated ditransitive verbs taking double object complementation separately from clausal ditransitives. Nevertheless, she acknowledged that ME clausal transitives allowed the RP well before the others (Allen 1995: 406), notably when copied from French, and suggested the desirability of investigating the syntax of French verbs of this type. Accordingly, we next consider how clausal ditransitives copied from French may have played a role in the development of the RP. Copying a verb involved not only its form, but also its lexical-conceptual structure, as suggested by the following ME uses of French loan verbs:

- (14) *And whanne al was done, the kyng demaunded the*
 and when all be.PAST.3SG done, the king ask.PAST.3SG the
herowdes the name of the next place to the felde.
 herald.PL the name of the next place to the field
 'And after everything was done, the king asked the heralds what the place next to the field was called.'

Trevisa's Polychronicon, from Caxton, Bk 8 Chapter 13

- (15) *Therefore it is right that the kyng restore hem agein*
 therefore it is right that the king restore.SBJV.3SG them again
her londes.
 their lands
 'And so it is right that the king should return their lands to them'

Merlin, Chapter 5

- (16) *Now wil I retourne azen or I procede ony ferthere for to*
 Now shall I return again before I proceed any further for to
declare zou the othere weyes.
 declare you the other way.PL
 'Now before going any further I shall return to inform you of the other ways'
 Mandeville's travels. Ms Cotton, Chapter 8

The lexical conceptual structure of the loan verbs *demand*, *restore* and *declare* made recipient arguments available, in a recipient of possession transfer sense in the first case, of information transfer in the second, and in the sense of the recipient of a request in the third. Recipient role arguments could thus appear as the nominal indirect object in the double object construction, which was becoming strongly identified with Recipient-Theme semantics (Zehentner 2017). Now medieval French allowed Recipient arguments to surface as passive subjects of clause-taking verbs having an information transfer meaning, e.g. the following later 14th c. Examples (Dupuy 2010).

- (17) *Il fut adverti que les gens du Roy estoient*
 he be.PAST.3SG signal.PPART that the people of the king be.PAST.3PL
entréz a Amiens.
 enter.PPART to Amiens

‘He was informed that the King’s men had entered Amiens.’

Froissart, Chr., I, I, ch 247 l. 209–221

- (18) *Et plusieurs foiz avoit esté requis ledict duc de*
 And several times have.PAST.3SG been ask.PPART the said duke of
Bourgogne de ce mariage, et tousjours s’i estoit
 Burgundy of this wedding and always thus there be.PAST.3SG
accordé, mais jamais ne voulut conclure.
 agree.PPART but never NEG want.PAST.3SG conclude

‘And the said Duke of Burgundy had several times been asked for this marriage and had always agreed to it, but never wanted to finalise it.’

Commynes, Mém., livre III, chap. II, p. 223, l. 1–7

In thematic role terms, an entity interpreted as a Recipient of information (17), or a Recipient of a request (18), could thus become a passive clause subject.

As Allen (1995: 396) recognised, the commonality between a double object ditransitive RP and a clausal ditransitive passive such as those in (17)–(18) lies in the assignment of the Recipient role to subject function. That being so, medieval French could have offered a model for an entity thematically a Recipient to function as the subject of a passive. Pursuing Allen’s suggestion, therefore, let us look further at how French-origin verbs worked in the source language.

When verb syntax in Anglo-French is examined using the resources of the *Anglo-Norman Hub text base* (Rothwell and Trotter 2001), it becomes apparent, first, that in this variety Recipient role linking to passive subjects was actually quite extensive in terms of the range of lexical type, and secondly, that the grammatical function linking of the Recipient role was somewhat unstable. A factor seemingly involved in this development in AF is the fluctuation between direct and indirect

object seen in verbs which in continental Old French could only take the indirect object, e.g. *demander* and *defendre*, for which we cite only the the idiosyncratic uses taking a direct object:

- (19) *Car quant nous les demandasmes eide et socours, il*
 For when we they.ACC asked.PRET.1PL help and succour they
ne nous...
 NEG us
 ‘For when we asked them for help and succour, they did not...’ Sardos 97
- (20) *Il trouerent grante multitude des archers et dautres gentz*
 they find.PRET.3PL large throng of the archers and of other people
darmes, qi les defendist vigerousement le passage.
 of arms REL they.ACC defend.PRET.3SG vigorously the passage
 ‘They found a large number of archers and other soldiers, who prevented them
 from passing’ Anoncron104

The nominal internal argument, thematically a recipient, is found as a structural object in later Anglo-French with clause-taking verbs, e.g. *requerir* (‘request’), *conseiller* (‘advise’) and *certifier* (‘assure’), as in the Examples (21)–(23).

- (21) *... e requit le dit duc, que li aidast.*
 and request.PRET.3SG the said duke that him.DAT help.SBJV.PAST.3SG
 ‘And requested the said duke to help him’ Foedera 1,795
- (22) *Jeo vous pri que vous veillez counseiller mon seignur*
 I you beg.PRS.1SG that you want.SBJV.2PL advise.INF my lord
qil me voille maunder trois centz hommes
 that he me.ACC want.SBJV.3SG send.INF three hundred.PL men
darmes a pee.
 of arm.PL to foot
 ‘I ask to you to advise my Lord that he should send me 300 foot soldiers’
 Sardos 83
- (23) *... si le demaundaunt ne pusse renablement e apatement*
 if the plaintiff NEG can.SBJV.3SG reasonably and publicly
dire e certifier la court, qe la veue avaunt cel heure
 tell.INF and assure.INF the court that the view before that time
eyt este graunte...
 have.SBJV.3SG been grant.PPART
 ‘... if the plaintiff cannot reasonably and publicly tell and assure the court that
 the view had previousl been granted’ Domgip 36

Importantly, cases appear where the Recipient role is linked to the subject of an RP, with verbs not taking this construction in continental French, e.g. *allouer* ('permit'), *demander* ('ask') and *respondre* ('answer'), as in the Examples (24)–(26):

- (24) *Et q'ïls soient allowes de servir par l'an entier.*
and that they be.SBJV.3PL allowed of serve by the year whole
'And that they may be allowed to serve for a whole year' Foedera 3, 456
- (25) *Dunc soit agardé, qe les principaus appelez del fet*
then be.SBJV.3SG rule.PPART that the principal accused of the deed
soint solempnement demaundez qe il veignent.
be.SBJV.3SG solemnly ask.PPART that they come.3PL
'Then let it be ruled that those principally accused of the deed should be formally asked to come.' Britton 1,12
- (26) *Sire, ele ne deyt estre respondu a cety bref par la*
Sir, she NEG should be.INF answer.PPART to this writ by the
resone ke...
reason that
'Sir she should not be answered regardig this writ because...' EELR 2, 299

It seems likely that the development in ME of a common oblique case, neutralising the OE accusative and dative, led to the use here of direct object linking with the non-clausal argument. Some verbs taking a Recipient direct object in continental French in the relevant senses could also passivise; see entries in the *Dictionnaire du Moyen Français*, s.v. *mander* and *enformer*:

- (27) *Il fu mandé leur porter boire à un soir,*
he be.PRET.3SG sent.PPART them bring.INF drink.INF at an evening
de nuyt, en leur chambre.
of night in their room.
'He was instructed to bring them something to drink one evening at night, in their room' Reg. crim. Chât., I, 1389–1392, 495
- (28) *Attendu qu'ilz ont esté et sont anformez*
wait.PPART that they have.3PL be.PPART and be.3PL inform.PPART
autrement qu'ilz n'estoient au jour qu'ilz avoient
differently than they NEG.be.PST.3PL at the day that they have.PST.3PL
fait ceans leur requeste.
do.PPART here their request
'Since they have been and are informed differently from the day when they had made their request there.' BAYE, I, 1400–1410, 136

Such uses, adding to the evidence of direct object linking of a recipient role with clause-taking verbs, also occurred in AF.

Note that the AF examples in (21)–(26) come from the period immediately preceding the development of the RP in ME. The same verbs were copied into English, where they appear in the late 14th and 15th c. with personal subject passives, e.g.:

- (29) *panne Antifon, a noble dyvynour, was demaunded what that then A. a noble diviner be.PAST.3SG ask.PPART what that shold signefye.*
 should mean.INF
 ‘Then a noble diviner named A. was asked what that was supposed to mean’
 Trevisa, Polychronicon 397
- (30) *And whan he was requirid to zeue iugement bitwene and when he be.PAST.3SG require.PPART to give judgment between two brepern stryuyngge for heritage, he...*
 two brother.PL strive.PRS.PTCP for heritage he ...
 ‘And when he was required to give judgment between two brothers fighting for their heritage, he...’
 Wyclif, Clergy HP Chapter 3
- (31) *The seid Jahne... shal relese... alle hure right and titel... at shuche the said Jahne shall release all her right and title at such tyme as she is required by the seid John.*
 time as she be.3SG.PRS require.PPART by the said John
 ‘The above-mentioned J. shall cede all her rights and her title at the moment when she is required (to do so) by the above-mentioned John.’
 Doc.in Sundby Dial.Wor.(Eg Charter 608) 256

A clear link can thus be seen between the over-use in AF of the structural object position to realise the recipient role of these clause-taking verb, the corresponding productivity in AF of the Recipient passive with these verbs, and the behaviour of the same verbs when copied into ME. The spread of the RP in AF was undoubtedly due to an analogy between passivisation of ordinary transitive objects with verbs such as *destruire* (‘destroy’), as in (32)/(33) below and passivisation of internal nominal arguments with recipient-taking verbs such as *demandar* in (34)/(35):

- (32) *Li reis destruis ses enemis.*
 the king destroy.PST.3SG his enemies
 ‘The king destroyed his enemies’
 Gaimar 173
- (33) *Iloc furent paiens destruitz.*
 There be.PST.3PL pagans destroyed
 ‘There pagans were destroyed’
 Gaimar 105

The nominal internal argument of a verb such as *destruire* ‘destroy’ could passivise; on that analysis, the nominal internal argument of *demander* ‘ask’ could become the subject of the passive sentence in (35):

- (34) *Le dit archevesqe demanda les Communes s'ils*
 the said archbishop ask.PST.3SG the Commons.ACC if they
vodrient assenter et tener le prince R. leur roy.
 want.COND.3PL agree.INF and hold.INF the prince R. their king
 ‘The said Archbishop asked the Commons if they would agree and hold the
 prince their King’ Anon. Chr 110.5
- (35) *Et les parties serront demandez a quel jour lun et*
 and the party.PL be.FUT.3PL asked.PPART to which day the one and
lautre pourront estre esson de comune essone,
 the other can.FUT.3PL be.INF excuse.PPART of common excuse
 ‘And the parties will be asked on what day one and the other can be excused
 by common excuse’ York Mem 2_264

When the verb was copied into Middle English, the same operation would appear to have been at work, cf:

- (36) *Cato makithe a question to... Scipion and Lilius, demaunding*
 C. make.PRS.3SG a question to S. and L. ask.PRS.PTCF
them why they... had wasted... their inheritaunce.
 them why they had waste.PPART their inheritance
 ‘Cato asked a question to Scipion and Lilius, asking them why thy had wasted
 the heritage.’ c1475(?c1451) Bk.Noblesse 62 (Roy 18.B.22)
- (37) He was demaunded yif he sent to þe lord Ffaunhop eny word of þeire beyng
 þere to geders. Chancery English (1437)

Thus loans from insular French could have played a role in facilitating the rise of the RP. A model was provided in which the Recipient was assigned structural case with a wide range of clausal-complement taking verbs. This was made possible by the linking of the verb’s Recipient role to the structural case position, from which – in derivational terms – it could become a passive subject. Following the argument presented in Section 3, French verbs would not have had an inherent case feature to assign when copied, hence the only possibility was for them to take structural case, as in the source language. This account allows us to understand the much greater likelihood of RP use with French-origin dative verbs in the Late ME period in the corpus data we have reported above. Importantly, some of the relevant AF verbs also appear with recipient subjects not only in clause-taking contexts, but also contexts involving two nominal arguments, as in (38)–(40):

- (38) *L'executour serra allowé de tiel dett qui fuit*
 The executor be.FUT.3SG allow.PPART of such debt REL bePAST.3SG
due a luy mesme sur son accompt.
 due to him same on his account
 'The executor will be allowed such debt as was due to him on his account'
 Durham2 i 174
- (39) ... *auxi que le dit William soit payez ... xls.*
 also that the said William be.SBJV.PRS.3SG pay.PPART 40 shillings
 '... also that the said W. be paid... 40s'
 Testebor 249
- (40) *Le seignour serra servys de sa rent devaunt le*
 the lord be.FUT.3SG serv.PPART of his rent before the
primere pleintif.
 first plaintiff
 'The lord will be served his rent before the first plaintiff'
 Lib Alb, 449

They illustrate possible AF models for the late ME Recipient passives with ditransitive verbs *allow*, *pay* and *serve* found in the PCEEC.

In terms of the learnability requirement postulated in Section 1, we may put forward that Recipient role arguments appearing in AF as structural objects and as passive subjects triggered an analysis in which the nominal bearing the Recipient role received structural case. This gave rise with clause-taking verbs to a somewhat wider lexical extension of the phenomenon in AF than in continental French, where it seems to have been quite limited.

With verbs taking two nominal internal arguments, the RP could not become possible in any variety of OF, including AF, as the indirect object needed to be marked with the case-assigning preposition *à*. In English, however, the double object construction inherited from Old English survived, now with a structural indirect object, as in French. Where a verb's recipient argument was assigned structural object case in French, as with clause-taking verbs, it was passivisable, cf. (35) and (37); the persistence of the double object construction in English permitted RP on a wider scale than in French. Thus two stable features of the two languages in contact – structural indirect object in French and the double object construction in English – came together to make possible the development of the English RP with dative verbs. The instability in later AF of Grammatical Function linking of the Recipient role, either to direct or to indirect object, played a role, allowing RPs with clause-taking verbs where in continental OF they would not have been possible. However, this did not lay down a structural precondition for the change. Rather, it actuated the development of the RP via the usage of bilingual French and English speakers. It has been shown by Vasilyeva et al. (2010) and Vasilyeva and Waterfall (2012) that in bilingual children passive use in one language can prime

passive use in the other language. Similar effects with passive voice priming were found in bilingual adults by Weber and Indefrey (2009) and Bernolet et al. (2009). Thus it is psycholinguistically feasible to believe that the recourse to RP in (Anglo-) French, attested in the written record, is likely to have acted in similar fashion and favoured the use of the corresponding structure in English. Covert structural influence on English through bilingual priming from French clausal complement RPs would, on this analysis, have taken place in the period before the late 14th c., when competence in French and the extent of its use in England undoubtedly declined (Ingham 2012), so the timing of the innovation as seen in the written record can be seen to be not only psycholinguistically but also historically plausible.

5. Contact and stability

In this paper we have presented an extremely complex example of syntactic change: the development of the English Recipient passive as an instance of contact-induced change (in the situation of medieval language contact with Old French). In the light of the two factors which contributed to this development and which we discussed in Sections 3 and 4, we will now return to the questions we defined in the introduction:

- a. Is the system of the RL stable during the period considered, or to what extent is it changing?
- b. Does the RL have the phenomenon *p*, or not?
- c. Does the copying of *p* produce a mismatch in the RL?
- d. Is *p*, the feature copied from the foreign SL, stable?
- e. How learnable is *p*?

Question (a) is independent of the two explanations we proposed here. At the time of the first occurrences of the RP, around 1400, Middle English was undoubtedly less stable than OF, at least with respect to the structures that matter for the construction under scrutiny. At that time, ME had lost or was losing several relevant properties that had been present in Old English. One of the most drastic changes clearly was the loss of inflectional morphology as well as syntactic changes like the OV/VO word order change or the gradual loss of Verb Second. Furthermore, OE used to have two types of auxiliaries: the *beon/wesan*-passive was the more stative construction, and opposed to the more dynamic passive formed with *weorðan* ‘become’. Toyota (2008: 16–17) shows that a quite drastic change from the stative to the dynamic interpretation of the *be*-passives occurred between the Middle English periods ME1 and ME2, and that “from ME2 onwards aspectual differentiation

became similar to that in PDE” (*ibid*, 17). We do not claim that French had an influence on the passive auxiliaries, but the change led to more similar passive structures that were easier to match. What is more, since case marking had practically disappeared, accusative and dative were not distinguishable any more. The *to*-PP assumed functions that it had not had previously. In OE, *to*-PPs were restricted to the expression of directional complements (Visser 1963). In ME they could refer to the recipient of a transfer, thus assuming the functions of the OE dative (cf. McFadden 2002). Trips and Stein (2019) show that French influence was considerable in this domain: French-origin verbs were more prone to express the Recipient with *to*-PPs, and this seems to have spread to native verbs.⁸

Overall, the many changes in the English system led to variability (at least) on the morphosyntactic and syntactic level and, in van Coetsem’s terms, affected its inherent stability (structuredness). It was at this time that many AF/OF verbs were copied to ME along with their argument structure, and it seems likely that the rather unstable system was prone to change. OF, on the other hand, was stable with respect to these properties. The only passive auxiliary was *estre* ‘be’, and the (former Latin) dative was expressed almost exclusively by a prepositional phrase governed by *a* ‘to’ (or by the corresponding clitic). Answering question (d), the phenomenon copied from the SL was stable. So we can safely assume a contact situation between OF, a (more) stable SL, and ME, a rather unstable RL.

This admittedly somewhat superficial characterisation of both languages, combined with van Coetsem’s observation that SL-RL transfer “primarily concerns less stable domains” (van Coetsem 1988: 3), could explain why French had affected the ME passive in the first place. Let us briefly resume van Coetsem’s approach and apply it to the data we presented in the previous sections. The situation in which the English writers, who provided us with the data presented in Section 2, use presumably French structures is an instance of “recipient language agentivity”, where RL speakers copy elements from the foreign-origin SL. In contrast, AF was less stable. This was shown in Section 4 with the clause-taking ditransitive verbs. Case marking of the NP object of clause-taking ditransitives is often intransparent, because the case of the clausal argument is not identifiable, and cross-linguistically the NP arguments often show variability between dative and accusative case even with verbs of the same semantic class (see for example German *Sie befiehlt ihm_{dat} zu gehen* ‘She commands him to go’ vs. *Sie bittet ihn_{acc} zu gehen* ‘She asks him to go’). If Anglo-French exhibited case idiosyncrasies with these verbs because it was

8. This study also goes back to an observation made by Visser (1963: § 687): “In the course of the 14th and 15th centuries the number increases with striking rapidity, partly also on account of the adoption of numerous French verbs which were construed with *à* before a noun-complement.” Visser lists predominantly French, but also native verbs in § 688.

influenced by English structures showing no case distinctions, this would be a case of imposition, involving SL agentivity, according to van Coetsem's framework, since it most probably happened with speakers whose English was dominant.

Concerning questions (b) and (c), the phenomenon *p* which was copied to ME is the structural dative. In this sense, it was a new feature in the ME system. It gradually became a systematic way to mark the Recipient by its structural position, i.e. as the first postverbal complement. This development may have been triggered by the adoption of *to*-PP analogously to AF/OF *a*-PP, where the preposition was a dative case marker. Since English had an *inherent* dative, the copying of French argument structures could be interpreted as a mismatch in the RL. But Troberg's analysis of OF as a mixed language, quoted in Section 3, showed that OF had both structural datives (with ditransitive verbs) and inherent datives (with monotonative verbs). So rather than producing a clash between features, the copying of structural case adds a feature. Moreover, the AF ditransitive clause-taking verbs, where the Recipient was also assigned structural case, strengthened the new feature and facilitated the rise of the RP in English.

The question of learnability (e) is highly relevant for multilingual contact situations in general, and for the development of the RP in particular. From what we know about the bilingual situation in medieval England we can assume that when the RP first occurred, French was in decline, i.e. there were fewer fluent bilinguals than there were before 1300. The influence of continental French was reduced, French was acquired more from English speakers of French than from continental natives (Ingham 2012: 161), and Rothwell (2001: 17) believes that L2 French was "clearly a foreign language, on a par with Latin". It is obvious that in such a situation 'stability' cannot be reduced to the language system, leaving out the speakers' competence. Even if from an analytic, speaker-independent view the OF case system had been more stable than the ME one, the learnability issue brings up the question of how much of the system was accessible for bilinguals or for L2 learners.

In the light of our discussion of the structural dative, speakers with a good command of French use French-origin verbs in a passive construction they may have thought to be grammatical in French, but which in fact was not. This tendency may have been triggered by the fact that French had structural dative, the *a*-PP, and that these structures were frequently copied in active structures. From a psycholinguistic viewpoint, however, this assumption has to be treated with caution: although it is well known that passive (vs active) structures can be primed (e.g. Bock 1986), and even so cross-linguistically (cf. Hartsuiker et al. 2004 and further work cited in Section 4), we are not aware of studies showing that e.g. the structural case feature can be primed by surface structures corresponding to the diagnostics for structural case (cf. the discussion of French in Section 3). Further research going into this direction is needed here.

The bridge constructions presented in Section 4 offer a solution to this problem, because speakers adopt a construction that was readily available in French, at least in 'their' French. Their interpretation of the French structure depends on how learnable the French case system was. The fact that French, like other Romance languages, had and still has clitic personal pronouns, as opposed to the English pronominal system⁹ is especially important, since work on L2 acquisition has shown that clitics hamper the learnability of a case system (see e.g. Santoro 2007; Sleeman 2010; Emirkanian and Jebali 2013). Differences between Anglo-French and continental French in the domains of case marking and clitics may well be a result of acquisitional difficulties. Simplifying somewhat, the bridge construction presented in Section 4 shows up in Anglo-French as a result of imperfect L2 acquisition (of the continental OF system) or of SL imposition (of the English case neutralisation). In any case it affected numerous French verbs that were copied to Middle English, thus accounting for the predominance of the RP we observed in Section 3.

6. Conclusion

In this paper we presented two explanations for the puzzling fact that the English recipient passive first appeared predominantly with French-origin verbs although French did not have an RP. First, we proposed that what was copied was a structural case feature of the French dative, being a prerequisite for the RP. This feature was associated with the use of French-origin verbs, and thus explains why the RP first occurred predominantly with these verbs. Secondly, we proposed that clause-taking ditransitive verbs were a possible bridge construction for the structural dative. Variation between dative and accusative in Anglo-French is clear empirical evidence that the feature 'structural' gradually won out over the morphological case distinction. We embedded this analysis in a discussion of stability with respect to the three languages (or varieties) under scrutiny: Old French, Anglo-French, and Middle English.

9. Cf. Haeberli 2010 for a discussion of the status of Middle English personal pronouns.

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A variational theory of specialization in acquisition and diachrony

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This article presents an empirical case study in the diachronic *specialization* of morphosyntactic forms for different syntactic contexts, and uses it to develop a theory of variational specialization. This theory links specialization in diachrony to specialization in language acquisition, sociolinguistic coordination in a speech community, and a general understanding of evolutionary dynamics. The case study illustrates these relationships with the specialization of *melted* and *molten* in Early Modern English, and tests the hypothesis that even diachronic specialization in a lexical domain will not take the same trajectory for different speakers, but that the community will nevertheless coordinate on a direction of specialization given multiple generations. In doing so, it answers a question referred to as Yang's Paradox: how can we reconcile diachronic results showing that specialization is slow, with experimental results on acquisition showing that it's fast? The study ultimately shows that specialization in a speech community is orders of magnitude slower than specialization for an individual child in an experimental setting, due to the problem of coordinating the dimension and direction of specialization among many speakers. I also show how Yang's (2000) variational grammar learning model can be extended to the problem of specialization, and that children plausibly do not play an active role in specializing linguistic forms: they only need to identify potential contexts that the forms could specialize for, and the learning analog of natural selection does the rest.

1. Introduction

This article presents an empirical case study in the diachronic specialization of morphological forms for different syntactic contexts, and uses it to test aspects of the theory of variational specialization in Wallenberg (2016) and Fruehwald and Wallenberg (in prep). Specifically, the study tests hypotheses about the speed of

diachronic specialization, and answers a question I'll refer to as Yang's Paradox: how can we reconcile diachronic results showing that specialization is slow, with experimental results on acquisition showing that it's fast?

To do this, the main empirical problem I focus on is the diachronic specialization of the forms *melted* and *molten* in pre-modern English. Though the forms initially had the same meaning and syntactic distribution, they eventually specialized for perfect/passive participle and adjectival contexts, respectively, as shown in Examples (1)–(3).

- (1) The gold was {melted / *molten} by the fire. (passive participle context)
- (2) The fire has {melted / *molten} the gold. (perfect participle context)
- (3) She shaped the {?melted / molten} gold into a ring. (adjectival context)

Being at the word-level (or morpheme-level) of linguistic structure, this case is a good match for the acquisition literature that focuses on children's learning of novel lexical items. This study tests (and ultimately supports) the hypothesis that specialization in a speech community is orders of magnitude slower than specialization for an individual child in an experimental setting, due to the problem of coordinating the dimension and direction of specialization among many speakers. I also show how Yang (2000)'s variational grammar learning model can be extended to the problem of specialization.

The first section below sets up the problem, providing some background on the idea of variational specialization and the set of empirical results that inspired it. It also introduces Yang's paradox as a potential problem for a unified account of specialization across domains of the grammar. Section 3 describes the *melted/molten* study, and Section 4 presents results from it. Section 5 discusses the implications of this study for Yang's Paradox, and refines the theory of variational specialization in light of the additional empirical information the *melted/molten* study provides. Finally I conclude.

2. Variational specialization

2.1 A General Principle of Contrast

This article takes up the proposal in Fruehwald and Wallenberg (in prep) that the "Principle of Contrast," proposed in Clark (1987, 1990), and subsequent, is responsible for a general diachronic phenomenon of **specialization**. As originally proposed, the Principle of Contrast was stated for children's lexical learning: that children during acquisition assign, wherever possible, contrasting word forms to

contrasting meanings. It is possible for children to acquire synonyms, but Clark provides evidence that this is never the first hypothesis when a child is acquiring two phonologically distinct word forms. Experiments such as Markman and Wachtel (1988) show that when children are presented with novel nonce words, they show a preference well above chance to associate those words with items for which they have no existing word (see also review of the experimental literature in Bion et al. 2013).

The proposal explored here is that The Principle of Contrast is much more general than originally proposed, and applies across the various modules of linguistic knowledge. I suggest that the Principle of Contrast is a general pressure on children to look for some dimension on which they can specialize forms in variation with each other, a **dimension of specialization**. Once this takes place, the dynamics of how the specialization proceeds can be called **variational specialization**, a special case of Yang (2000, 2002)'s variational learning, which is itself a special case of general evolutionary principles. One can see the Principle of Contrast as an acquisition strategy on the part of children, and surely it is, in a sense. But it is also one natural outcome of evolutionary dynamics on two variants competing for finite resources, e.g. mapping to a particular place in a child's memory. (These dynamics may be those of natural selection, where an advantage for a variant exists, or those of neutral processes, such as random death, as in Moran 1958; see Kauhanen 2017 for a discussion of neutral processes in language change.) In the long run, either a variant will eventually be removed (e.g. outcompeted by the other), or the competition will be removed. Specialization removes the competition for a particular form-function mapping.

This is the line taken by Bailey et al. (2012) and Fruehwald and Wallenberg (2013)¹ with respect to the variation in embedded polar questions in English, as shown below:

- (4) Mary wondered whether Sue was bringing tea or coffee
- (5) Mary wondered if Sue was bringing coffee.

In short, Bailey et al. (2012) showed that the *whether* and *if* structures² have slowly been specializing for different syntactic contexts over the history of English (see Figure 1). The two contexts are clauses containing a disjunction (as in 4), and

1. Note that these are conference papers, so while this data has already been published in one sense, it appears in print here for the first time.

2. As to the question of how similar or different the *whether* and *if* structures are syntactically, see Larson (1985), though I do not believe there is a consensus on this, and the main thrust of the paper remains even if this case is not truly syntactic.

clauses without one (as in 5). The initial competition between the *whether* and *if* variants is very gradually being removed by specialization. (Note that in Icelandic, the same initial competition was removed by extinction of the *if* variant.)

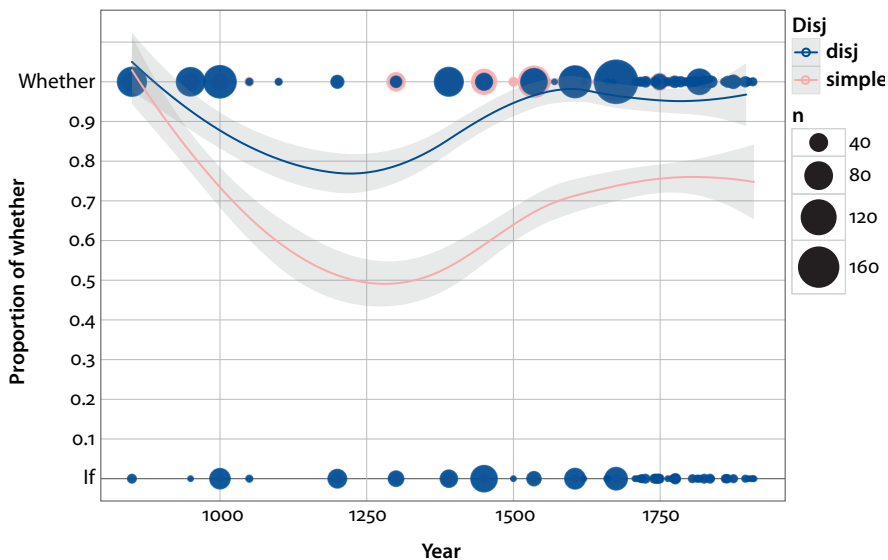


Figure 1. *Whether/if* specialization, data from Bailey et al. (2012) using Taylor et al. (2003); Kroch and Taylor (2000); Kroch et al. (2004, 2010), $N = 1929$ clauses

One reviewer questions whether the difference between the *whether* and *if* forms is syntactic at all. Some syntactic difference is suggested by the possibility of the *whether or not* construction with the *whether* form but not the *if* form:

- (6) a. Mary wondered whether Sue was bringing coffee or not.
b. Mary wondered whether or not Sue was bringing coffee.
- (7) a. Mary wondered if Sue was bringing coffee or not.
b. *Mary wondered if or not Sue was bringing coffee.

Perhaps this is simply the inability of a null operator to pied-pipe (if this construction is truly pied-piping; I do not know of a consensus on its analysis), in which case the difference between the constructions could be considered morphological, i.e. purely a Spell-Out issue. I will remain agnostic on this point for the time being. However, if there is no structural difference between the *whether* and *if* forms, then Yang's Paradox (see the next subsection) actually applies even more strongly than if the variation above were syntactic: why should the specialization of morphological-forms proceed so slowly, given the experimental evidence? (See

also Wallenberg 2016 for a case of even slower syntactic specialization, though in that case it is specialization along a continuous dimension.)

Building on Fruehwald and Wallenberg (2013), I propose that all instances of specialization, including the lexical cases found in the experiments above, and the gradual syntactic case observed by Bailey et al. (2012), have the same mechanism, **variational specialization**, an extension of Yang (2000, 2002)'s variational learning. Yang suggested that a child learns forms A and B, and can track probabilities for them occurring, p and $(1-p)$. To this, I add that the variants are only licensed in a particular context, C . Specialization takes place when a child selects some dimension of specialization. This means that the child finds some way of dividing context C into sub-contexts, C_1, \dots, C_n , which will become important for the specialization. Next, they decouple the variants' probability estimates in one context, e.g. C_1 , from those for the rest of the contexts and keeps track of the probabilities of each variant, A and B, for C_1 separately from, e.g. C_2 . This allows the probabilities of A and B in C_1 to diverge from those probabilities in C_2 , and allows, for instance, A to win the competition in C_1 , but lose in C_2 . This would be a case of complete specialization: both variants survive, but in entirely non-overlapping contexts, and so the competition between A and B is entirely removed. In this view, the Principle of Contrast is really the impetus for children to look for salient dimensions of specialization along which to divide C , and the rest of the process is handled by (the language analog of) general evolutionary dynamics. (This may be an analog of natural selection, where an advantage for a variant exists in a particular context, or it may be neutral processes, such as drift in finite populations of utterances.)

2.2 Yang's paradox

Wallenberg (2016) and Fruehwald and Wallenberg (in prep) suggest that all specialization, across domains of the grammar, derives from the same Principle of Contrast strategy (and its consequences for variant competition). It is certainly tempting to suggest a single mechanism for this range of acquisition and diachronic observations. However, in light of the results on specialization in diachronic syntax, Charles Yang (p.c.) questioned the plausibility of a unified explanation, citing the very gradual, slow pace of syntactic specialization in the cases mentioned above. He reasoned that, since children specialize lexical items for different available meanings in experimental settings, and can specialize words within the time-course of a single experimental trial (e.g. the classic study Markman and Wachtel 1988), this very fast lexical specialization must proceed by a different mechanism from the very slow syntactic specialization we've observed in those cases. The theory, as stated, seems to create an empirical paradox, and so may not be right. (One caveat,

however: the review in Bion et al. 2013 shows that lexical specialization even in experimental settings needs reinforcement over some time to be retained, and so may not truly be instantaneous.) As there are doubtless differences in vocabulary acquisition and syntactic acquisition (not least of which is the effect of age on the two processes), it's a highly reasonable suggestion that there might be different mechanisms in the different grammatical domains.

However, there is also a potential resolution to the paradox, in what I'll call the two **coordination problems** of specialization in a speech community. The diachronic studies I mentioned observed the behavior of speech communities, which have importantly different properties from individual speakers in experimental settings. One difference is: a dimension along which the specialization can occur is given in the experimental setup, and doesn't have to be sought out by trial and error in the course of day-to-day life. Another difference is that the dimension of specialization doesn't need to be coordinated across individuals in a speech community, which it does in diachrony; the diachronic cases are always observations about populations of speakers, who influence each other intra- and cross-generationally, and can nullify each other's acquisition hypotheses. They also need to coordinate the direction of specialization: even if the community agrees on what domain to specialize items along, they need to agree that item A is for context A and B for B, rather than A for B and B for A.

So, a speech community needs to solve two coordination problems that do not need to be solved in the experimental context: speakers need to converge on a dimension of specialization, and to converge on which variant specializes in which direction along the dimension of specialization. These differences suggest that Yang's paradox is not truly a paradox, and suggest a simple hypothesis: if we can observe a case of word-specialization that *includes* these two coordination problems, i.e. occurs in a large speech community, that case of word specialization should also be slow. Furthermore, we should see some evidence of the coordination problems in the behavior of individuals in the populations. For this reason, I've chosen to investigate a diachronic specialization trajectory in a plausibly word-level domain, the variation between *meltd* and *molten* in Early Modern English. This specialization turns out to be much slower than the experimental evidence would suggest, which means that Yang's Paradox really does need to be resolved, even within the lexical domain alone. (Note that it is also possible that there is truly no lexical-syntax distinction, as per the Borer-Chomsky conjecture (Baker 2008)...in which case Yang's Paradox also still needs resolved.)

3. Methods

3.1 Choice of phenomenon

The study focuses on the morphological doublet *melted/molten*. These forms arose during the Old English period, initially with different etymologies (forms *gemolten*, *gemielted* (West Saxon) and *gemælted* (Anglian), with the first adnominal use of *(ge-)molten* dated to 1300 (citation *melt* in *Oxford English Dictionary Online*)). The forms then specialized over time such that *molten* became a pre-nominal ad-jective, while *melted* remained a true participle (the same form occurs for passive and perfect participle contexts). These are shown above in (1)–(3).

I chose a morphological doublet rather than lexical forms with no etymological or paradigmatic relation, e.g. *shit* and *excrement*, because the latter type of doublet almost always comes about under conditions that immediately suggest a dimension and direction of specialization; they most often originate in borrowings, which have a built-in social context that biases the specialization. Morphological doublets, on the other hand, often arise through overgeneralization in child language acquisition (this one probably arose through analogy and merger, though a full etymological study is beyond the scope of this paper), and so can enter the speech community without any initial difference in context or meaning. It is not certain that the members of this doublet entered into variation with no difference in meaning at all, but it is clear from the data below that they were not differentiated along the participle-adjective dimension at the beginning of the historical period I consider.

With a pair of this kind, we are more likely to observe something closer to an entire trajectory of specialization, from near total synonymy to complete specialization. This allows us to observe the speed of specialization that is the product of the PrinCon acquisition strategy, hopefully removed from strong initial biases, and we can also observe the intergenerational speech community tackling both coordination problems: agreeing on a dimension of specialization, and a direction of specialization.

3.2 Study design

This study uses the Penn-York Computer-annotated Corpus of a Large amount of English (PYCCLE-TCP; Ecay 2015), which consists of ~1 billion part-of-speech-tagged words, and is based on the Early English Books Online (EEBO) and Eighteenth Century Collections Online (ECCO) corpora. This large dataset allows sufficient time-depth to see a great deal of the specialization change as it progresses, and sufficient resolution to identify some individual speaker systems for the forms in question.

I searched PYCCLE with *Weihnachtsgurke*, a regular expression-based query language for PYCCLE (see PYCCLE citation and site). The forms *melted*, *molten*, and their spelling variants, were extracted and coded automatically for adjective or participial (passive or perfect) use, by using the part-of-speech tags in the surrounding context. I randomly sampled portions of the output to check by hand to ensure that any errors were few, randomly distributed, and due to occasional mistakes in part-of-speech tagging and not due to a systematic bias in the query. The resulting data was then analyzed statistically using R and the *lme4* package (Bates et al., 2014), and plots used *ggplot2* (Wickham 2009). (See “Data, code and materials” below for queries and scripts.)

4. Results

The data clearly shows that during the period covered by the corpus, 1450 to 1800, the probabilities of *melted* and *molten* occurring in the two syntactic contexts diverge over time; the forms specialize for the two contexts such that, by the end of the period, the chances of finding one of the forms in a given context is very different from the chances of finding the other in the same context. The distance between those probabilities increases over the period under consideration. Figure 2 shows the data organized so that the probability of the forms occurring in the participle context (out of participle+adjective contexts) is on the y-axis, Year on the x-axis, and red and blue colors identify the *melted* and *molten* forms, respectively. (The dots represent occurrences of each form, with dot size indicating the N for any time point, and since each form can only be either a participle or an adjective, the dots appear at 0 and 1 in the plot.)

While this is a somewhat unusual way to display the data (cf. Figure 3 below), this display makes it easier to see how forms have diverged regarding their use for these two functions. The fall of both lines over the time period shows that there’s an overall decrease in the participle context, relative to the adjective one (for both forms taken together). I do not know the reason for this, but I suspect it’s an effect of increased genre diversity in the corpus over time, with more scientific, technological, and medical texts entering over time, which could increase the frequency of items like “melted/molten steel”.³ However, it is the differential behavior of the forms which primarily concerns us. *melted* and *molten* begin the period under

3. An anonymous reviewer suggests that the industrial revolution could have had the effect of increasing discourse on such subjects, which seems plausible to me.

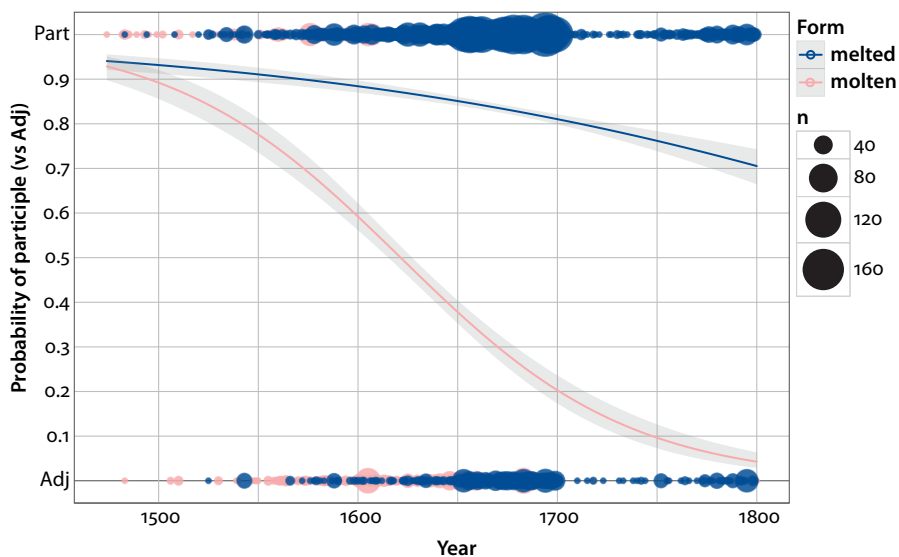


Figure 2. Syntactic context by year of text, for melted and *molten* forms over time.
 $N = 7946$ tokens

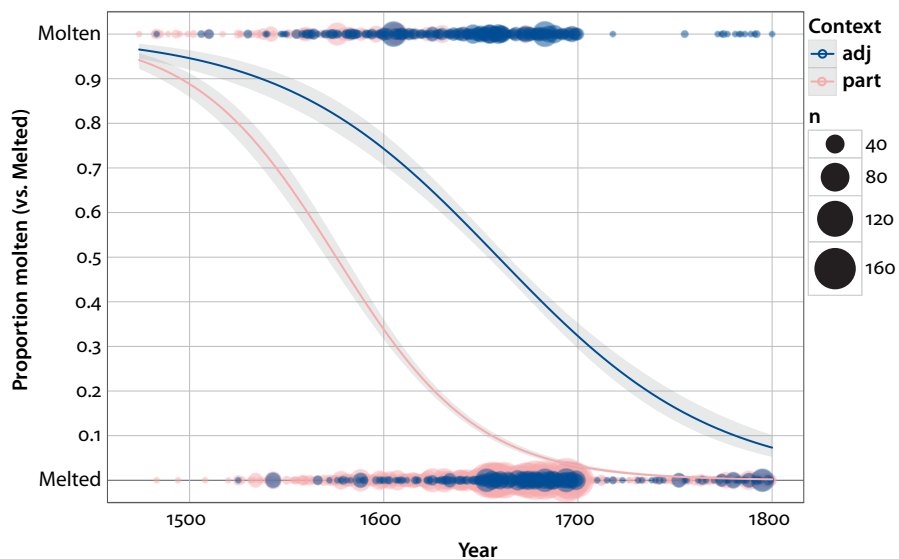


Figure 3. Proportion of *molten* uses by year of text, for both syntactic contexts over time.
 $N = 7946$ tokens

investigation with very similar distributions, both being used primarily in the participle contexts, and with statistically indistinguishable distributions at the very beginning of the period (note the initial overlap in error regions in Figure 2). Over time, the frequency of participle use decreases for both forms, but the decrease is not by the same amount for both forms: *molten* drops in the participle uses in a way that *melted* does not, and *molten* is nearly absent from that context by the end of the time period.

Figure 3 plots the same data, but in what readers are likely to find a more usual mode of display: with lines for syntactic context and proportion *molten* on the y-axis. From this view, one can see that *melted* is replacing *molten* in all contexts. However, the curve is steeper in the participle context, which becomes nearly entirely restricted to *melted* before the end of the time period. I carried out a mixed-effects logistic regression with random intercepts for individual Text and Author, and main effects for Year⁴ of text and syntactic Context, which confirmed these intuitions. A model comparison between models with and without an interaction between Year and Context showed that the model with an interaction provided a significantly better fit ($p = 0.0003$). AIC decreased from 4777.4 to 4766.0 and BIC decreased from 4812.3 to 4807.8 for the model with the interaction. It seems safe to conclude that the effect of syntactic context on the frequency of *molten* vs. *melted* changed over the time period; the frequencies of the two forms behaved differently over time in the two contexts.

This dataset also provides the resolution to observe some individual speaker-systems with respect to this variable. There were 471 identifiable authors in this data whose birth and death dates were known, with an N of 3601 tokens for these speakers. Figure 4 shows the data aggregated by author, plotted over time by their mid-life years, with the proportion of participle use for each form on the y-axis just as in Figure 2.⁵ Thus, Figure 4 is the subset of the data of Figure 2 for which we have author identities and dates of birth and death, displayed in the same way as in Figure 2. Green vertical lines appear on the graph for any speaker who used both *molten* and *melted* forms in this dataset, connecting the proportions of participle use for the two forms for a given speaker. If there is no green vertical

4. The year of text was converted to a z-score, centered around the mean, to allow the model to be fit.

5. Mid-life year is not important for the analysis in any way, and is not necessarily analytically preferable to date of birth. Mid-life years are used simply to make it easier to display this data by individual speakers, given certain constraints of `ggplot2`, without accidentally aggregating any speakers with each other, and while connecting the dots with lines.

line, then a given speaker did not produce both forms in his/her writing, and we cannot see an “inventory” in any meaningful sense. The green vertical lines simply make it easier to see an individual speaker’s usage of both forms, where a speaker did happen to use both forms (and every other aspect of the data is plotted as in Figure 2). For ease of interpretation, Figure 5 plots just the subset of data from Figure 4 that occurs during the century of most vigorous change, between 1570–1670.⁶ This invites the reader to look more closely at individual speaker inventories during the main period of community change, inventories which I discuss below in Section 5.

To get a sense of how often individual speakers had fully specialized systems, I again subsetted the data, looking at the proportions of participle use for *molten* and *melted* for any speaker who used 5 or more tokens of both forms. This fairly conservative criterion ensured that every speaker under consideration had both forms in their inventory. Out of 25 identifiable writers who use more than 5 tokens of both forms, 12 (48%) were categorical in their use of **one or other form**, restricting either *molten* or *melted* to either the participle uses or the adjectival use. None of those speakers were fully specialized; none fully restricted one form to one context and the other to the other context. This means that speakers like Robert Almond, illustrated in the set of examples below, were not uncommon. (See further discussion below.)

- (8) a. Method of breeding Horses...Molten grease and fatning balls
b. ...which may bring away any melted grease
- (9) a. ...the grease is molten into them
b. ...considering that if grease should be melted
- (10) a. ...adding thereto some Honey; which being molten, give it the Horse
b. ...English Honey; and when these are melted, and well stirred together
(Robert Almond, *The English horsman and complete farrier...*, date: 1673)

It is also interesting to note whether these speakers, though stochastic in their behaviour, were following the community trend: 19 (76%) were, but 6 showed the **opposite** pattern, with more *molten* in the participle contexts than *melted*.

6. This plot is intended as simply a zoomed version of Figure 4, though technically `ggplot2` refits the loess smoothing curves to the data when a subset is plotted. There is only minimal difference in the curves in Figures 3 and 4, however, and the curves are in any case merely a guide to the eye and not an analytical device in these plots.

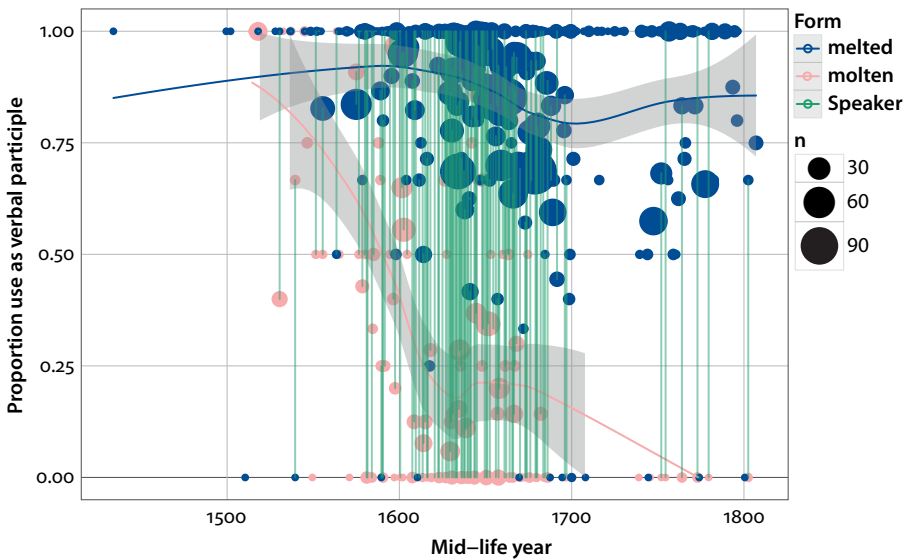


Figure 4. Syntactic context by mid-life year of author, for melted and *molten* forms over time. Green (vertical) lines connect proportions of participle use with melted and molten for speakers who used both forms. 471 identifiable speakers, $N = 3601$ tokens

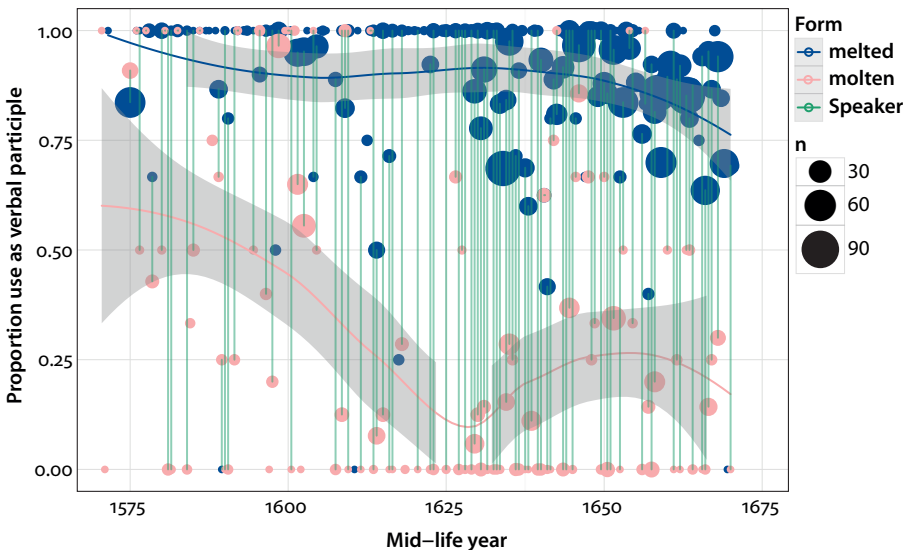


Figure 5. Individual author *melted/molten* systems between 1570–1670

5. Discussion

The results overall show that there is specialization of the forms for different contexts or functions, specifically because the *molten* form becomes increasingly restricted to the adjectival context over time. The data also shows that the solution to Yang's Paradox is not that there's a different mechanism for specialization in the word domain than in the syntactic or structural domain; specialization in real historical data takes a long time in the morphological/lexical domain as well. The *melted/molten* dataset is nearly unique among historical datasets, in taking us from the very beginning of the specialization change, in the mid 15th century when there's no detectable difference in usage between the forms, through to the end of the change in the late 18th century, when *molten* is almost entirely restricted to adjectival contexts. Thus, we can see that complete specialization of *molten* took over 300 years, which is not the near-instantaneous specialization observed in the acquisition literature. The paradox still holds, even in the word domain, if community coordination is not taken into account.

The persistence of the paradox, without an understanding of community coordination, is shown even more strongly in the intraspeaker variation on this variable: the individual writers do not necessarily show the total specialization in their idiolects that one might expect on the basis of the experimental literature. By looking at the green (vertical) lines in Figures 4 and 5, it is possible to get a visual sense of how completely the two forms had specialized for any given speaker, and in which direction along the syntactic dimension of specialization. A casual inspection will show the reader that in a lot of cases, the green line extends across the entire plot, indicating that the particular speaker was categorical in their use of *molten* for one context and *melted* for another, typically in the direction of the community change: *molten* for the adjectival context and *melted* for the participle. However, many of these green vertical lines are based on very few instances of either form, and the results in Section 4 tell a different story.

The results for speakers who used more than 5 tokens of both *melted* and *molten* actually strengthen Yang's Paradox, showing that most of these speakers had not entirely specialized the forms for the adjectival and participial contexts. So, as in other kinds of linguistic change, specialization changes show considerable intraspeaker variation while in progress ("competing grammars"; Kroch 1989 and subsequent). The pattern of change cannot be ascribed to variation between different speakers with very different inventories, but rather reflects stochastic behavior within speakers as well. These speakers are clearly not specializing the forms for the different contexts immediately upon hearing them in their early acquisition of the forms, as the experimental results might lead us to expect, but they are still partially specializing the forms in the direction of the ultimate community change.

The solution to the now strengthened Yang's Paradox lies in the two coordination problems I outlined above in Section 2.2. The intraspeaker variation suggests the presence of both coordination problems in this data. The fact that no speakers, of those who produced both tokens more than 5 times, had fully specialized them, and a minority had specialized even one form for a particular context, is explained by the problem of coordinating the community on a dimension of specialization. Since the community cannot agree on participle vs. adjective as the dimension of specialization in a single generation, and various individuals of the first generation in which the *melted/molten* doublet came into existence will attempt specialization along a variety of idiosyncratic dimensions, the next generation cannot help but hear both forms in essentially all contexts. They will be true synonyms, which children can learn if they have to, competing forms for a single meaning. They can also learn probabilities for the use of competing forms, as described in the Variational Learning models of Yang (2000) and Yang (2002). As more and more speakers in the community come to converge on the adjective vs. participle dimension of specialization, the forms will gradually specialize, but there will still be plenty of evidence for both forms in both contexts for quite a few generations. At the moment, I do not have a theory of how the convergence on a dimension takes place, as there are many linguistically and socially salient dimensions that could become the coordinated dimension of specialization. I think it likely that random sampling of the forms by children in salient contexts can lead to an uneven distribution of forms per context by chance in some salient dimension, e.g. adjective vs. participle, and this begins the process of community coordination.

The best evidence that community coordination is gradually and imperfectly taking place during the period of change comes from the fact that speakers differ on the direction of specialization, even if they agree on the dimension. This is the second coordination problem. 24% of the speakers with more than 5 tokens of each form showed an idiolectal direction of specialization that went *against* the overall direction of the speech community. While the numbers are low and so do not reach statistical significance within speakers, it is at the very least clear that these speakers have not yet adopted the community's ultimate direction of specialization; community coordination on which form should specialize for which function is still in progress in this dataset.

One remaining aspect of the data deserves comment: at the same time as the specialization of *molten* is in progress, the *melted* form is replacing the *molten* form in all contexts. This is not a contradiction to the specialization result; the logistic model comparison above, identifying a significant interaction between Year and Context in the data, shows that there truly is specialization for context taking place, even as *melted* continues to replace *molten* in both contexts. The continuing replacement may be because *melted* remains a productive passive participle

throughout the whole period, and can also be used adnominally as an adjectival passive, as it can in the modern language. *molten*, on the other hand, in the adjectival context, may have been reanalyzed as a simple adjective at some point (as it probably is in modern English); as a reviewer points out, this could be an instance of Kuryłowicz's Fourth Law (Kuryłowicz 1945).⁷ It may be that as *molten* lost in the participle context, and became increasingly analyzed as an adjective in the adjectival context, it loses a competitive edge in the adjectival context. *melted* can be marshalled in productively to serve as an adjective at any time by any speaker who controls the participle *melted*, which in effect keeps its abundance high over time in the adjectival context as well, and creates a selectional advantage that allows it to outcompete *molten* in a way that a simple adjective competitor could not. *melted* is also the regular, weak verbal form, which means it may be innovated spontaneously in acquisition in all contexts at a certain rate, conferring an advantage on that form. But regardless of whether there is an identifiable advantage, what is more important for the theory of specialization is simply the fact that *melted* can continue to outcompete *molten* even after they've begun to specialize along a dimension of specialization.

The fact that this can be the case gives us insight into the passive, evolutionary nature of variational specialization. This result of simultaneous specialization and replacement of one form by another in all contexts is compatible with an analysis of specialization in which the only active role of the acquirer, the Principle of Contrast, consists of choosing a dimension of specialization. Once that is chosen, and once the community converges on it, the result is that probabilities for the competing variants are tracked separately in the different contexts defined by the dimension of specialization. So, instead of tracking overall probabilities of *melted* and *molten*, the probabilities for the variants are stored separately for the adjectival and participle contexts. This allows the specialization to proceed, and could allow for *melted* to survive in one context one and *molten* to survive only in the other, if the evolutionary dynamics affecting the competition in each context allow for that. For instance, if the two contexts are different such that one variant has a selectional advantage in context C_1 only, and the other has an advantage in context C_2 only, then e.g. *melted* would win in C_1 and *molten* would win in C_2 by the linguistic analog of natural selection. Alternatively, if neither variant has an advantage at all, neutral processes, such as the linguistic analog of random death (i.e. not hearing a variant by chance at some moment), could allow one variant to win in C_1 and the other to win in C_2 .

7. A further study of the adjectival context alone would be necessary to substantiate this suggestion, however. I leave that for future work, as this is a side point with regard to the theory of specialization presented here.

However, in the data above, it seems that the selectional pressures in the two contexts are such that *melted* outcompetes *molten* in both contexts, possibly because of the potential advantages I mentioned above. The apparent advantage that *melted* has, however, seems to be different in the two contexts, even though the form has an advantage in both. This means that specialization is taking place to an extent, as the rate of *molten*'s decline is different in the different contexts, but the selectional pressures of the environments are not sufficiently different to allow *molten* to actually win in the adjectival context. This is an entirely expected possible outcome if the child's acquisition strategy really only involves choosing a dimension of specialization and separating the contexts, and any kind of differential pressures (or chance) are allowed to assert themselves in the contexts from there on out. This result is decidedly not compatible, however, with a view of specialization in which the acquirer actively forces both forms to survive in different contexts. Under my analysis, the acquirer merely creates the possibility for survival of the forms by choosing a dimension of specialization, and then evolutionary dynamics take their course in the two contexts without the acquirer doing anything actively aside from tracking variant frequencies (as she or he must do anyway).

6. Conclusions

This study has introduced the idea of variational specialization, an extension of Yang (2000, 2002), and shown that it plausibly explains diachronic cases of specialization across domains of linguistic knowledge. These results are reconciled with experimental evidence on lexical specialization by accounting for the social coordination problems that need to be solved in the speech community case, but not in the experimental cases. The results taken together show that a unified theory of specialization is possible. Furthermore, the details of how *melted* and *molten* specialized over time support a hypothesis under which specialization is mostly passive on the part of the learner, and the product of evolutionary dynamics. The learner actively chooses a dimension of specialization, decoupling their tracking of probabilities of variants in a few contexts, but how the variation plays out in the different contexts is not actively decided by the learner.

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Stable variation in multidimensional competition

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The Fundamental Theorem of Language Change (Yang 2000) implies the impossibility of stable variation in the Variational Learning framework, but only in the special case where two, and not more, grammatical variants compete. Introducing the notion of an advantage matrix, I generalize Variational Learning to situations where the learner receives input generated by more than two grammars, and show that diachronically stable variation is an intrinsic feature of several types of such multiple-grammar systems. This invites experimentalists to take the possibility of stable variation seriously and identifies one possible place where to look for it: situations of complex language contact.

1. Variation, learning and diachronic stability

Since its introduction in a series of publications by Yang in the early noughties (Yang 1999, 2000, 2002a, b, 2004), the Variational Learner has stirred much interest among those working in the field of language variation and change: given its inherently probabilistic nature, the Variational Learning paradigm successfully formalizes many aspects of the competing grammars framework (Kroch 1994), in which the simultaneous existence of a number of grammatical options in the mind of a speaker is taken for granted. As far as *change* is concerned, however, this intra-speaker existence of multiple grammars has been considered *diachronically unstable*, in the sense that over iterated generational learning interactions, grammar competition leads, ultimately, to a stable state of dominance by some single grammar. This mathematical fact, formulated as the Fundamental Theorem of Language Change by Yang (2000), dovetails with the theoretico-empirical claim that all morphosyntactic variation between two forms competing for a single function results, over time, in either the extinction of one form, or a functional specialization of the two forms by which the competition is escaped (Kroch 1994, Wallenberg 2016) – in either case, diachronically stable variation between two values of a single variable is

thought to be impossible because of a general cognitively motivated blocking effect that militates against stable doublets (Aronoff 1976).

In this paper, I wish to draw attention to the fact that Variational Learning only predicts this outcome in the case where two, and not more than two, variants compete in a speaker population. An analysis of both the classical Variational Learner and its parametrically constrained variation, the Naive Parameter Learner, reveals that in the general case – when more than two grammars compete – the situation is strikingly different. The Fundamental Theorem gives way to more complicated, even non-monotonic trajectories of change; to bifurcations; and, in many cases, to truly stable variation in which the competing variants do not (or need not) specialize functionally. Since language learners need to set the values of multiple parameters and hence make a choice in a high-dimensional space of possible grammars, these results question whether the Variational Learner can, in fact, explain the (purported) non-occurrence of stable variation. On the other hand, the results invite experimentalists to consider the possibility that when more than two variants come to compete, stable variation may in fact be predicted by general human learning mechanisms (assuming, *ex hypothesi*, that the reinforcement learning algorithm at the heart of the Variational Learner carries psychological realism).

To begin, it is incumbent on us to make the relevant notions of variation and stability as precise as possible. Any system capable of change is a dynamical system whose behaviour may be modelled using a set of difference equations – if the time variable is taken as discrete – or a set of differential equations – if time is considered continuous. The choice of one or the other description is largely arbitrary; in this paper, I will stick to discrete time, but all the results are valid for a continuous-time description as well (by letting the inter-generational time step tend to zero and examining the resulting differential equations). I then define a *language system* to be a probability distribution $\mathbf{p} = (p_1, \dots, p_n)$ over a finite set of possible grammars G_1, \dots, G_n , together with a set of difference equations

$$p'_i = f_i(\mathbf{p}) \quad (i = 1, \dots, n) \quad (1)$$

which define the system's dynamics. Here, p'_i is the *successor* of p_i ; in other words, p'_i is the value of the i th variable at time $t + 1$ given that the state of the entire system at time t was $\mathbf{p} = (p_1, \dots, p_n)$. The functions f_i are, in the general case, real-valued functions; they assume some concrete form as soon as concrete assumptions are made about learning, linguistic interaction, the existence of a critical period, and so on. The probabilities p_i themselves, $0 \leq p_i \leq 1$, describe the probability of use of the different competing grammars, in the usual sense: in a sequence of k utterances, roughly $p_i k$ utterances will be produced by grammar G_i if k is large. These probabilities may be taken to describe either a single individual or an entire community

of speakers: clearly, both individual and community-level probabilities may change over time, but the corresponding functions f_i in (1) may be rather different in the two cases. In what follows, I will always take p_i to refer to community-level probabilities and will denote probabilities at the level of individuals with corresponding Greek letters, π_i .

Taking the p_i as community-level probabilities, then, let us proceed to define the notions of variation and stability on the level of speech communities. Intuitively, variation exists if at least two grammars are used with non-zero probability. It then makes sense to define a *state of variation* as a probability state $\mathbf{p} = (p_1, \dots, p_n)$ which satisfies $p_i < 1$ for all i , for it is precisely under this condition that no single grammar gets to claim all of the available probability mass. Defining the concomitant notion of diachronic stability is a bit trickier, and I shall begin by presenting a physical analogue.

Consider a non-ideal pendulum (Figure 1A). By non-ideal, I mean to imply that we are *not* excluding frictional forces by way of idealization. Such a pendulum is also known as a damped pendulum, and the defining characteristic of its dynamics is the existence of a *rest point* directly below the point of attachment: if the pendulum is ever found in this position, it will not move, barring application of an external force.¹ Moreover, if the pendulum is set in motion from some other initial state, it will ultimately come to a halt at this rest point after a period of diminishing oscillation. Such a rest point is said to be *asymptotically stable*. More precisely, a rest point \mathbf{x} in the state space of a dynamical system is asymptotically stable if a neighbourhood of states around \mathbf{x} exists such that all trajectories from this neighbourhood converge to \mathbf{x} as time tends to infinity.

Now consider the inverted pendulum of Figure 1B. This pendulum, too, has a rest point, now directly above the point of attachment. Theoretically, if it were possible to balance the pendulum with infinite precision at this rest point, it would not move, since the horizontal component of the sum of the forces acting on the pendulum is zero at this point (we assume the pendulum is fixed to a stiff rod). Even a slight disturbance to the inverted pendulum will, however, nudge it away from the rest point. Such a rest point is *unstable*, since all trajectories from *any* local neighbourhood around the rest point take the system state away from the rest point.

1. In the corresponding mathematical description, a rest point is identified as a state \mathbf{x} which satisfies $\mathbf{x}' = \mathbf{x}$ or equivalently $\mathbf{x}' - \mathbf{x} = \mathbf{0}$, that is, as a zero-change state. In the vast literature on dynamical systems, rest points are also known as rest states, fixed points, equilibria, and steady states. The last term, sometimes encountered in discussions of language change, is somewhat unfortunate because of the semantic similarity of the pre-theoretical terms 'steady' and 'stable' – as we will see presently, not all steady states are stable, in the technical sense.

Finally, consider the “goo pendulum” of Figure 1C. Here the pendulum is submerged in a hypothetical goo of infinite viscosity which supports the pendulum but allows its movement when a suitable external force is applied (for a physically realistic approximation, we may think of a low-mass pendulum, such as a needle, submerged in a high-viscosity fluid such as honey). This pendulum will not move from any initial condition. Every possible position of the pendulum is a rest point, and they are all neither asymptotically stable nor unstable. The characteristic behaviour of these *non-asymptotically stable* states is that, given a perturbation, the system will move to a different, close-by point, but is not “actively” repelled by the rest point nor attracted back to it.

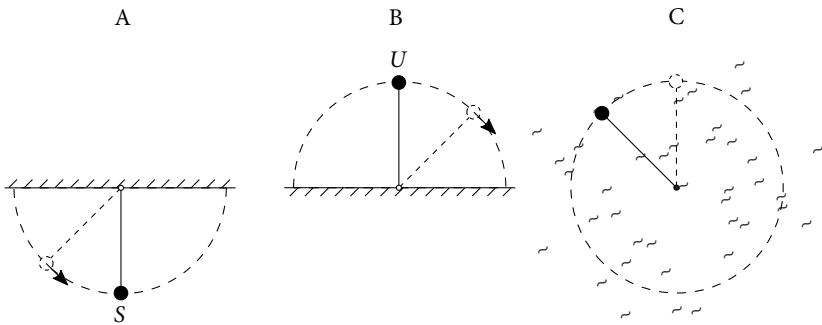


Figure 1. A damped pendulum (A), an inverted pendulum (B) and a “goo pendulum” (C). *S*: stable rest point, *U*: Unstable rest point

These notions translate directly into our framework of language systems and may now be used to explicate the idea of stable variation. I define a *state of stable variation* to be a probability vector $\mathbf{p} = (p_1, \dots, p_n)$ satisfying the following three conditions simultaneously:

1. \mathbf{p} is a state of variation ($p_i < 1$ for all i)
2. \mathbf{p} is a rest point ($p'_i - p_i = 0$ for all i)
3. \mathbf{p} is asymptotically stable

I do not include non-asymptotically stable rest points in this definition since, as per the above discussion, they are not resilient to perturbations. Crucially, given that real-life systems always contain a source of noise, which we may think of as a perturbation to the state of a deterministic system such as (1), such states do not count as truly stable.

2. Two grammars

With these notions in hand we may proceed to a formal study of variation and stability in the Variational Learning framework, beginning with a summary re-statement of the already familiar two-grammar case.

In Yang (2000), language change is reduced to language acquisition by assuming that language learners employ a specific learning strategy, the linear reward–penalty (henceforth, LRP) learning algorithm originating in Bush and Mosteller’s (1955) early work on reinforcement learning and most usefully synthesized by Narendra & Thathachar (1989). This allows one to close the population-dynamical equations (1). Specifically, assume the learner needs to make a decision between two grammars G_1 and G_2 which are used in the community with probabilities p_1 and p_2 . Writing π_1 and π_2 for the learner’s hypothesis (i.e. π_i is the probability with which the learner himself employs G_i), the LRP algorithm assumes the following form:

Algorithm 1. (LRP, $n = 2$; Narendra & Thathachar 1989: 110–111)

1. Let $\pi_1 = \pi_2 = 1/2$ initially.
2. Present an input token (sentence) x to the learner. This is generated by G_1 with probability p_1 and by G_2 with probability p_2 .
3. Learner picks grammar G_i with probability π_i .
4. Suppose the learner picked G_1 .
 - a. If G_1 parses x , the learner increases π_1 by a small amount and decreases π_2 by a small amount. Concretely, π_1 is replaced with $\pi_1 + \gamma(1 - \pi_1)$, where γ is a small positive number (the *learning rate*), whilst π_2 is replaced with $(1 - \gamma)\pi_2$.
 - b. Conversely, if G_1 does not parse x , the learner decreases π_1 and increases π_2 . Concretely, π_1 is replaced with $(1 - \gamma)\pi_1$, whilst π_2 is replaced with $\pi_2 + \gamma(1 - \pi_2)$.
5. (If the learner picked G_2 instead, execute the previous step with labels 1 and 2 interchanged.)
6. Steps 2–5 are repeated for T input tokens.

Thus, during learning, the probabilities π_i change in response to the two grammars’ success in parsing input generated from the community-level distribution $\mathbf{p} = (p_1, p_2)$. For simplicity, the latter is assumed to stay constant for the duration of learning; in learning-theoretic terminology, the learner’s environment is a *stationary random environment* (Narendra & Thathachar 1989).

If either $p_1 = 1$ or $p_2 = 1$, then one of the grammars succeeds in parsing any possible input token the learner may encounter. It then follows that in such a case of a homogeneous community, the learner’s hypothesis tends to the population

state with growing T and the unique target grammar is learnable according to a probabilistic variant of Gold's (1967) learnability criterion (cf. Niyogi 2002: 354). If the population state $\mathbf{p} = (p_1, p_2)$ is mixed, i.e. a state of variation, the learner exhibits more interesting behaviour.

Let $\hat{\pi}_i$ denote the value of π_i at the end of learning (at T learning steps), and assume that T is large and that the learning rate γ is small. Such a learner shall be called *reliable*,² and it can be shown (Narendra & Thathachar 1989: 111–112) that, for a reliable learner,

$$\hat{\pi}_1 \approx \frac{c_2}{c_1 + c_2} \quad \text{and} \quad \hat{\pi}_2 \approx \frac{c_1}{c_1 + c_2}, \quad (2)$$

where c_i is the *penalty probability* of grammar G_i :

$$c_i = \text{Prob}(x: G_i \text{ does not parse } x). \quad (3)$$

The penalty probabilities are easily determined: we may write $c_1 = a_2 p_2$ and $c_2 = a_1 p_1$, where a_2 is the probability of a sentence parsed by G_2 but not by G_1 and vice versa for a_1 . Following Yang (2000), I will call a_1 the *advantage* of G_1 and a_2 the advantage of G_2 (Figure 2).

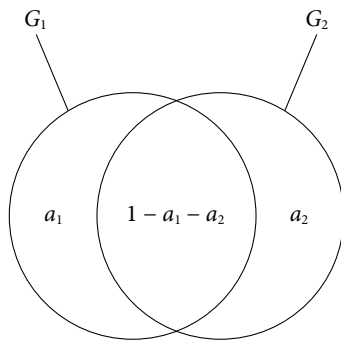


Figure 2. The classical two-grammar setting (after Yang 2000: 238, Figure 2). This Venn diagram illustrates all sentences parsed by either grammar; a_1 is the probability of a sentence uniquely parsed by G_1 and a_2 the probability of a sentence uniquely parsed by its competitor G_2

2. All results in this paper pertain to systems of reliable learners. The stochastic effects of unreliable learning – short critical periods or large (“high-temperature”) learning rates – remain underinvestigated in the literature but must be set aside here.

If learners are now arranged in a sequence of non-overlapping generations, the output of generation t feeding as input to the learning process of generation $t + 1$, we have the population-level difference equations

$$p'_1 = \frac{a_1 p_1}{a_1 p_1 + a_2 p_2} \quad \text{and} \quad p'_2 = \frac{a_2 p_2}{a_1 p_1 + a_2 p_2}. \quad (4)$$

Bearing in mind that $p_1 + p_2 = 1$, it suffices to work with the single equation

$$p'_1 = \frac{a_1 p_1}{a_1 p_1 + a_2 (1 - p_1)}. \quad (5)$$

The inter-generational increment in p_1 is given by $p'_1 - p_1$, which by simple algebra is found to equal

$$p'_1 - p_1 = \frac{(a_1 - a_2)(1 - p_1)p_1}{a_1 p_1 + a_2 (1 - p_1)}. \quad (6)$$

Figuring out the rest points of this system is now an easy task: from (6) it is readily seen that $p'_1 - p_1 = 0$ if and only if (1) $p_1 = 0$, (2) $p_1 = 1$ or (3) $a_1 = a_2$. Assume first that $a_1 > a_2$. Then the sign of $p'_1 - p_1$ is always strictly positive, which means that p_1 always grows, no matter what the state $\mathbf{p} = (p_1, p_2)$. Hence, the state $(1, 0)$ is asymptotically stable and the state $(0, 1)$ unstable. With this ordering of the two advantage parameters, G_1 will drive G_2 out in diachrony, no matter what the initial state of the system. For $a_1 < a_2$, the reverse state of affairs obtains: $(1, 0)$ is unstable and $(0, 1)$ stable. Now G_2 is the winner. Finally, if $a_1 = a_2$, then the rate of change of p_1 (and, by necessity, of p_2) is zero in every possible state $\mathbf{p} = (p_1, p_2)$. The state space is filled with an infinity of non-asymptotically stable rest points, and the system resembles the goo pendulum of Figure 1C. With this reasoning, we have proved the following two results:

Theorem 1. (Fundamental Theorem of Language Change; Yang 2000: 239)
Suppose learners are reliable. Then, in a two-grammar system, G_1 wins in diachrony if $a_1 > a_2$, and G_2 wins if $a_1 < a_2$.

Theorem 2. *No two-grammar system of reliable learners admits stable variation.*

Figure 3 illustrates a typical trajectory in a system of two grammars with unequal advantages. The grammar with the greater advantage ousts its competitor both in the case of theoretically perfectly reliable learners (equation 5) and in the case of learners who receive a finite but large sample of primary linguistic data.

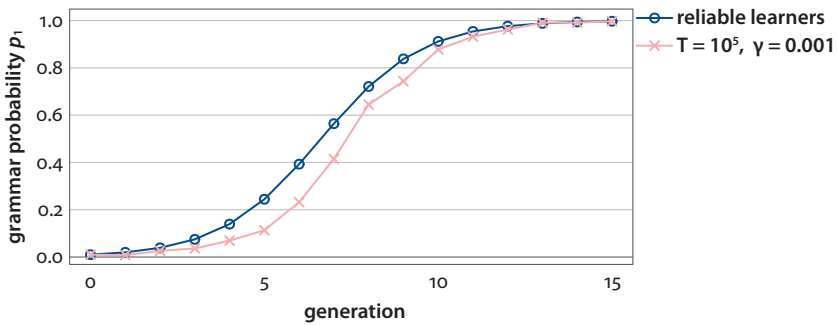


Figure 3. Time evolution of a two-grammar system with $a_1 = 0.2$ and $a_2 = 0.1$, from initial state $(p_1, p_2) = (0.01, 0.99)$, for both theoretically perfectly reliable learners (circles, equation 5) and for large-sample learners (crosses, from computer simulation; only one realization of the stochastic process shown)

3. Advantage matrices and the cyclical balance criterion

It is not immediately obvious how, or whether, these results generalize to situations where learners are exposed to input from more than two grammars. In fact, extending the model definition itself to such more general cases turns out to be nontrivial. The main difficulty lies in expressing the penalty probabilities c_p , which with an increasing number of competing variants assume an increasingly complicated form. This is because in the general case of n competing grammars one has to consider the relative (pairwise) advantages between any two distinct grammars, the number of these advantage relations being $n(n-1) = n^2 - n$ and hence growing superlinearly with n .

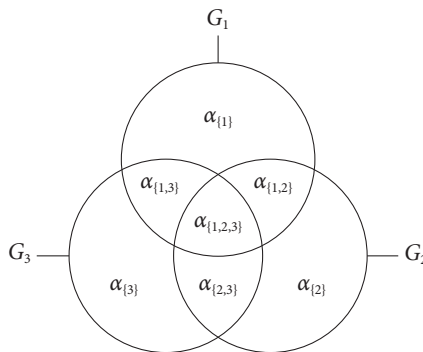


Figure 4. Venn diagram illustrating the general three-grammar case. Here, α_i gives the probability of a sentence parsed by all and only the grammars G_i for which $i \in I$, where I indexes the subsets of $\{1, 2, 3\}$

In the three-grammar case ($n = 3$), the situation is as depicted in Figure 4. Each grammar potentially generates sentences which are only parsed by that grammar itself. However, the possibility now arises that two of the three grammars jointly generate something not parsed by the third grammar. Using the symbolism of Figure 4, we find that the penalty probability for grammar G_1 in this more general three-grammar situation may be expressed as

$$\begin{aligned} c_1 &= \alpha_{\{2\}} p_2 + \alpha_{\{3\}} p_3 + \alpha_{\{2,3\}} (p_2 + p_3) \\ &= (\alpha_{\{2\}} + \alpha_{\{2,3\}}) p_2 + (\alpha_{\{3\}} + \alpha_{\{2,3\}}) p_3 \end{aligned} \quad (7)$$

If we now write $a_{12} = \alpha_{\{2\}} + \alpha_{\{2,3\}}$ and $a_{13} = \alpha_{\{3\}} + \alpha_{\{2,3\}}$, we see that a_{12} gives the *relative advantage* of G_2 over G_1 and a_{13} the relative advantage of G_3 over G_1 . Proceeding analogously to derive the penalty probabilities c_2 and c_3 , one finds

$$\begin{cases} c_1 = a_{12}p_2 + a_{13}p_3 \\ c_2 = a_{21}p_1 + a_{23}p_3 \\ c_3 = a_{31}p_1 + a_{32}p_2 \end{cases} \quad (8)$$

where each a_{ij} thus gives the probability of a sentence which is parsed by G_j but not by G_i . It is these relative advantages a_{ij} that determine the system's dynamics, and consequently it will be useful to collect them in a matrix,

$$\mathbf{A} = [a_{ij}] = \begin{bmatrix} 0 & a_{12} & a_{13} \\ a_{21} & 0 & a_{23} \\ a_{31} & a_{32} & 0 \end{bmatrix} \quad (9)$$

where the diagonal is zero since obviously $a_{ii} = 0$ for any i . In what follows, I will refer to such a matrix as an *advantage matrix*. It is possible, with greater technical difficulty, to generalize this procedure for arbitrary n , and many of the results to follow carry over to the general case (see Kauhanen 2018). Here, I restrict my attention to three grammars in the interest of readability.

Not every square matrix of real numbers is a valid advantage matrix. As already mentioned, the diagonal is necessarily zero, since no grammar both parses and does not parse one and the same sentence. Furthermore, from Figure 4, we note that the α quantities must all sum to unity, since the event represented by their union is "a sentence is produced which some grammar parses". In three dimensions, this corresponds to the requirement

$$\alpha_{\{1\}} + \alpha_{\{2\}} + \alpha_{\{3\}} + \alpha_{\{1,2\}} + \alpha_{\{1,3\}} + \alpha_{\{2,3\}} + \alpha_{\{1,2,3\}} = 1. \quad (10)$$

Rearranging the terms on the left hand side, we obtain

$$a_{21} + a_{32} + a_{13} + \alpha_{\{1,2,3\}} = 1. \quad (11)$$

On the other hand, arranging the α terms differently, we have

$$a_{31} + a_{23} + a_{12} + \alpha_{\{1,2,3\}} = 1. \quad (12)$$

From (11) and (12),

$$a_{21} + a_{32} + a_{13} = a_{31} + a_{23} + a_{12} \quad (13)$$

or

$$(a_{21} - a_{12}) + (a_{32} - a_{23}) + (a_{13} - a_{31}) = 0. \quad (14)$$

Writing $\delta_{ij} = a_{ji} - a_{ij}$, we have

$$\delta_{12} + \delta_{23} + \delta_{31} = 0 \quad (15)$$

which I will refer to as the *cyclical balance criterion*. The advantage matrix of any 3-grammar system, then, has to satisfy this criterion.

Within the remit of the cyclical balance criterion, many qualitatively different kinds of advantage matrix are possible. In particular, it is possible for some of the advantage quantities a_{ij} to equal zero – this will be the case if inclusion (subset–superset) relations exist among the competing grammars, in the sense that one grammar parses everything that another does. In what follows, I will however usually assume that $a_{ij} > 0$ for all i and j with $i \neq j$, and will say that an advantage matrix satisfying this condition is *proper*. Assuming advantage matrices to be proper thus delimits the class of formal systems studied to some extent; the benefit of making this assumption is that it makes available a useful learning-theoretic approximation which is not available in the improper case, as we will shortly see. Without this approximation, the improper cases need to be studied separately, on a case-by-case basis.

4. Dynamics: General results

With the penalty probabilities (8) in hand, we may now proceed to study the dynamics of the three-grammar case. The general form of the LRP algorithm reads as follows:

Algorithm 2. (LRP; Narendra & Thathachar 1989: 116–117)

1. Let $\pi_i = 1/n$ initially.
2. Present an input token (sentence) x to the learner. This is generated by G_i with probability p_i .

3. Learner picks grammar G_i with probability π_i .
4. Suppose learner picked G_k .
 - a. If G_k parses x , learner replaces π_k with $\pi_k + \gamma(1 - \pi_k)$, with learning rate γ , and π_j with $(1 - \gamma)\pi_j$, $j \neq k$.
 - b. If G_k does not parse x , learner replaces π_k with $(1 - \gamma)\pi_k$ and π_j with $\frac{\gamma}{n-1} + (1 - \gamma)\pi_j$, $j \neq k$.
5. Steps 2–4 are repeated for T input tokens.

Assuming reliable learners (large T , small γ), Narendra & Thathachar (1989: 117) show that the following approximation holds for the learner's hypothesis at the end of the learning cycle:³

$$\hat{\pi}_i \approx \frac{\prod_{j \neq i} c_j}{\sum_j \prod_{k \neq j} c_k}. \quad (16)$$

Assuming non-overlapping generations of such learners thus yields the diachronic difference equation

$$p'_i = \frac{\prod_{j \neq i} c_j}{\sum_j \prod_{k \neq j} c_k}. \quad (17)$$

In particular, in three dimensions one has

$$\begin{cases} p'_1 = \frac{c_2 c_3}{c_2 c_3 + c_1 c_3 + c_1 c_2} \\ p'_2 = \frac{c_1 c_3}{c_2 c_3 + c_1 c_3 + c_1 c_2} \\ p'_3 = \frac{c_1 c_2}{c_2 c_3 + c_1 c_3 + c_1 c_2} \end{cases} \quad (18)$$

where, it bears stressing, each penalty c_i is itself a function of the system state $\mathbf{p} = (p_1, p_2, p_3)$, leading to a nonlinear equation. For this to be well-defined, mathematically speaking, we need to check that the denominators never equal zero. This is guaranteed for all proper advantage matrices:

Theorem 3. *For a proper advantage matrix, $c_i = 0$ if and only if $p_i = 1$.*

Proof. Since \mathbf{A} is proper, $c_i = \sum_{j \neq i} a_{ij} p_j = 0$ if and only if $p_j = 0$ for all $j \neq i$. But since \mathbf{p} is a probability distribution, the latter occurs if and only if $p_i = 1$.

3. If all the penalty probabilities are strictly positive, $c_i > 0$ for all i , then this slightly unwieldy formula reduces to the more aesthetic $\hat{\pi}_i \approx c_i^{-1} / \sum_j c_j^{-1}$ upon division of both the numerator and the denominator by $\prod_i c_i$. Narendra & Thathachar (1989) limit their discussion to this case.

Corollary. *Given a proper advantage matrix, it is never possible for two penalty probabilities c_i and c_j , $i \neq j$, to equal zero at the same time. Consequently, the denominators in (18) are never zero.*

The learning-theoretic approximation (16) therefore leads to a well-defined inter-generational (diachronic) dynamical system whenever advantages are proper (as pointed out in the preceding discussion, the improper cases would need to be studied separately, a task which I set aside in the present paper).

As the p_i are probabilities, the system (18) is defined on the 3-dimensional simplex

$$S_3 = \{\mathbf{p} = (p_1, p_2, p_3): 0 \leq p_1, p_2, p_3 \leq 1 \text{ and } p_1 + p_2 + p_3 = 1\}. \quad (19)$$

This set may be partitioned into the *interior*

$$\text{int}S_3 = \{\mathbf{p} \in S_3: 0 < p_1, p_2, p_3 < 1\} \quad (20)$$

and the *boundary*

$$\text{bd}S_3 = \{\mathbf{p} \in S_3: p_i = 0 \text{ for some } i\}. \quad (21)$$

Of special interest are the three points $\mathbf{v}_1 = (1, 0, 0)$, $\mathbf{v}_2 = (0, 1, 0)$ and $\mathbf{v}_3 = (0, 0, 1)$, corresponding to a state of dominance by one of the three grammars; these points are the *vertices* of the simplex. In what follows, I will illustrate the behaviour of three-dimensional systems with the help of a barycentric triangular plot in which the vertices of the triangle correspond to the vertices of the simplex, the triangle's centroid corresponding to the mixed state $\mathbf{p} = (1/3, 1/3, 1/3)$ (Figure 5).

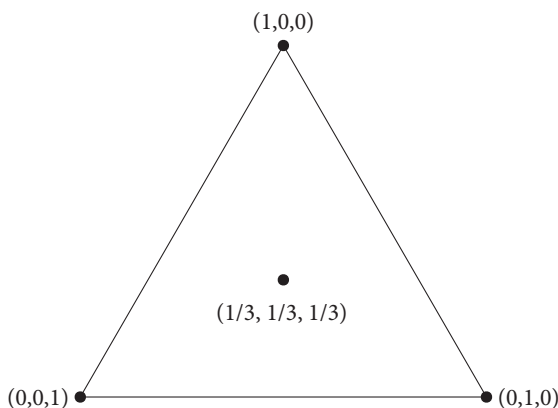


Figure 5. The state $\mathbf{p} = (p_1, p_2, p_3)$ of a 3-grammar system is defined on the 3-dimensional simplex S_3 , which is best illustrated using a barycentric ternary plot. Shown here are the three vertices $\mathbf{v}_1 = (1, 0, 0)$, $\mathbf{v}_2 = (0, 1, 0)$ and $\mathbf{v}_3 = (0, 0, 1)$ as well as the barycentre $(1/3, 1/3, 1/3)$

In the general case, the system (18) is too complicated to be solved analytically. In other words we do not have, for an arbitrary advantage matrix \mathbf{A} , a closed-form equation that would tell us the exact time evolution of the system from any given initial state. We can, however, arrive at an understanding of the system's dynamics by finding its rest points and studying their stability. A first result is that each of the three vertices \mathbf{v}_i is a rest point and that no further rest points exist on the boundary $\text{bd } S_3$, whenever \mathbf{A} is proper:

Theorem 4. The points $\mathbf{v}_1 = (1, 0, 0)$, $\mathbf{v}_2 = (0, 1, 0)$ and $\mathbf{v}_3 = (0, 0, 1)$ are rest points of (18) for any proper advantage matrix. No other point in $\text{bd } S_3$ is a rest point.

Proof. Using Theorem 3, inspection of (18) immediately shows that $\mathbf{v}'_i - \mathbf{v}_i = \mathbf{0}$, i.e. that each vertex \mathbf{v}_i is a rest point.

Now suppose that $\mathbf{p} = (p_1, p_2, 0)$ is a rest point. Then $p'_3 - p_3 = 0$, which by (18) implies that $c_1 c_2 = 0$, which implies that either $c_1 = 0$ or $c_2 = 0$. From Theorem 3, $p_1 = 1$ in the first case and $p_2 = 1$ in the second. Due to the symmetry of (18), the same argument holds for states of the form $(p_1, 0, p_3)$ and $(0, p_2, p_3)$. Thus, if $\mathbf{p} \in \text{bd } S_3$ is a rest point, it is necessarily a vertex.

If an interior rest point exists, it satisfies a stability condition:

Theorem 5. Let $\mathbf{p} = (p_1, p_2, p_3) \in \text{int } S_3$. Then \mathbf{p} is a rest point if and only if $c_1 p_1 = c_2 p_2 = c_3 p_3$.

Proof. Since $\mathbf{p} \in \text{int } S_3$, Theorem 3 implies that $c_i > 0$ for all i . Division by the c_i is then possible, and (17) reduces, with algebra, to

$$p'_i = \frac{c_i^{-1}}{\sum_j c_j^{-1}} = \frac{1}{c_i \sum_j c_j^{-1}}.$$

Now $p'_i - p_i = 0$ if and only if

$$c_i p_i = \frac{1}{\sum_j c_j^{-1}}.$$

This holds for all i and the right hand side is independent of i . Hence, the previous is equivalent to $c_1 p_1 = c_2 p_2 = c_3 p_3$.

Apart from these simple observations, it is difficult to obtain further results concerning the behaviour of (18) in the general case. I will next turn to a consideration of a number of special cases which are considerably easier to analyse, in increasing order of complexity, so as to arrive at a general picture of the diachronic behaviour of multiple-grammar systems based on LRP learning.

5. Babelian systems

Arguably the simplest case occurs when all of the pairwise advantages a_{ij} are equal – in this case, no single grammar has a net benefit over the rest. Formally, I will say that a system is *Babelian* if its advantage matrix satisfies the following: there is an $a > 0$ such that $a_{ij} = a$ for all i, j with $i \neq j$. In three dimensions, this amounts to matrices of the form

$$\mathbf{A} = \begin{bmatrix} 0 & a & a \\ a & 0 & a \\ a & a & 0 \end{bmatrix}. \quad (22)$$

Notice that such matrices satisfy the cyclical balance criterion (15) and are thus valid advantage matrices.

Any Babelian 3-grammar system turns out to have one interior rest point, namely the maximum entropy state $(1/3, 1/3, 1/3)$:

Theorem 6. For any Babelian 3-grammar system, the state $(1/3, 1/3, 1/3)$ is the only interior rest point.

Proof. That $(1/3, 1/3, 1/3)$ is a rest point would be easy to establish using Theorem 5. To prove the stronger result that it is the only interior rest point of a Babelian system, let us look at the difference equation (18) directly. In the interior $\text{int } S_3$, one has (cf. proof of Theorem 5)

$$\begin{aligned} p'_i - p_i &= \frac{c_i^{-1}}{\sum_j c_j^{-1}} - p_i \\ &= \frac{(\sum_k a_{ik} p_k)^{-1}}{\sum_j (\sum_k a_{jk} p_k)^{-1}} - p_i \\ &= \frac{(\sum_k a p_k)^{-1}}{\sum_j (\sum_k a p_k)^{-1}} - p_i \\ &= \frac{a^{-1} (\sum_k p_k)^{-1}}{a^{-1} \sum_j (\sum_k p_k)^{-1}} - p_i \end{aligned}$$

for a Babelian system. But $\sum_k p_k = 1$, so the above is equivalent to

$$p'_i - p_i = \frac{a^{-1}}{3a^{-1}} - p_i = \frac{1}{3} - p_i$$

in three dimensions. Hence $p'_i - p_i = 0$ if and only if $p_i = 1/3$, and consequently $(1/3, 1/3, 1/3)$ is the only interior rest point.

Thus any Babelian three-grammar system has four rest points: the three vertices, corresponding to total dominance by one of the three grammars, and the maximum entropy state in which each grammar has equal representation. It remains to figure out the stability of these rest points. In general, stability analysis hinges on studying how the state of the dynamical system under consideration changes in the immediate vicinity of the rest point in question – whether nearby points in the system’s state space are attracted to the rest point or repelled by it (cf. our discussion of the three pendula in Section 1). Mathematically, we need to study the partial derivatives of the system’s evolution equations when evaluated at the rest point. For a three-dimensional system, the *Jacobian matrix* is defined as the matrix of partial derivatives

$$J = \begin{bmatrix} \frac{\partial f_1}{\partial p_1} & \frac{\partial f_1}{\partial p_2} & \frac{\partial f_1}{\partial p_3} \\ \frac{\partial f_2}{\partial p_1} & \frac{\partial f_2}{\partial p_2} & \frac{\partial f_2}{\partial p_3} \\ \frac{\partial f_3}{\partial p_1} & \frac{\partial f_3}{\partial p_2} & \frac{\partial f_3}{\partial p_3} \end{bmatrix} \quad (23)$$

where the functions f_i are as in (1). When the partial derivatives $\partial f_i / \partial p_j$ are evaluated at a rest point $\mathbf{p} = (p_1, p_2, p_3)$, the Jacobian reduces to a matrix of real numbers; denote this by $\mathbf{J}(\mathbf{p})$. It can then be shown that, for a discrete-time system, (1) if the modulus of each eigenvalue of $\mathbf{J}(\mathbf{p})$ is strictly less than 1, the rest point \mathbf{p} is asymptotically stable, and (2) if the modulus of at least one eigenvalue is strictly greater than 1, \mathbf{p} is unstable (Drazin 1992: 70–71). While this method is foolproof in the sense that it is purely a matter of mechanical calculation, computing the eigenvalues is in most cases extremely tedious and is best left to a computer. In what follows, I shall consequently only report the end results of these computations, suppressing the gritty details.

Applying the Jacobian method on (18) gives us our main result on the stability of Babelian systems.

Theorem 7. In a three-dimensional Babelian system, the interior rest point (1/3, 1/3, 1/3) is asymptotically stable. The vertex rest points (1, 0, 0), (0, 1, 0) and (0, 0, 1) are all unstable.

Proof. The Jacobian has eigenvalues 0 and 2 at each of the three vertices, and eigenvalues 0 and 1/2 at the interior rest point (1/3, 1/3, 1/3).

Thus, as expected, the natural tendency in a Babelian system is away from dominance and towards the maximally mixed state (1/3, 1/3, 1/3) in which each grammar is used with probability 1/3 (Figures 6–7). This shows that three-grammar Babelian systems have “built-in” stable variation, in stark contrast to the two-grammar case (Section 2).

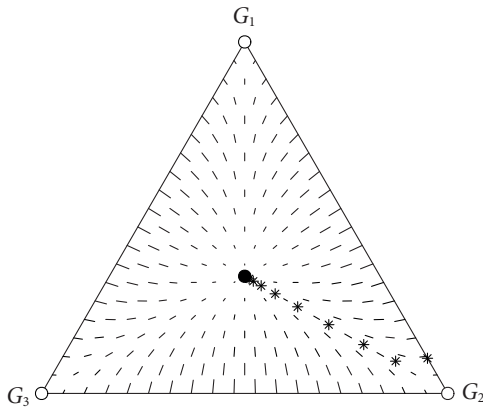


Figure 6. Phase space plot of Babelian 3-grammar systems. The three unstable vertex rest points are shown as open circles and the stable interior rest point as a filled circle, as is customary; the line segments give the magnitude and direction of change at various points in the state space. The series of asterisks illustrates one diachronic (inter-generational) trajectory from the initial state $\mathbf{p} = (0.1, 0.9, 0.0)$; see Figure 7 for a conventional representation of this trajectory in the time dimension

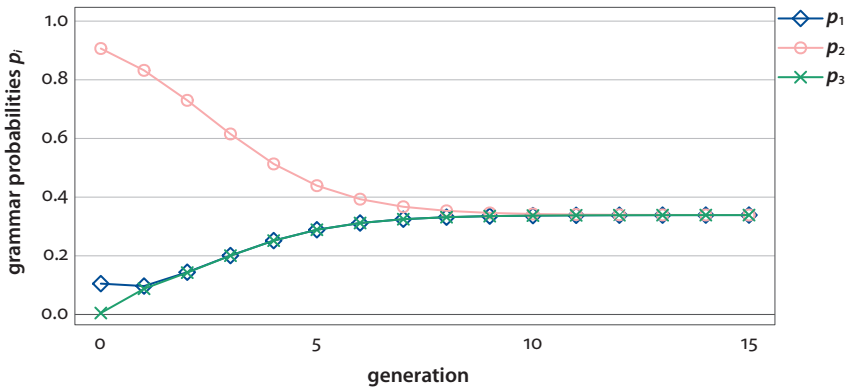


Figure 7. The trajectory from Figure 6 shown in the time dimension

6. Symmetric systems

The above analysis illustrates the procedure of sketching the qualitative behaviour of a dynamical system by way of analysing the system's rest points and their stability, when the equations governing the system's evolution cannot be solved. It also shows that true stable variation is a feature of at least some formal systems based on LRP learning. Babelian systems, of course, are far too trivial to be of any serious linguistic interest, and it remains to show that stable variation may occur in other, more realistic multiple-grammar settings.

A straightforward way of generalizing from Babelian systems is to allow some of the grammars to have unequal advantages but to maintain a symmetry condition: $a_{ij} = a_{ji}$ for all i, j . In three dimensions, such *symmetric* systems are thus described by advantage matrices of the form

$$\mathbf{A} = \begin{bmatrix} 0 & a_{12} & a_{13} \\ a_{12} & 0 & a_{23} \\ a_{13} & a_{23} & 0 \end{bmatrix} = \begin{bmatrix} 0 & a & b \\ a & 0 & c \\ b & c & 0 \end{bmatrix} \quad (24)$$

where I write $a = a_{12}$, $b = a_{13}$ and $c = a_{23}$ for convenience. Again, it is clear that these matrices satisfy the cyclical balance criterion (15) and thus are well-defined.

Setting $p'_i - p_i = 0$ in (18) and solving for p_i (in a manner analogous to that in the proof of Theorem 6 above) reveals that in a symmetric three-grammar system, a rest point exists at

$$\mathbf{p} = \left(\frac{c}{a+b+c}, \frac{b}{a+b+c}, \frac{a}{a+b+c} \right). \quad (25)$$

Continuing to assume proper advantage matrices, in other words that $a, b, c > 0$, it follows that this rest point is always contained in the interior $\text{int}S_3$. It is also the only solution of $p'_i - p_i = 0$ in the interior and hence the only interior rest point of a symmetric system. Furthermore, stability analysis finds that the Jacobian, when evaluated at this rest point, has eigenvalues $0 < 1$ and $1/2 < 1$; hence, the interior rest point is always asymptotically stable. For each of the vertex rest points $\mathbf{v}_1, \mathbf{v}_2$ and \mathbf{v}_3 , the eigenvalues are $0 < 1$ and $2 > 1$. Thus:

Theorem 8. Any proper, symmetric three-grammar system (24) has exactly one interior rest point at

$$\mathbf{p} = \left(\frac{c}{a+b+c}, \frac{b}{a+b+c}, \frac{a}{a+b+c} \right).$$

This interior rest point is asymptotically stable, while the vertex rest points are all unstable.

Crucially, the result holds for any values of $a, b, c > 0$. We then conclude:

Corollary. Any proper, symmetric system of three grammars tends to a state of stable variation.

Figure 8 illustrates for a particular choice of the parameters a, b and c .

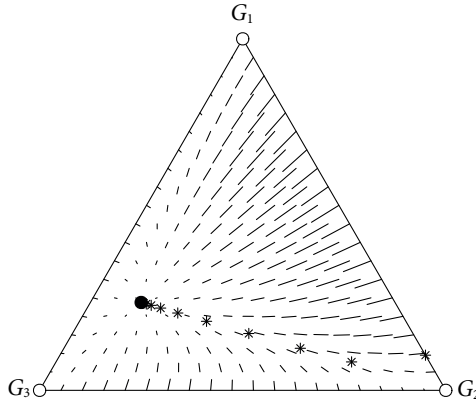


Figure 8. Phase space plot of a symmetric 3-grammar system with $a = 0.05$, $b = 0.01$ and $c = 0.02$. Each trajectory not starting at a vertex point tends towards the stable interior rest point at $(c/D, b/D, a/D)$ with $D = a + b + c$

7. Quasi-Babelian systems

Another way of generalizing from the Babelian special case is to explore a more comprehensive class of systems in which some one grammar has either a larger or a smaller advantage than any of its competitors, the latter sharing the same amount of advantage amongst themselves. Formally, I will call a system *quasi-Babelian* if constants $a, b > 0$ exist such that (1) for some unique i , $a_{ji} = b$ for all $j \neq i$, and (2) $a_{kj} = a$ for all $j \neq i$, for all $k \neq j$. By a relabelling of grammars, we may always take G_1 to correspond to the grammar having the unique advantage b , and I will refer to this as the *canonical* quasi-Babelian case. In three dimensions, a canonical quasi-Babelian advantage matrix, then, is of the form

$$\mathbf{A} = \begin{bmatrix} 0 & a & a \\ b & 0 & a \\ b & a & 0 \end{bmatrix}. \quad (26)$$

Again, it can be checked that the cyclical balance criterion (15) is satisfied.

The advantage matrix now has just two independent parameters, a and b , and consequently algebraic manipulation of the equations (18) becomes easy. Setting $p'_i - p_i = 0$ and solving for p_i reveals that with a canonical quasi-Babelian advantage matrix, (18) has either three or four rest points in the simplex S_3 . In addition to the vertices \mathbf{v}_1 , \mathbf{v}_2 and \mathbf{v}_3 , a fourth solution exists in the interior at the point

$$\mathbf{p}^* = \left(\frac{1}{5-2\rho}, \frac{2-\rho}{5-2\rho}, \frac{2-\rho}{5-2\rho} \right) \quad (27)$$

whenever $0 < \rho < 2$, where $\rho = b/a$ gives the ratio of the two advantage parameters. At $\rho = 2$, this solution coalesces with the vertex \mathbf{v}_1 .

This rest point \mathbf{p}^* entails a sort of behaviour which is entirely unattested in Babelian and symmetric systems: a bifurcation. For small values of the ratio $\rho = b/a$ – that is, for values of b which are small in comparison to a – the interior rest point \mathbf{p}^* exists. As ρ is increased, this rest point moves towards the vertex \mathbf{v}_1 and coincides with the latter at the critical value $\rho = \rho_c = 2$ of the bifurcation parameter ρ . For ratios $\rho \geq 2$, the system consequently only has the three vertex rest points. The following theorem establishes the stability of these rest points in response to the bifurcation; Figures 9–10 illustrate.

Theorem 9. Assume a canonical quasi-Babelian 3-grammar system with advantage ratio $\rho = b/a$. Then

1. *the vertex rest points $\mathbf{v}_2 = (0, 1, 0)$ and $\mathbf{v}_3 = (0, 0, 1)$ are always unstable;*
2. *the vertex rest point $\mathbf{v}_1 = (1, 0, 0)$ is asymptotically stable if $\rho \geq 2$ and unstable if $0 < \rho < 2$;*
3. *the interior fixed point $\mathbf{P}^* = \left(\frac{1}{5-2\rho}, \frac{2-\rho}{5-2\rho}, \frac{2-\rho}{5-2\rho} \right)$ is asymptotically stable whenever it exists, i.e. when $0 < \rho < 2$.*

Proof. For the two vertices \mathbf{v}_2 and \mathbf{v}_3 , the eigenvalues of the Jacobian are 0 and $1 + \rho > 1$. Hence, these points are unstable.

At the vertex \mathbf{v}_1 , the Jacobian has eigenvalues 0 and $2a/b$. Hence, this rest point is asymptotically stable if $2a/b < 1$, i.e. if $b/a = \rho > 2$, and unstable if $b/a = \rho < 2$.

At the interior rest point \mathbf{p}^* , the Jacobian has eigenvalues $0 < 1$, $1/2\rho$ and $1 - 1/2\rho < 1$. Thus, the interior rest point is asymptotically stable whenever $1/2\rho < 1$, i.e. when $\rho < 2$.

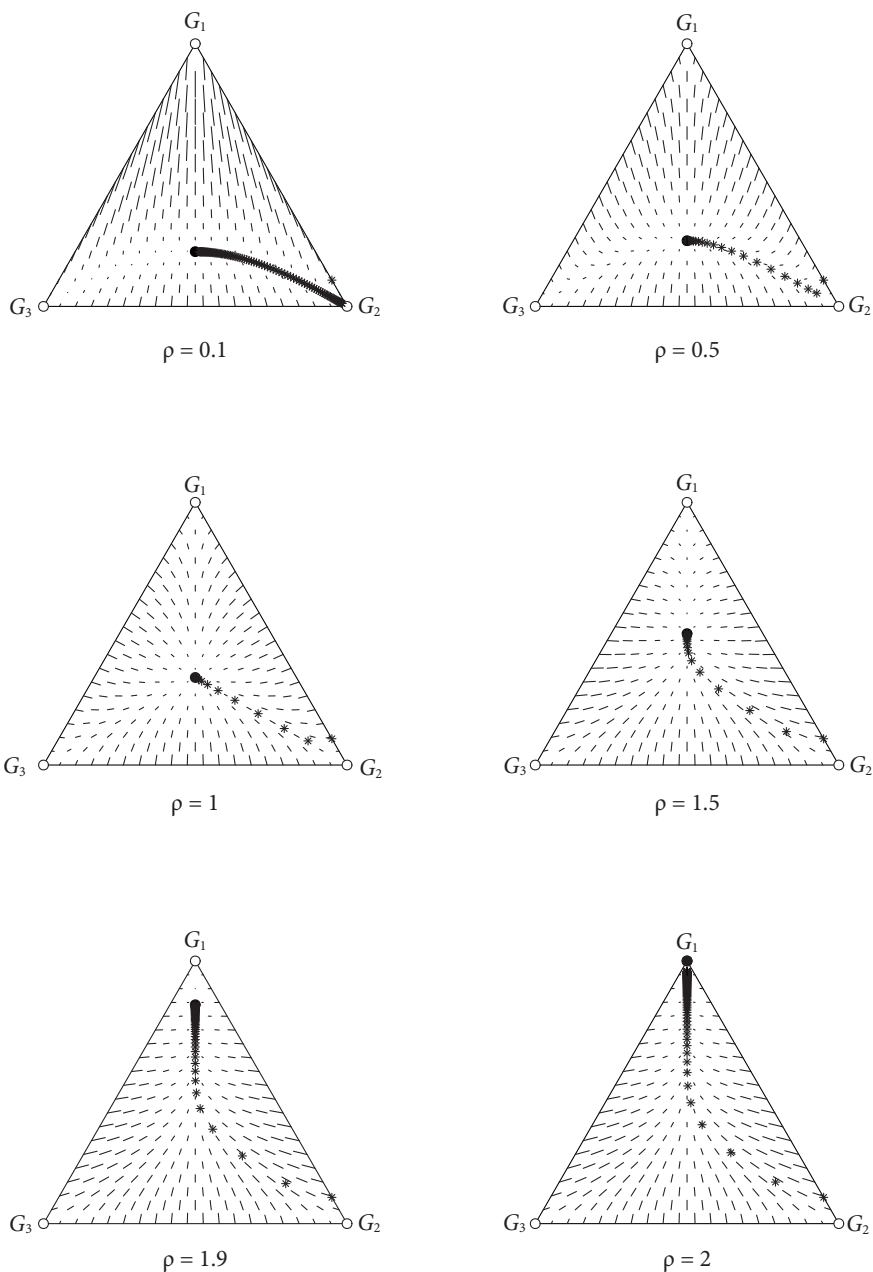


Figure 9. Phase space plots of the canonical quasi-Babelian 3-grammar system for various advantage ratios $\rho = b/a$; $\rho = 1$ corresponds to the strictly Babelian special case. At $\rho = 2$ a bifurcation occurs in which the interior rest point joins the vertex v_1 , reversing the latter's stability

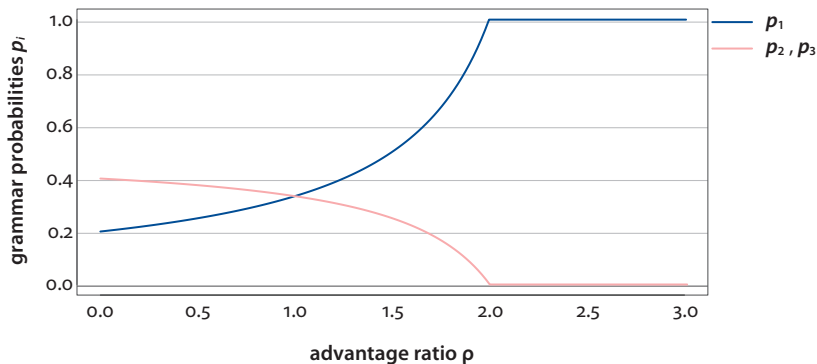


Figure 10. Orbit diagram of quasi-Babelian 3-grammar systems, illustrating the stable limiting state of the system when started from any non-vertex state. The dark curve gives the value of p_1 at the stable rest point, while the light curve gives the value of $p_2 = p_3$

8. Naive learning

Above, I have explored a generalization of the 2-grammar Variational Learner. This generalization has shown that stable variation is an intrinsic feature of many multiple-grammar systems based on LRP learning. The specific systems studied and their interrelationships are summarized in Figure 11; future work will need to explore systems that lie outside these classes of systems.

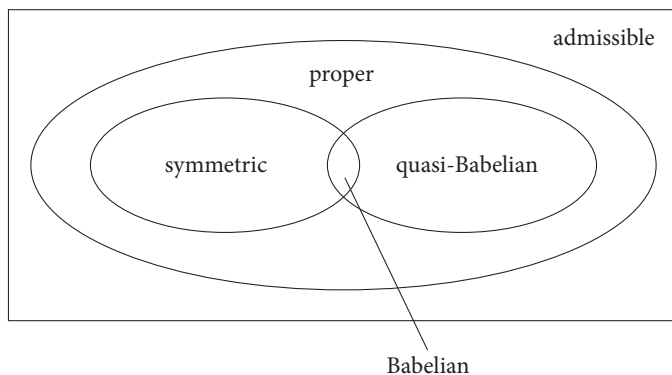


Figure 11. Set relations among the 3-grammar systems studied in this paper, in the universe of all admissible systems (all 3×3 advantage matrices satisfying the cyclical balance criterion): All Babelian systems are both symmetric and quasi-Babelian, and all symmetric and quasi-Babelian systems are proper

Crucially, the preceding analysis relies on the straightforward generalization of LRP learning for n options given in Algorithm 2. From a psycholinguistic point of view, this way of treating the learner implies, for better or worse, that the learner must keep track of n independent probabilities. Considering that even a few dozens of (binary) grammatical parameters result in an astronomical search space for the learner, the straightforward extension of the LRP algorithm may be argued to be unrealistic on psychological grounds.⁴

An alternative, explored to some extent in Yang (2002b), is to have the learner operate in a parametrically constrained space. That is to say, instead of operating on n grammar probabilities π_1, \dots, π_n , suppose the learner operates on N parameter probabilities ξ_1, \dots, ξ_N , where $n = 2^N$ and ξ_i gives the probability of the i th binary parameter being set on. To recover the grammar probabilities, it suffices to multiply the relevant parameter probabilities:

$$P(G_{\sigma(1)\sigma(2)\dots\sigma(N)}) = \prod_{i=1}^N \xi_i^{\sigma(i)} (1 - \xi_i)^{1-\sigma(i)} \quad (28)$$

is the probability of the grammar $G_{\sigma(1)\sigma(2)\dots\sigma(N)}$ being selected, with $\sigma(i) = 1$ if the i th parameter is to be set on and $\sigma(i) = 0$ if the i th parameter is to be set off for this particular grammar.

Since what gets rewarded or punished is the selection of entire grammars and not the selection of individual parameter values, the learner now faces the problem of not knowing which parameter setting(s) to blame in case of parsing failure (Yang, 2002b). One way of attempting to overcome this problem is the following naive learning algorithm.

Algorithm 3. (Naive Parameter Learner (NPL); Yang, 2002b)

1. Set $\xi_i = 0.5$ for all i initially.
2. Pick grammar by setting i th parameter on with probability ξ_i .
3. Receive input sentence x .
4. If grammar parses x :
 - a. If i th parameter was on, increase the value of ξ_i by replacing ξ_i with $\xi_i + \gamma(1 - \xi_i)$, where γ is a learning rate.
 - b. Else decrease the value of ξ_i by replacing it with $(1 - \gamma)\xi_i$.

4. The issue is in fact convoluted: on the one hand, the number of grammatical parameters is not known with any certainty (for one recent estimate, see Longobardi & Guardiano 2009: 1687, who suggest 63 parameters in the DP domain and note that in general “UG parameters number at least in the hundreds”), and on the other hand, the human brain is capable of storing astronomical quantities of information (Bartol et al., 2015). I set the issue aside here – for present purposes, what matters is that stable variation is attested both in the straightforward n -grammar generalization of LRP learning and in the parametrically constrained Naive Learner, as we will presently see.

5. If grammar does not parse x :
 - a. If i th parameter was on, decrease the value of ξ_i by replacing it with $(1 - \gamma)\xi_i$.
 - b. Else increase the value of ξ_i by replacing it with $\xi_i + \gamma(1 - \xi_i)$.
6. Repeat steps 2–5 for T input tokens.

Having learners operate in a parametrically constrained space and employing a learning algorithm such as NPL complicates the study of the diachronic behaviour of such a system, since analogues of the learning-theoretic limiting approximations (2) and (16) are not available. It is, however, possible to study special cases with the help of computer simulations. In what follows, I will explore one such simple special case and show that stable variation is, again, a feature of at least some systems based on Naive Parameter Learning in a parametric space.

For this, suppose for simplicity that Universal Grammar (UG) provides just two elements, a “noun” N and a “determiner” D , and two parameters:

1. whether determiner can be null (on setting) or has to be overt (off setting)
2. whether grammar is head-final (on setting) or head-initial (off setting)

The four grammars then parse, and fail to parse, strings as follows:

	Parses	Fails to parse
G_{11}	N, DN	ND
G_{10}	N, ND	DN
G_{01}	DN	N, ND
G_{00}	ND	N, DN

Assuming true optionality, i.e. that grammars G_{11} and G_{10} generate the two types of sentence with probability 0.5, it is easy to work out the probability of each possible input string the learner may encounter:

$$\begin{aligned}
 P(N) &= 0.5P(G_{11}) + 0.5P(G_{10}) & (29) \\
 &= 0.5x_1x_2 + 0.5x_1(1 - x_2) \\
 &= 0.5x_1 \\
 P(DN) &= 0.5P(G_{11}) + P(G_{01}) \\
 &= 0.5x_1x_2 + (1 - x_1)x_2 \\
 &= x_2(1 - 0.5x_1) \\
 P(ND) &= 0.5P(G_{10}) + P(G_{00}) \\
 &= 0.5x_1(1 - x_2) + (1 - x_1)(1 - x_2) \\
 &= (1 - x_2)(1 - 0.5x_1)
 \end{aligned}$$

Here, x_1 and x_2 are the population-level parameter probabilities (corresponding to p_i in the LRP formulation). The penalty probabilities of the four grammars are then found to be

$$\begin{cases} c(G_{11}) = (1 - x_2)(1 - 0.5x_1) \\ c(G_{10}) = x_2(1 - 0.5x_1) \\ c(G_{01}) = 0.5x_1 + (1 - x_2)(1 - 0.5x_1) \\ c(G_{00}) = 0.5x_1 + x_2(1 - 0.5x_1) \end{cases} \quad (30)$$

Substituting $x_1 = x_2 = 1$ in (30) yields

$$\begin{cases} c(G_{11}) = 0 \\ c(G_{10}) = 0.5 \\ c(G_{01}) = 0.5 \\ c(G_{00}) = 1 \end{cases} \quad (31)$$

which shows that if G_{11} is the unique target grammar, then the NPL algorithm will eventually arrive at the right parameter probabilities $\xi_1 = 1$ and $\xi_2 = 1$, as long as the learner has enough time to tweak the probabilities (Figure 12). Performing the requisite substitutions shows that the same holds for the remaining three grammars G_{10} , G_{01} and G_{00} , as well.

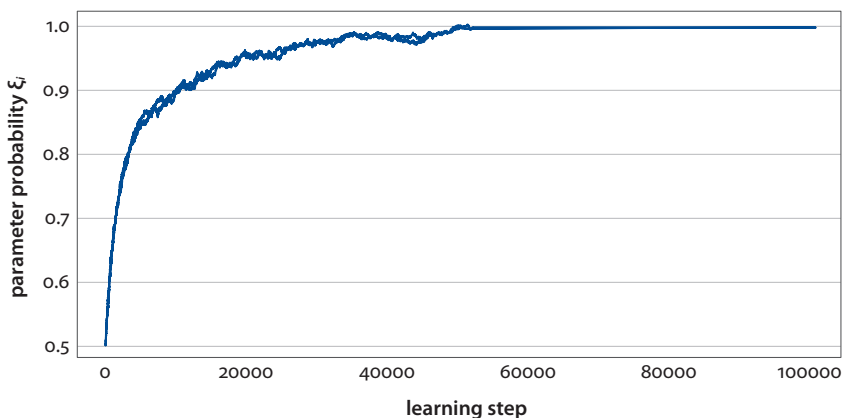


Figure 12. A two-parameter Naive Parameter Learner at the vertex $x = (1, 1)$ (G_{11} is the unique target grammar); values of ξ_1 and ξ_2 from one computer simulation. Both of the learner's parameter probabilities ξ_1 and ξ_2 tend to 1

The four vertices, at which one of the four grammars has total use, are thus found to be rest points for the above toy system. What about their stability? To explore

this question, we need to set the learner in a mixed environment (at a state in the interior $\text{int}S_4$ of the four-simplex of *grammar* probabilities). Figure 13 shows the behaviour of the learner in the mixed environment $(x_1, x_2) = (0.99, 0.99)$, corresponding to $P(G_{11}) = 0.99^2 = 0.9801$ use of the grammar G_{11} . Convergence to the vertex no longer occurs, and the diachronic implications of this become manifest when we set up a sequence of such learners, the output of one generation again feeding as input to the following generation: when started from a mixed state, the system fails to converge to the vertex rest point at which G_{11} has dominance, and instead appears to be attracted to an interior rest point, that is to say, towards a state of stable variation (Figure 14).

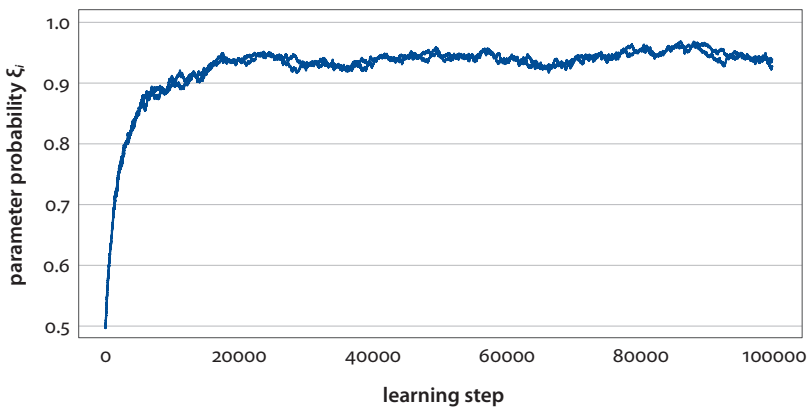


Figure 13. A two-parameter Naive Parameter Learner at the interior point $x = (0.99, 0.99)$

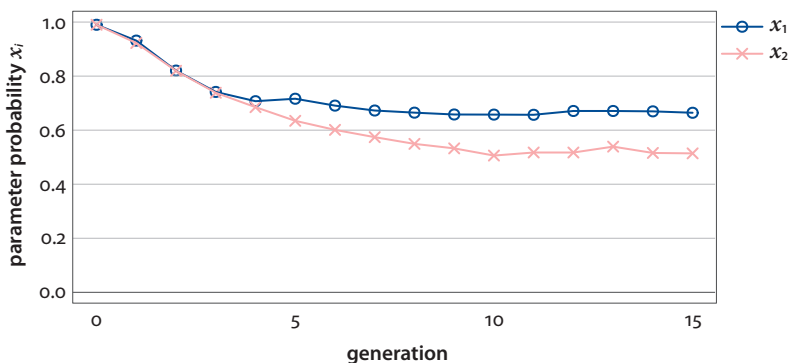


Figure 14. Diachrony for a sequence of Naive Parameter Learners from the initial state $x = (0.99, 0.99)$. Convergence to the vertex $x = (1, 1)$ does not occur, suggesting that this vertex is an unstable rest point

9. Conclusions and conjectures

In this paper, I have shown that diachronically stable variation arises in many kinds of settings of grammar competition, as long as more than two grammars are represented in the learner's environment. In addition to a systematic study of the n -grammar LRP learning algorithm in Sections 2–7, the preliminary exploration of a toy parametric UG in Section 8 points to the conclusion that stable variation occurs in the parametrically constrained Naive Parameter Learner as well.

The results of this paper invite experimentalists to look for evidence of stable variation in a specific kind of situation – complex language contact. Indeed, given Yang's (2000) Fundamental Theorem, more than two grammars *must* be present in the learner's environment for stable variation to occur, if language acquisition operates along the lines of linear reward–penalty learning. This is a necessary but not a sufficient condition – above we have seen, for example, that quasi-Babelian systems exhibit a phase transition between a phase in which stable variation occurs and one in which it does not occur (the most advantageous grammar instead claiming, eventually, all probability mass). Yet there is a kind of fatalism to these results: all symmetric systems, for instance, *always* tend to an attractor which is a state of stable variation by Theorem 8. It thus bears stressing that whenever stable variation occurs in these models, it is not due to extraneous factors such as social evaluations or population dynamics; stable variation follows from the nature of the LRP learning algorithm itself.

It may be instructive to consider this point in a little more detail. Thus consider step 4.b of Algorithm 2, corresponding to parsing failure. Here the algorithm tells us that whenever the grammar chosen by the learner, G_k , fails to parse a sentence, the learner updates the k th probability to become $\pi_k = (1 - \gamma)\pi_k$. Thus the probability π_k is diminished, and for all the grammar probabilities to keep summing to unity, it follows that some of the remaining probabilities need to be increased. From 4.b, we find that the learner actually updates every other probability $\pi_j, j \neq k$, to become

$$\frac{\gamma}{n-1} + (1-\gamma)\pi_j. \quad (32)$$

It is not difficult to check that these choices imply $\sum_i \pi_i = 1$, as desired. The consequences of choosing the update (32) over other possible choices, however, are non-trivial. Note that this manner of performing the update means that every grammar (apart from G_k , which failed) gets boosted by the same amount. This, then, means that the probability vector $\pi = (\pi_1, \dots, \pi_n)$ that describes the learner's grammar probabilities is shifted towards the centre $(1/n, \dots, 1/n)$ of the simplex at every occasion of parsing failure. When this mechanism is iterated over a diachronic sequence of

learners, the effect gets amplified and, as we have seen, in some cases leads to diachronically stable variation. This observation also explains why the two-grammar version of the same algorithm behaves so differently: in this case, whenever one of the grammars fails to parse an input sentence, there is just one other grammar whose probability to boost. Consequently the probability vector describing the learner's state drifts towards dominance by this other grammar rather than towards a mixed state.

I would like to conclude by putting forward the following two conjectures, each supported by the special cases studied above but whose proofs have so far been elusive in the general case: (1) that *any* n -grammar system with a proper advantage matrix has either n rest points (the vertices) or $n + 1$ rest points (the vertices plus one rest point in the interior of the simplex); and (2) that in *any* proper system, if the interior rest point exists, it is necessarily asymptotically stable. If these results were to carry over to the NPL algorithm, too, the consequence would be clear: diachronic systems of learners operating on linear reward–penalty learning or variants thereof in multiple-grammar environments display a good deal of stable variation. Whether this is acceptable, or whether instead the above results call for a re-evaluation of the assumptions that underlie probabilistic language acquisition algorithms, needs to be answered by empirical work into the occurrence of stable variation in real-life language communities.

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While much of the literature has focused on explaining diachronic variation and change, the fact that sometimes change does not seem to happen has received much less attention. The current volume unites ten contributions that look for the determinants of diachronic stability, mainly in the areas of morphology and (morpho)syntax. The relevant question is approached from different angles, both empirical and theoretical. Empirically, the contributions deal with the absence of change where one may expect it, uncover underlying stability where traditionally diachronic change was postulated, and, inversely, superficial stability that disguises underlying change. Determining factors ranging from internal causes to language contact are explored. Theoretically, the questions of whether stable variation is possible, and how it can be modeled are addressed. The volume will be of interest to linguists working on the causes of language change, and to scholars working on the history of Germanic, Romance, and Sinitic languages.

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