

# Language Change at the Interfaces

Intrasentential and  
intersentential phenomena

*Edited by*

Nicholas Catasso

Marco Coniglio

Chiara De Bastiani

John Benjamins Publishing Company

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## **Volume 275**

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We are greatly indebted to the organizers of the main conference and to the program committee for giving us the opportunity to bring together an excellent group of international linguists in a productive environment and for their help and continued support before, during and after the conference.

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We very much hope that the papers in this volume will stimulate debate among historical linguists working on the role of interfaces in language change – as well as theoreticians in general – and further research into this rapidly growing field.

August 2021

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# Interface phenomena and language change

## Where we are and where we are going

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### 1. The notion of interface

The notion of interface and its implications for synchronic and diachronic approaches to the theoretical description of language have enjoyed growing interest especially in the last three decades.

As has been remarked in a number of recent works (cf. e.g. Meibauer & Steinbach 2007; Ramchand & Reiss 2007; Späth 2007; Sorace & Serratrice 2009; Norde & Beijering 2014; Gianollo, Jäger & Penka 2015; Fischer & Gabriel 2016), the term “interface” has not been used in a uniform way in contemporary linguistics. In its original sense, which goes far beyond the study of language, an interface is generally understood as a more or less abstract domain shared by two circumscribed systems or levels of representation that interact with each other in functional and/or structural terms. Bierwisch (2007: 1–2) assumes that two random systems A and B may be taken to be related to each other through an interface C given the following prerequisites:

- (1) a. A and B are structurally different in relevant respects.
- b. A and B share a system C which represents a restricted isomorphism between partial structures and processes of A and B.
- c. A interacts with B in terms of C, i.e. there are systematic effects of A on B (and vice versa), which are mediated through C.

While this general definition has a very wide scope, the identity of the objects that may possibly be labeled as A, B, and C is not immediately apparent if applied to the description of language (use). In particular, the determination of what domains may interact with each other in a way that is linguistically relevant needs to be embedded into a theoretical model that aims to explain how the faculty of language itself is structured.

At least two interpretations of the term “interface” seem to have consolidated in the (especially generative) literature in recent times.<sup>1</sup>

In a broad sense, which is relevant for the definition of the faculty of language and its working principles as elaborated in minimalist theory, interfaces are defined as interaction domains between grammar on the one hand and non-linguistic cognitive systems on the other hand: the so-called “articulatory-perceptual” and the “conceptual-intentional” systems. In particular, the faculty of language is understood as a “perfect bridge” connecting sound or sign, i.e. what is produced and perceived by the sensorimotor system, and meaning, i.e. what is generated in terms of intentional thoughts and action planning (Jackendoff 2002; Chomsky 2005). The interface form to the perceptual system is called “Phonetic Form” (PF), while the one intertwining grammar and conception/intention is referred to as “Logical Form” (LF). This idea culminates in the formulation of a “Strong Minimalist Thesis” stating that language itself is an optimal solution to interface conditions that the faculty of language needs to satisfy (Chomsky 2005: 3). In this sense, language is therefore very generally conceived of as being a product of a principled interdependence of articulation and meaning. The latter are in fact independent of each other insofar as an individual may produce sounds that are not relevant to human communication or associated with a meaning or, on the other hand, generate thoughts that are not externalized in the form of sounds or signs.

In a narrower sense, the term “interface” has been extensively used to refer to the interplay (and to the corresponding operations that take place) between different subsystems or core modules of language. The underlying idea is that also more specialized domains of one’s I-language, such as phonology, prosody, morphology, syntax, semantics and pragmatics, are *per se* free-standing, but actively interact with each other on a number of identifiable levels.<sup>2</sup> The basic autonomy of these modules

---

1. It goes without saying that the generative and, in particular, minimalist approach is not the only theory of grammar that has been concerned with the nature and role of interfaces in language (change). In what follows, however, the focus will be primarily on the most relevant findings and concepts elaborated within this model. This is so for two reasons: in the first place, the editors of this volume are themselves proponents of this theoretical persuasion and work within this model; secondly, the aim of this chapter is not to provide a comprehensive comparative overview of the literature on interfaces, but to introduce the reader into the framework that will be relevant in the single papers of the volume.

2. Of course, the use of the term “module” to refer to domains of language such as pragmatics, which also encompasses purely extralinguistic phenomena, or even information structure, comprising a number of subcategories falling into classes that are, in turn, strictly related to or part of other modules, might be subject to criticism. We find, however, that this term can conveniently be employed to cover all identifiable dimensions of language (use) which interact with each other in producing linguistic output.

is witnessed by a substantial amount of neurolinguistic evidence (cf. e.g. Neville et al. 1991; Burkhardt 2005). The nature and modality of their interaction(s) has become one of the most explored domains in theoretical linguistics in the last decades.

In what follows, some interface phenomena involving the syntactic module, which is the common denominator of all the articles contained in the present volume, are illustrated. For instance, the investigation of phenomena at the syntax-prosody interface aims to determine to what extent the syntactic properties of a linguistic expression reflect and/or depend on its suprasegmental features.

A phenomenon that has been discussed in the literature as resulting from the direct interaction of syntax and prosody is extraposition. In this phenomenon, the linear arrangement of a constituent is altered insofar as a constituent modifying or complementing a governor base-generated in the VP area appears to the right of the clause boundary (cf. e.g. Wagner 2005, 2010, 2015 for English; Truckenbrodt 1995; Hartmann 2013, 2017; Féry 2015; Poschmann & Wagner 2016 for German). In particular, it has been proposed that at least in some cases, the syntactic means of extraposition serves as a strategy to improve the (otherwise defective) prosodic contour of an utterance. The example in (2) (Féry 2015: 12) illustrates this phenomenon in a complement clause introduced by the complementizer *dass* ‘that’ in German. In particular, it is contended that the grammatical acceptability of the sentence improves if the *dass*-clause is moved or directly merged into the domain to the right of the clause instead of occupying the middle field (i.e. the area between the auxiliary *hat* ‘has’ and the past participle *erzählt* ‘told’) at PF:

- (2) a. *Sie hat niemandem erzählt, dass sie an dem Tag spät nach Hause kam.*  
 she has nobody.DAT told that she on the.DAT day late to home came
- b. *\*?Sie hat niemandem, dass sie an dem Tag spät nach Hause kam, erzählt.*  
 she has nobody.DAT that she on the.DAT day late to home came told  
 ‘She didn’t tell anybody that she came home late on that day.’

This fact is explained e.g. by Hartmann (2013, 2017) and Féry (2015) by assuming that extraposition produces an optimal structure that satisfies the interface constraints in syntax-prosody mapping (at least in languages like German) in that it provides a neat parsing of all constituents at all prosodic levels of the utterance.

A further level of interaction that has been investigated is the interface between syntax and information structure, which defines the principles for linearizing constituents and syntactic chunks according to the speakers’ mental representation of information. A well-known instance of this interplay is the syntactic arrangement of

focused material within the clause. As shown e.g. by Belletti (2004); Bocci (2008) and Cruschina (2009), in Italian, contrastive focus (CFoc) and new-information (NIFoc) focus differ in their syntactic distribution. While contrastive focus, which expresses, for instance, exhaustivity, correction or choice of one option over another (Tomioka 2011), can appear both in situ and in a derived position in the left periphery of the clause (3a)–(3b), the positioning of NIFoc is limited to the postverbal position (4a), while fronting of this category leads to ungrammaticality (4b):

- (3) *Mi hanno detto che hai incontrato Lucia ieri. Come l'hai trovata?*  
 'Someone told me that you met Lucia yesterday. How was she?'  
 a. *Ho incontrato MARIA (, non Lucia!)* (CFoc in situ)  
 have met Maria not Lucia  
 b. *MARIA ho incontrato (, non Lucia!)* (CFoc ex situ)  
 Maria have met not Lucia  
 'I met Maria (, not Lucia!)' (examples adapted from Bocci 2008: 19)
- (4) *Chi hai incontrato?*  
 'Whom did you meet?'<sup>3</sup>  
 a. *\*<sup>1/??</sup>MARIA ho incontrato.* (NIFoc focus ex situ)<sup>3</sup>  
 Maria have met  
 b. *Ho incontrato MARIA.* (NIFoc focus in situ)  
 have met Maria  
 'I met Maria.' (examples adapted from Bocci 2008: 19)

This distribution directly results from the interaction between syntax and information packaging, which suggests that these domains on the one hand operate independently and on the other hand are closely related to each other. In this case, intonation also plays a role in that foci are obligatorily expressed by means of sentence stress in Italian. An even more suggestive case of prosody and information structure determining not only the overt arrangement of linguistic material, but also its underlying syntactic processes is given by focus marking in Spanish. As shown by Zubizarreta (1998), answer focus must be placed in the rightmost position of the clause in this language, irrespective of the grammatical function performed by the corresponding constituent and whether other objects surface in the same sentence. In (5), the subject realizes the answer focus and, in (6), it is the direct object that has this function, but in both cases, the relevant constituent is in clause-final position:

---

3. Note that the editors of this volume happen to speak North-Eastern Italian varieties in which this order is considered grammatical or grammatical under specific conditions.

- (5) (Context: Who ate an apple?)
- a. *Comió una manzana JUAN.*  
ate an apple Juan  
'JUAN ate an apple.'
  - b. *#JUAN comió una manzana.*
- (examples adapted from Zubizarreta 1998: 22)
- (6) (Context: What did María put on the table?)
- a. *María puso sobre la mesa el LIBRO.*  
María put on the table the book  
'María put the BOOK on the table.'
  - b. *#MARÍA puso el libro sobre la mesa.*
- (examples adapted from Zubizarreta 1998: 22)

Under the assumption that focused material ( $\rightarrow$  information structure) always bears the pitch accent ( $\rightarrow$  prosody) in Spanish and that stressed constituents must occur clause-finally ( $\rightarrow$  syntax), Zubizarreta (1998) proposes that the distribution illustrated in (5)–(6) results from the application of a rule at the interfaces between these modules that prevents a dislocation of the pitch accent by moving any other objects to the left of the focused phrase:

- (7) a.  $[_{TP} [_{T^o} [comió]_i \dots [una manzana]_y JUAN t_i t_y]]$   
b.  $[_{TP} [María]_y [_{T^o} [puso]_i \dots t_y t_i [sobre la mesa]_z [el LIBRO] t_z]]$

If we look at the phenomena sketched above, it seems clear that the boundaries of interface phenomena are not definable *a priori*. While prosodically-motivated extraposition in German can be assumed to occur *intrasententially* in that no clause-external factor plays a role in triggering the movement of the clause, the syntactic and prosodic mapping of focus in Italian and Spanish appears to have a clause-internal as well as an *intersentential* component: the position of (some types of) focused material and the rules relative to its phonological representation apply internal to the sentence domain, but the status itself e.g. of answer focus is established between at least two sentences, namely the one in which the question is asked and the one in which the question is answered. In fact, not all interface phenomena occur (only) within the boundaries of the simple clause or sentence.<sup>4</sup> In some cases, the interacting domains

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4. An important terminological premise to be made is that the linguistic objects generally referred to as “sentence” and “clause”, respectively, are variously treated in the literature, so that these two terms occasionally come to be used interchangeably or vaguely refer to a potentially larger (the sentence) and a smaller (the clause) domain. In the present discussion, both these terms are used neutrally to identify the boundaries of syntactic structure corresponding to CPs (in a general sense) or IPs (in some constructions, e.g. in raising structures). As a consequence, in many cases

may extend themselves beyond the sentence and flow into what we may generally call “discourse”, i.e. into a dimension that includes, e.g., the communicative context into which the single propositions are embedded, the speaker(s) with their intentions, knowledge and mental representations, and the status of the entities and events that are mentioned or implied. For this reason, the notion of “discourse” is to a certain degree treated on a par with pragmatics in the literature (cf. Müller 2019). Notably, information structure, which subsumes a large number of more or less abstract concepts (givenness, contrastiveness, focus marking, level of activation of discourse referents, etc.), is arguably the most “flexible” among the domains that interact at the interfaces.

A well-known example that illustrates the relevance of discourse in sentence syntax is the licensing of null arguments in Chinese. Huang (1984) defines Chinese as a “discourse-oriented” language (as opposed to “sentence-oriented” languages like English): discourse-oriented languages owe their name e.g. to the fact that null arguments can be identified through topics that are part of the common ground (i.e., crucially, present in the context as shared knowledge between the speakers) (also cf. Kim 2007; Ku 2013). That is, referents highly salient in the discourse can easily be dropped in the clause-internal domain in languages like Chinese if they are not interpreted contrastively. In (8), for instance, both the subject and the object can be realized by null topics in the neutral reading since they are retrievable in the extrasentential domain:

- (8) context: *Ta you kanjian ni ma?*  
           he have see    you Q.PRT  
           Question: ‘Did he see you?’  
       clause:  $\emptyset$  *Kanjian*  $\emptyset$  *le*.  
                   see            ASP.PRT  
           Answer: ‘(Yes,) he saw me.’                    (examples from Ku 2013: 46)

This configuration is not possible in sentence-oriented languages irrespective of the retrievability of the antecedent in the discourse. Cf. the English counterpart of (8) in (9):

- (9) context: *Did he see you?*  
       clause: *Yes, \*(he) saw \*(me).*

---

the two terms “sentence” and “clause” will be considered as synonyms. In this sense, intrasentential phenomena are to be understood as taking place within the boundaries of one CP structure, i.e. not under the influence of sentence- or clause-external factors, while the notion of intersentential phenomena refers to observable facts happening between two CPs, irrespective of whether these domains are both fully autonomous or one of the two is syntactically and/or pragmatically dependent on the other.

It seems, thus, that both intrasentential and intersentential cues are at stake in determining word order variation in interface phenomena. This volume is devoted to exploring both dimensions, which are briefly presented separately below, with particular focus on their implications for language change.

## 2. Interfaces in language change

Interface phenomena play a fundamental role not only from a synchronic perspective, but also from a diachronic perspective as triggers of language change. Recent works, mainly concentrating on the Germanic and Romance languages, have shown strong interdependencies between information- and discourse-structural categories and syntactic reordering from a diachronic perspective (cf., among many others, Fuß 2008; Hróarsdóttir 2009; Petrova 2009; van Kemenade & Westergaard 2012; Poletto 2014; Eide & Sitaridou 2014; Walkden 2015; Jäger, Ferraresi & Weiß 2018).<sup>5</sup> These works paved the way for a new approach to diachronic change, in which the change is seen as a language-internal mechanism using information- and discourse-structural categories in order to satisfy interface conditions. To be sure, the question whether the interplay of different modules “only” influences or rather constitutes the only possible trigger for syntactic change is still a matter of discussion in the literature. Authors like Keenan (2002) and Longobardi (2001) even go on to claim that syntax is “diachronically completely inert” (Longobardi 2001: 277–278) and not subject to change unless other factors – which must necessarily originate as interface phenomena – directly cause a rearrangement of the structural relations in the system. We think that the contributions in the present volume may help shed light on this and other matters involving language change.

Below, we will briefly summarize some recent important linguistic findings by way of considering change phenomena both at the intrasentential and at the intersentential level.

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5. Note that the amount of (formal and non-formal) works on Germanic and Romance devoted to the relation between interface phenomena and language change, especially from the 20th century onwards, is so vast that no list could do justice to the different perspectives investigated in the literature. Here, we only exemplarily cite some of the most relevant studies that have emerged in the last decades within the framework of Generative Grammar.



## 2.1 Intrasentential change phenomena

In this section, we will discuss language change phenomena at the interfaces between syntax and prosody, syntax and information structure and syntax and pragmatics. These phenomena are complex and usually involve an interplay of different factors.

In the last twenty years, many scholars have shed new light especially on the syntax of older Indo-European languages and the interaction between syntax and information structure and prosody. The incorporation of pragmatic and information-structural categories into diachronic syntactic research is a relatively recent development, which has uncovered new insights on language change, cf. van Kemenade & Westergaard (2012); Eide & Sitaridou (2014) and Walkden (2015), among others. However, much has to be done in order to understand how and to what extent phenomena in the information-structural and prosodic modules, such as focus, topic, prominence and contrast are involved in the shaping of syntax on the one hand, and how they are involved in language change on the other.

As mentioned above, under the label of “intrasentential phenomena” we subsume phenomena involving the interfaces between syntax and information structure, syntax and prosody, or pragmatics. Often, language change involves more than one interface at a time. A notable example is grammaticalization, which includes different modules of grammar and is triggered by an intricate interplay of syntactic, morphological and pragmatic factors (cf. Givón 1979; Traugott 1988; Traugott & Heine 1991; Hopper & Traugott 2003; van Gelderen 2004). However, even though grammaticalization may be considered an emblematic example of diachronic change involving different interface phenomena at the intrasentential level, studies on diachronic change show that the range of phenomena included here is vast.

We will begin by exemplarily discussing the literature on some of these topics. A notable example of language change at the interface between syntax and pragmatics is the grammaticalization of negative particles such as *nicht* in German and *pas* in French. These elements originally had a lexical denotation, meaning “not a thing” and “step”, respectively (Jespersen 1917; Horn 1989; Zanuttini 1997; Jäger 2005; Speyer 2010; Breitbarth 2014; Poletto 2020). Combined with the negation particle, they originally give rise to a scalar implicature, whereby the negative adverb serves as a reinforcer. As the implicature is conventionalized, the meaning of the lexical element is increasingly bleached, thereby resulting in its reanalysis as a negative particle. In a similar way, Magistro et al. (this volume) provide data from synchronic varieties of Venetan dialects which represent different stages in the reanalysis of the element *mia/miga* (originally meaning “crumble”) on its way to become a sentence negator and show how prosody and information structure interact at the interface with syntax.

A phenomenon which has been the object of intensive work in recent years is the interplay of word order and information-structural categories at the right periphery in West Germanic, particularly in Old High German, Old English and Old Saxon (henceforth: OHG, OE and OS), but it has to be mentioned that also Old Romance languages displayed different word orders which were affected by information structure, cf. for instance Poletto (2014) and Rossi & Poletto (this volume).

The three West Germanic languages mentioned above display a high degree of word order variation; variation affects the relative order of object and verb, and of verb and auxiliary, or the scrambling of objects to the left periphery, thereby resulting in both prototypical OV and VO sequences, as well as in “mixed” grammars (cf. Kroch 1989; Pintzuk 1999; Taylor & Pintzuk 2010, 2011, 2012a, 2012b).

The syntax of OHG and OS was subject to information-structurally driven variation. In fact, the research conducted by Tomaselli (1995); Fuß & Trips (2002); Schlachter (2004, 2010, 2012); Hinterhölzl, Petrova & Solf (2005); Weiß (2006); Schallert (2007, 2010); Petrova (2009); Petrova & Solf (2009); Hinterhölzl & Petrova (2010, 2018); Haider (2013); Walkden (2014); Coniglio, Linde & Ruetten (2017); Fuß (2018) show that there is a tight relation between the realization of certain pragmatic categories and their syntactic mapping.

In a recent investigation, Hinterhölzl & Petrova (2018) for instance pinpoint the correlation between the realization of background information, contrastive and new information focus and their mapping with respect to the finite verb, as the following schema illustrates:

- (10) [<sub>CP</sub> Background [<sub>FocP</sub> ContrFocus V<sub>fin</sub> [<sub>AgrP</sub> NewInfFoc [<sub>VP</sub> t<sub>V</sub> XP]]]]  
(Hinterhölzl & Petrova 2018: 285)

In the following examples, the realization of different information-structural categories at the interface with syntax is illustrated. In Example (11a), a given constituent, belonging therefore to the background information, is mapped before the finite verb, whereas in (11b), the new information focus is realized in post-verbal position. The contrasted element in (11c) is realized before the finite verb. It is important to underline that the examples in the following all deviate from the Latin source:

- (11) a. *so hēr thén buoh int&a*  
when he this book opened  
'as he opened the book' (T 53, 21, adapted from Petrova 2009: 258)
- b. *thaz in mir habet sibba*  
that in me have peace  
'that in me you may have peace'  
(T 290, 8, adapted from Petrova 2009: 266)

- c. [*thane thu fastes/ salbo thin houbit/ Inti thin annuzi thuah*]  
 ‘when you fast, anoint your head and wash your face’  
*thaz thu mannon nisís gisehan/ fastenti. úzouh thinemo fater*  
 that you men NEG-are seen fasting but your father  
 ‘so that you do not appear to men to be fasting but to your Father.’  
 (T 68, 29–32, adapted from Petrova 2009: 271)

Similar conclusions are drawn by Linde (2009) on OS. Walkden (2014) analyses word order variation in OS using the same methodology as Taylor & Pintzuk (2010) for reasons of comparability of data. In fact, as he notes, OE and OHG have been studied from two similar but different perspectives (cf. also below), since what is taken to be relevant for OHG is the focus domain, whereas the studies on word order variation in OE involve the opposition between given and new objects (see Taylor & Pintzuk 2011, 2012a, 2012b; Struik & van Kemenade 2018; De Bastiani 2020). He concludes that information structure has an impact on sentences presenting AuxV order, but it does not seem to be the decisive factor. What yields word order variation is rather the syntactic complexity of the object. Syntactic complexity could be interpreted to be relevant at the interface between syntax and phonology. Grammatical weight has an impact on word order in Old Icelandic and Old Norwegian (Tiemann, this volume), leading to the increasing post-verbal placing of the object, ultimately driving language change from an OV to a VO word order. An account involving an intricate interplay of conditions at the interfaces between syntax and information structure, and syntax and prosody driving word order change is offered by Hinterhölzl (2017, also cf. below).

As mentioned above, for OE similar conclusions have been drawn, but it has been demonstrated that what is relevant is not the composition of the focus domain, but rather the information-structural value of the pre-verbal objects.

In fact, recent investigations by Struik & van Kemenade (2018) and De Bastiani (2020) show that pre-verbal objects are usually given and/or light. In other words, it is the pre-verbal object which marks information-structural and prosodic features; an example is given below:

- (12) *þæt þu ealles ne beo minra boca bedæled*  
 that you entirely not be my book deprived  
 ‘that you are not deprived entirely of my books.’  
 (colsigewZ,ÆLet\_4\_[SigewardZ]:16.11)

In this example, the reference of *books* is active and the object is realized in pre-verbal position.

Furthermore, Milicev (2016) has shown that subordinate VAux clauses usually involve the defocusing of the whole predicate; Milicev (2016) notes, in fact, that in

the following example, the whole proposition introduced by the temporal clause reports given information:

- (13) *Forðæm hit is awriten ðætte David, ða he ðone læppan forcorfenne*  
 therefore it is written that David when he the peace cut-off  
*hæfde, ðæt he sloge on his heortan*  
 had that he struck on his heart  
 ‘Therefore it is written that David, when he had cut off the piece [of the coat],  
 struck his heart.’ (cocura,CP:28.199.16.1336, from Milicev 2016: 135)

Whereas the work cited above show convincingly that the realization of different information-structural categories correlates with different syntactic mappings, these works highlight how information structure interacts with syntax. What is moreover intriguing is how the interface phenomena interact with language change.

These works offer different explanations for the language change at hand; when considering both OE and OHG, Hinterhölzl (2017) has proposed for instance, that what changes in the transition from a discourse configurational to a more syntactically fixed system in both languages is the reanalysis of the I-domain as either PF- or LF-transparent. In a nutshell, if a domain is LF-transparent, it allows for the pre-verbal checking of the verbal objects, whereas a PF-transparent domain does not allow for this option. De Bastiani & Hinterhölzl (2020) explore this idea with respect to the progressive post-verbal position of object pronouns in the transition from Old to Middle English and conclude that the blurring of the information-structural constraints governing OE, together with the grammaticalization of the definite determiner (which is linked to the partial loss of the deictic paradigm, cf. below) leads to a system in which prosody regulates the spell-out of constituents, which is ultimately lost in favor of a uniform post-verbal spell-out.

Also the interface between syntax and prosody is in fact relevant in language change (cf. e.g. Ries 1907; Behaghel 1909, 1932 or, more recently, Speyer 2010). The influence of prosodic weight over syntactic change is highlighted for instance in the transition from an OV to a VO base word order in Old Icelandic (Hróarsdóttir 2000, 2009). Tiemann (this volume) shows that similar conclusions can be drawn for Old Norwegian, as shown in the following two examples, where the pre- and post-verbal mapping of an object is driven by its prosodic weight:

- (14) a. Light DP  
*oc æf ec hæfi þætta ætlat æptir rettri skipan*  
 and if I have this thought after right form  
 ‘and in case I have thought this out correctly.’  
 (13r, col.a:5, translation by Larson 1917: 148)

## b. Heavy DP

*oc samtængiz þa annat sinni ny sætt þæira a mæðal*  
 and tie/bundle.up then other way new peace their on between  
*æptir því sæm fyrir var sagt. þa er [um þæira*  
 after this as before was said then which about their  
*sættar gerð] var rætt.*  
 peace.making was told  
 ‘so they make a covenant once more in the way that we told earlier when  
 we described the peace making.’

(16v, col.a:25–27, translation by Larson 1917: 161)

As is well known, the languages cited here have now different base word orders, and information-structural categories such as focus, givenness, contrast are marked by different syntactic configurations to a lesser degree. In fact, whereas older Germanic languages could be defined as discourse-configurational, this term is not suitable for their synchronic counterparts. The research cited above has highlighted to what extent information structure can shape syntax, and how the blurring of the constraints individuated can lead to a more rigid syntax.

These same studies deal with language change variation involving different layers of information-structural categories; there are, however, other phenomena that characterize word order variation and syntactic change in older Indo-European languages. It is well known, in fact, that older Indo-European languages such as Old French, Old Occitan, and early Germanic displayed V2 word order, with a large degree of variation. Whereas we cannot do full justice to the vast literature on V2 and word order variation in older Indo-European, we would like to focus on some of the elements involved in these configurations. We refer the reader to Wolfe (2016) for an account on the diachrony of V2 in Old Romance and how different topicalization and focus marking strategies interact with finite verb placement in Fin<sup>o</sup> and Force<sup>o</sup>, and Kayne (2000, 2005); Poletto (2000); Martins (2002); Benincà & Poletto (2004); Belletti (2008); D’Alessandro, Ledgeway & Roberts (2010) and Eide (2014) for accounts on syntactic variation in Older Romance. In the following, the focus will be on V2 and V3 orders involving resumptives (cf. Ferraresi & Goldbach, 2003; Ledgeway 2008; Petrova 2012; Meklenborg Salvesen 2013, 2019; Wolfe 2018; Meklenborg 2020; Catasso 2021, among many others). Both in Older Romance and in the Germanic languages, V2 or V3 orders can display pronouns which are usually linked to the demonstrative paradigm (cf. van Kemenade 2009; Meklenborg 2020) and are involved in various degrees in the signaling of diverse information-structural categories. As work by Meklenborg (2020) shows, these elements act as resumptives to the left of which a topic is placed in Old Occitan; a similar usage is found in OE, OHG and OS, where the deictic adverbials *þa*, *do* and *tho* mark different types of topics located above the finite verb (Catasso et al. 2021). These elements are active at both the intersentential

and the intrasentential level, since they link both the speaker's attitude to discourse and referents in the clause or sentence to discourse.

The deictic paradigm, involving both deictic demonstratives and adverbials, has been studied extensively by van Kemenade & Los (2006); van Kemenade (2009); Los & van Kemenade (2018); Links (2018) and van Kemenade & Links (2020) with respect to its implications for the OE syntax. They show in fact that these elements, which can be all traced back to the IE demonstrative *\*so* *\*sa* *\*tod*, have different functions interacting with syntax both at the intersentential and at the intrasentential level. When placed in subordinate clauses, for instance, they divide the sentence into a topic and a focus domain, but they may also signal the beginning of a new narrative unit, when preceding a main clause, as in the following example:

- (15) *þa wæs þæt folc þæs micclan welan ungemetlice brucende, [...]*  
 then was the people the great prosperity excessively partaking  
 'Then the people were partaking excessively of the great prosperity [...]'  
 (Or 1.23.3, adapted from van Kemenade & Los 2006: 225)

Moreover, van Kemenade & Links (2020) show that they serve as discourse particles, thereby linking the utterance to the speaker's attitude. This is evident in the following example, where the particle expresses surprise on the speaker's part:

- (16) [Then said Mary to the angel, "how may that be that I have a child, for I have known no man? I had resolved to end my life in maidenhood]  
*hu mæg it þonne gewurðan þæt ic butan weres gemanan*  
 how can it PRT happen that I without man's connection  
*cynnan scyle?*  
 bring.forth shall  
 'So how can it be that I, without connection to man, will give birth?'  
 (ÆCHom\_I,\_13:285.127.2466, from van Kemenade & Links 2020: 9)

Van Kemenade (2009) argues that the reduction and loss of this paradigm may have led to the loss of the cues governing the discourse configurationality of the English language. These phenomena illustrate once again, how discourse, information structure and syntax interact at the interfaces and how the change in one module can generate major syntactic changes. These elements, moreover, are operative at both the intrasentential level, when they divide the utterance into a topic and a focus domain, and the intersentential level, since they link the utterance to the speaker's attitude. This leads to our next subsection, where intersentential phenomena are discussed in depth.

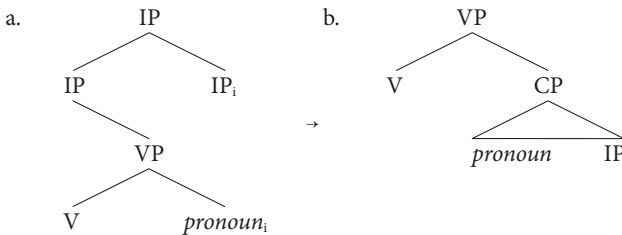
The research cited above and the phenomena which are going to be discussed in the next paragraph highlight how intricate language change at the interfaces is, and also that the line between inter- and intrasentential change phenomena sometimes gets fuzzy.

## 2.2 Intersentential change phenomena

A further domain of research that has attracted increasing attention in historical linguistics in recent years is represented by interface phenomena that trigger linguistic change at the intersentential level, i.e. between sentences (or clauses) or between the sentence and the surrounding discourse. Processes of morphosyntactic, prosodic or semanto-pragmatic change can affect and delete the boundary between two syntactic structures with a resulting higher level of integration (cf. the notion of “structural simplification” in Roberts & Roussou 2003). In rare cases, however, it can even create more independent syntactic structures.

One of the most discussed cases in point is the structural simplification that accompanies the development of the complementizer *that* and language-specific equivalents in the Germanic languages (Ferraresi 1991; Kiparsky 1995), which signals the important “change from *parataxis* to *hypotaxis*” (Roberts & Roussou 2003: 117). As described in Roberts & Roussou (2003: 177), “[t]he change is from adjunct subordinate clauses, usually with a pronominal element present, to complement clauses.” (Roberts & Roussou 2003: 117), as represented in Example (17) and Figure 1.

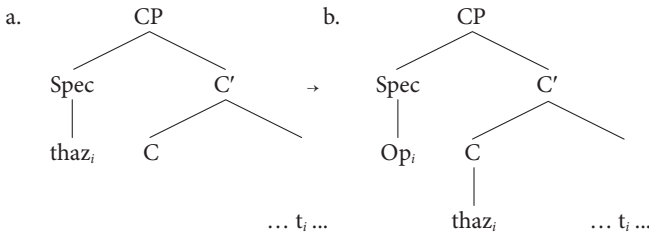
- (17) *I think that [the earth is round] → I think [that the earth is round]*  
(Roberts & Roussou 2003: 118)



**Figure 1.** Reanalysis of the pronominal complement to a complementizer (Roberts & Roussou 2003: 116)

The English complementizer *that* supposedly underwent a reanalysis from a pronominal complement of the matrix clause to the complementizer of the subordinate clause.

This view has recently been criticized in Axel (2009) and Axel-Tober (2012: 106ff., 2017), where it is argued that the OHG *thaz* and similar Germanic complementizers do not originate from a demonstrative pronoun, but from a relative pronoun of correlative constructions, which is reanalyzed as a relative particle in the subordinate clause (cf. Figure 2).



**Figure 2.** Reanalysis of the pronominal complement to a complementizer (Axel-Tober 2012: 114)

This would mean that no rebracketing or shift of the clause boundaries has taken place in such cases. However, Weiß (2019) recently reopened the question by claiming that rebracketing at the sentential level is in fact possible in this and in several other cases “if the clause whose boundary is shifted is embedded under and selected by a lexical head that is eventually reanalyzed as a complementizer” (Weiß 2019: 509). He explains this by means of economy principles such as Early Merge. In a similar vein, he interprets the origin of adverbial complementizers in German, such as *seitdem* ‘since’, *weil* ‘because’, etc., as an instance of as illustrated below. Note that in this analysis, differently from the dominant view on grammaticalization, the emergence of the complementizer results from a downward reanalysis and not from upward movement:

- (18) [PP *seit* [DP *dem* [CP *daz* ...]]] → [PP *seit* [DP *dem* [CP ...]]]  
 → [CP [C° *seitdem*] ...] (Weiß 2019: 527)

Related to the problem of rebracketing are, in general, phenomena that – by affecting the boundaries between two phrases – have the effect of “relaxing” or deleting them. Dealing with intersentential change phenomena, the most interesting cases in point are probably those in which one clause gets integrated in another one (as in the case of *that*-clauses discussed above) or those in which two clauses are fused into one. In these latter cases, monoclausal structures can emerge from biclausal ones. For example, such a reanalysis can be observed for nascent modal or auxiliary verbs.

In an early work on syntactic restructuring, Salvi (1987) investigates the origin of periphrastic perfect forms in Romance languages, such as Italian (19):

- (19) *Piero ha scritto la lettera.*  
 Piero has written the letter  
 ‘Piero has written/wrote the letter.’ (example adapted from Salvi 1987: 225)



In this example, the past participle combines with the auxiliary verb *avere* ‘have’. In contrast to Italian and to other Romance languages, Classic Latin does not display periphrastic constructions of this type and the synthetic form *scripsit* ‘wrote’ would be used in such cases (Salvi 1987: 225; for a more detailed – and slightly different – analysis, see De Acosta 2011).

Adapting his terminology and labeling of the projections to the modern terminology, Salvi (1987) proposed a reanalysis of biclausal structures such as Latin (20), in which *habeo* combines with a Small Clause (containing a predication relation), to monoclausal Romance structures such as (19) above, in which the participle is interpreted as one part of a complex predicate.

- (20) *habeo epistulam scriptam*  
 I.have letter.ACC written.ACC (example adapted from Salvi 1987: 226)

Similar analyses have been proposed for other languages and language groups as well (see Heine 1993, and specifically e.g. Abraham 1990, 1991, 1992; Leiss 1992; Öhl 2009 and Fleischer & Schallert 2011: 125f. on German. Also cf. Demske 2020 and Paul et al., this volume, on an emerging aspectual verb *gehen* ‘go’ in German). Such changes leading to the reduction to monoclausal structures must be, in fact, pervasive in the Romance languages if we consider the existence of a broad group of auxiliary and restructuring verbs in these languages, which could have originated in a way similar to the one described above (cf. Cinque 1999 and 2006).

As mentioned in several parts of this introduction, another major topic – partly related to the definition of sentential boundaries – has been object of several studies in historical linguistics, namely the peripheries of the clause. Recent works especially investigate the left periphery of the sentence as an interface with pragmatics and discourse. Cartographic approaches based on Rizzi’s (1997) groundbreaking proposal, whose original syntactic modeling is represented in (21), consider some not strictly speaking syntactic categories as projecting in syntax.

- (21) ForceP TopP\* FocP TopP\* FinP (adapted from Rizzi 1997: 297)

Since Rizzi’s work, several historical linguists have been surveying the historical processes that give shape to this syntactic interface in specific languages (cf. e.g. Benincà 2006, Axel(-Tober) 2007, 2018 and Fuß 2008 for OHG and Sitaridou 2011, 2012; Mathieu 2012; Poletto 2014; Poole 2017; Wolfe 2018 for Romance). For example, the origin of verb fronting, which characterized Old Germanic languages and was a necessary step for the establishment of the V2 property, is sometimes explained as the syntacticization of contingent movement operations that have been mostly related to information-structural triggers, but also to either pragmatic or discourse-structural factors and are thus relevant from an intersentential perspective.

At the discourse-structural level, verb fronting has been claimed to mark the beginning of new episodes or to appear in combination with special classes of verbs (such as *verba dicendi*), as shown in the following OHG and OE examples discussed in Hinterhölzl & Petrova (2010):

- (22) *uuarum tho hirta In thero lantskeffi*  
 were there shepherds in that area  
 ‘There were shepherds in that region’  
 (T 35, 29, example from Hinterhölzl & Petrova 2010: 316)

- (23) *Spræc ða ides scyldinga*  
 spoke then queen Danes.GEN.PL  
 ‘Then the queen of the Danes spoke’  
 (Beo 1168, example adapted from Hinterhölzl & Petrova 2010: 318)

Based on Asher & Lascarides (2003); Hinterhölzl & Petrova (2010) argue that V1 is originally used to signal that two discourse situations are part of the same level of discourse hierarchy and expresses what Asher & Lascarides call “coordination”, typically realized by the discourse relation of “narration”, in which two events are presented in a temporal sequence.

From a pragmatic perspective, the fronting of the verb was interpreted in several ways, e.g. as signaling the anchoring of the clause to the illocutionary force of the utterance (encoded in ForceP) or to the speaker or to the discourse, possibly encoded in some left peripheral projection. Most modern approaches intend to explain the process that led to the establishment of verb fronting in most Germanic languages.

Thus, Hinterhölzl & Petrova (2010) argue that V2 in Old High German originated from V1 structures adjacent to a juxtaposed topic. This juxtaposed XP was re-analyzed as a sentence-internal Aboutness Topic, first interpreted as base-generated and then reanalyzed as and XP that was fronted to the C-domain. V1 patterns were thus reanalyzed as V2 structures.

- (24) a. Stage I: [Aboutness] [<sub>ForceP</sub> V<sub>fin</sub> [TP ...]] topic + V1  
 b. Stage II: [<sub>ForceP</sub> [Aboutness] V<sub>fin</sub> [TP ...]]  
 c. Stage III: [<sub>ForceP</sub> [Aboutness]<sub>i</sub> V<sub>fin</sub> [t<sub>i</sub> [TP ...]]]  
 (Hinterhölzl & Petrova 2010: 326)

With language-specific adaptations, a similar explanation was proposed for Old English and other Germanic languages (cf. Hinterhölzl & Petrova 2010).

The cases discussed above just exemplarily illustrate the impressive amount of works emerged in this field in the last decades, but also how much still remains to be done on these and related topics. By presenting a group of papers addressing such issues, the present volume intends to pave the way for a more systematic investigation of change phenomena occurring at different types of interfaces.

### 3. Contents of the volume

In this section, we will briefly present the contents of the papers and their relevance for the overarching topics of this volume. Following the structure of the discussion above, we will distinguish between papers addressing language change phenomena at the intrasentential level (3.1) and papers discussing change phenomena at intersentential level (3.2), but we are well aware that a neat distinction between the two levels is very difficult, if not impossible, in many cases.

#### 3.1 Part I, Interface phenomena at the intrasentential level

Considering a specific intrasentential phenomenon, the opening paper by **Giuseppe Magistro**, **Claudia Crocco** and **Anne Breitbarth** offers new insights into language change occurring at the interface between information structure, syntax and prosody, and adds to the general discussion so far not only from a theoretical, but also from an experimental perspective. As a test bench, they consider Jespersen's cycle for their investigation. In the literature, it has been put forward that new expressions of standard negations start out from contexts of narrow and contrastive focus (in which old or activated information is negated) and then extend their use to other information-structural context functioning as neutral negators.

Information structure notoriously correlates with specific prosodic patterns, but prosody is not retrievable in historical records. To circumvent the problem – and under the assumption that dialectological and diachronic data are two sides of the same coin –, the authors conducted a synchronic pilot investigation of the postverbal negator *miga/mia* (corresponding to Standard Italian *mica*) in three different dialects spoken in Veneto, which are assumed to possibly reflect different substages of stage II of Jespersen's cycle.

Based on a translation task, the investigation shows that, in the varieties spoken in Venice and in Padua, the new negator *miga* can only negate old/activated information and does not appear to undergo reduction. In contrast, in the variety spoken in Gazzolo (Verona), the cycle seems to be more advanced displaying a reduction of the new negator *mia*, which is visible in pitch, duration and spectral organization (at least in certain information-structural contexts).

The data from Gazzolo evidence that this dialect could be in a transitional stage in phase II of Jespersen's cycle, since *mia* displays a lexical split, which is typically found in grammaticalization processes. Depending on the contexts, it can both function as an incipient strong focus negator and as full-scale neutral one.

Based on synchronic data, the paper thus not only provides further arguments in favor of the hypothesis that language change may take place at the interface

between information structure and prosody, but it also shows that the diachronic dimension of the latter, for which direct evidence is often lacking in historical data, can be investigated through the lens of synchronic variation.

By assuming information-structural and prosodic triggers, **Juliane Tiemann**'s contribution investigates word order variation at the sentence level in Old Norwegian. After noting that the syntax of Old Norwegian has not yet been studied separately from Old Icelandic, Tiemann proceeds to analyze OV/VO alternations in the syntactically and information-structurally annotated KoNoKs corpus.

Her survey takes into account both information-structural and prosodic conditions that drive the pre- and post-verbal position of objects within a universal base account; these conditions are investigated by applying a careful methodology involving the distinction of given versus new referents and by considering the prosodic weight of constituents both in terms of length and syntactic composition of the constituents analyzed.

The quantitative results emerging from her study are complemented by the qualitative investigation of the context surrounding the relevant OV and VO orders discussed, thereby highlighting how both prosodic weight and information-structural requirements interact in the ordering of constituents in Old Norwegian; these results are compared with the results of investigations on Old Icelandic syntax and of current investigations on the interaction of information structure, prosody and word order in Old English. Tiemann argues that OV generally correlates with the given status of the pre-verbal object, whereas VO shows a mixed distribution. By looking at the results in more detail, she concludes that the prosodic weight of an object can overwrite its information-structural status, thus leading, for example, a given but heavy object to occupy a post-verbal position.

Turning the attention to morphosyntax and its interfaces, **Silvia Rossi** and **Cecilia Poletto**'s contribution investigates the distribution of the bare quantifiers *tutto* 'everything', *molto* 'much' and *niente* 'nothing' in Old Italian, and in particular their different licensing conditions in the low IP area and in the left periphery. As to their distribution in the former domain, their relative position to past participles (and adverbs) indicates that *tutto* and *molto* occupy a position higher than certain occurrences of *niente*, which can be realized not only in a pre-participial position (like *tutto* and *molto*), but also after the participle. This different distribution is explained based on their internal (lower) makeup, and thus at the morphology-syntax interface. The possible pre-participial position is linked to the presence of a silent classifier-like element  $n^{\circ}$  (Poletto 2014; Garzonio & Poletto 2017, 2018). Thus, *tutto* is claimed to be a QP paired with a classifier-like  $n^{\circ}$  THING and to be obligatorily moved to the lower IP area by stranding THING. In contrast, *molto* is argued to be a functional element lacking an  $n^{\circ}$  category completely. Since it is parasitic to a domain it quantifies over, it must move. Finally, *niente* is ambiguous since it still

preserves its classifier-like n° *-ente* in its morphology, and this is claimed to be the reason why it can remain in the low position after the past participle.

When fronted to the CP area, all these bare QPs seem to have similar distributional properties and to be equally subject to the V2 property characterizing Old Italian. However, the authors argue that *tutto*, *molto* and *niente* do not occupy the same position in the lower CP, i.e. in the Focus/Operator field, the one triggering V2 phenomenology. Given their different information-structural features and their different interface conditions (reflected in their higher internal syntax), DegP *molto* is assumed to target Rizzi's (2004) Mod(ifier)P – if not contrasted –, while *tutto* and *niente* are fronted to the projection for (contrastive) focus.

Morphosyntax, prosody and information structure thus seem to be closely intertwined and to all play a role in the change process discussed in the paper. The authors claim that, while gradually losing the V2 constraint, Italian has preserved an easily accessible CP, but crucially many types of movements to the operator field become impossible or at least more difficult. In particular, the fronting of bare QPs in Modern Italian is mostly restricted to cases in which a contrastive (or mirative) focus interpretation is available.

The last paper of this section considers an intrasentential change phenomenon which is driven by sentence-internal syntactic projections encoding pragmatic and discourse-related information and thus constitutes the perfect example for a transition to the second part of this volume. **Federica Cognola's** paper addresses the distribution and triggering factors of null subjects in Old High German (750–1050) main clauses and addresses the licensing of this phenomenon at the boundary between the intra- and the intersentential domain.

In the recent literature, the availability of null subjects in Old High German has been accounted for by two different approaches: several authors have argued that null subjects are licensed by V-to-C movement (the so-called “syntactic approach”), substantiating this assumption with the fact that referential null subjects are much more frequently attested in matrix than in embedded constructions; other authors, however, have related the presence of silent subjects in this period to a matching relation between a null referential pronoun *pro* and a null topic in a left-peripheral specifier (the “discourse-pragmatic approach”).

In her contribution, Cognola considers a corpus of 100 sentences extracted from the German translation of Tatian's gospel harmony (ca 850, East Franconian). In particular, she focuses on the licensing of null subjects in coordinated clauses introduced by the paratactic conjunction *inti* ‘and’, and discusses novel evidence supporting a discourse-pragmatic analysis of the phenomenon in this construction. According to Cognola, in Early Old High German, the licensing of a null referential *pro* in Spec,TP is guaranteed by a null topic or a logophoric operator in the specifier of a CP-internal functional projection, which in turn depends on the presence of a

referential constituent in the previous context. Thus, it is proposed that the licensing of null subjects in this period implies two basic operations, one intersentential (the identification of a referent overtly surfacing in a previous clause), and one intrasentential (the establishment of an Agree relation between the null topic in Spec,FP and *pro* in the lower Spec,TP). In present-day German, null subjects are no longer attested. In Cognola's proposal, this change is predictable and results from the fact that German develops a strict V2 syntax already in Middle High German, which implies a reduction of the structural positions in the left periphery and possibly the disappearance of the projection hosting the null topic licensing *pro* in Spec,TP.

### 3.2 Part II, Interface phenomena at the intersentential level

The second part of the volume considers less investigated language change phenomena occurring at the interface with superordinate structures and discourse. The first paper by Katharina Paul, Maik Thalmann, Markus Steinbach and Marco Coniglio discusses a new emerging function of German *gehen* 'go' as an aspectual auxiliary verb in constructions like (25):

- (25) [The speaker is driving to the supermarket in his/her car and says:]  
*Ich gehe einkaufen.*  
 I go shop  
 'I go shopping.'

In German, the verb *fahren* 'drive' would be expected in contexts in which the subject is driving a vehicle or using another means of transport. This might indicate that the verb *gehen* in examples like (25) is losing part of its semantic movement component in favor of an aspectual reading. This is particularly intriguing, since German does not show a morphological aspectual system.

The paper provides empirical evidence for an ongoing change in the interpretation and function of this verb and presents an analysis of this change at the syntax-semantics interface. The investigation based on two questionnaire studies show, among other aspects, that different age groups display different acceptance degrees for this new function of *gehen* as an auxiliary verb indicating an ongoing grammaticalization process. Furthermore, it is shown that the preferred reading is an ingressive one.

In the concluding theoretical part, the change is argued to take place at the syntax-semantics interface. The semantic change goes hand in hand with a syntactic change affecting a biclausal construction, which is reanalyzed as a monoclausal one.

By focusing on the left periphery of subordinate clauses, Julia Bacskai-Atkari's contribution surveys doubly-filled COMP patterns in West Germanic from a diachronic perspective and considers discourse-related mechanisms triggering changes

in the CP. In particular, she investigates constructions that both allow doubling historically and synchronically: relative clauses and embedded *wh*-questions.

The so-called “relative cycle” is a diachronic process that involves Spec-to-Head reanalysis of a relative operator into a relative complementizer. This seems to happen in order to guarantee economy in diachronic processes: this categorial change, indeed, implies loss of features. Once the operator has been grammaticalized in C° and has substituted for the original complementizer, the specifier position of CP may possibly be occupied by a new operator. Hence, the intermediate stage of this cycle typically gives rise to a doubly-filled COMP construction in which the two relative markers are largely synonymous, as shown by Bacskai-Atkari’s examples below:

- (26) *ac gif we asmeagap þa eadmodlican dæda þa þe he worhte, þonne*  
 but if we consider those humble deeds that that he wrought then  
*ne þincþ us þæt nan wundor*  
 not seems us that no wonder  
 ‘But if we consider the humble deeds that he wrought, then that will not appear  
 marvellous to us.’

(*Blickling Homilies*, example and translation from Morris 1880: 33)

- (27) *and suggeð feole þinges... þat næwere nes i-wurðen*  
 and say many things that never not.was happened  
 ‘and say many things that never happened’

(Layamon, *Brut*, Caligula version 11472-3;  
 example from van Gelderen 2009: 162)

Embedded-question doubly-filled COMP patterns are superficially very similar to relative doubling in that the specifier and the head of the CP are simultaneously occupied by overt material, but the formal statuses of the two elements are of course different, as in Bacskai-Atkari’s example from Present-Day Substandard English:

- (28) *She wondered in which city that I lived.*

Bacskai-Atkari argues that the differences between these two clause types are primarily discourse-related: the relative operator (i.e. the Spec,CP element that generally becomes a complementizer) refers back to given information which is fully recoverable in the previous discourse, while the interrogative operator (i.e. *wh*-element expressing the interrogative features) is Focus-marked and must be realized overtly. At the same time, West-Germanic varieties are generally more likely to lexicalize the C than the Spec,CP position. Bacskai-Atkari attributes the higher frequency of doubly-filled COMP patterns in embedded questions than in relative clauses to the fact that the relative operator, being maximally given, is preferably reanalyzed as a COMP, leading to non-doubling constructions in present-day dialects; in embedded

interrogative clauses, however, this is not possible because the operator and the complementizer are not functionally equivalent. For this reason, the latter exhibit greater historical continuity than the former.

By considering the left periphery of main clauses, **Augustin Speyer's** contribution pursues the question as to whether discourse relations (continuation, elaboration, narration, explanation, contrast, and comment) directly influence the ranking of potential prefield fillers (scene setting, contrastive, topic), and to what extent this is relevant for the diachrony of the German language.

Speyer presents a corpus study in which he compares the incidence of discourse relations in Early New High German and present-day German. He shows that the overt marking of discourse relations by phrasal discourse relation markers (that is, constituents similar to scene setting elements and routinely utilized to convey information about the structure of discourse, e.g. *dann* 'then') is in general more prominent in Early New High German than in the contemporary language. A further difference between the two language stages emerging from this study pertains to the relation-specific ranking of the information-structural categories "topic" and "contrast". While some discourse relations exhibit historical continuity with respect to the relative order of topics and contrastive elements, others relations do not seem to give a conclusive picture of this hierarchy.

Turning the attention the right periphery, the concluding paper by **Sophia Voigtmann** investigates the factors that led to the extraposition of relative clauses in (Early) New High German through a study of corpus data. Voigtmann shows that the information-structural status of referents interacts with the extraposition of relative clauses out of the clause hosting its antecedent, thus influencing word order at the intersentential level.

This paper has two main empirical goals: on the one hand, the author aims to determine whether adjacent relative clauses have a higher proportion of given referents, as opposed to extraposed relative clauses, for which extraposition is predicted. On the other hand, her paper aims to test whether the restrictions for the extraposition of relative clauses decrease through time.

In order to test these hypotheses, Voigtmann collected a corpus of private and semi-private correspondence dating from the 16th to the 19th century, and analyzed the embedding depth of the relative clause, as well as the cognitive status of the referents in the matrix and the relative clause.

By testing her hypotheses statistically, she shows that adjacent relative clauses indeed present a higher proportion of given referents, as opposed to extraposed relative clauses, and highlights how the interaction of information status and extraposition changes through time. Finally, she detects a change in the restrictions governing the extraposition of relative clauses in the later period examined and argues that these are related to the genre.



In conclusion, the present volume – with its different contributions ranging from morphology, syntax, and information structure, to semantics and pragmatics – is a first attempt to offer a new perspective to language change phenomena by considering not only different interfaces, but also different levels at which these processes take place. Our hope is that this work will offer a broader view on the role of interfaces and clausal levels in language change processes. We wish the readers a pleasant reading!

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PART I

# Interface phenomena at the intrasentential level



# Information structure and Jespersen's cycle

## The dialects of Veneto as a window on processes of language change

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In this paper we report the results of an exploratory experiment aiming to examine the division of labour between syntax, phonology, and information structure in linguistic change, in particular, Jespersen's cycle. According to previous literature, new expressions of negation start out from narrow focus contexts and lose this restriction when they become reanalysed as neutral negators. This leads to the expectation that prosodic correlates of (narrow) focus should be lost in the syntactic reanalysis of emerging negative markers. Looking at a group of North Italian dialects that are currently at different stages of (incipient) Jespersen's cycle, we show that in more advanced varieties, we find a reduction of the new negator in pitch, duration and spectral organization, confirming our hypothesis.

### 1. Introduction

One of the important factors influencing syntactic change is information structure, particularly at the left and right peripheries of clauses (for Romance see Ledgeway 2012), where information structural categories such as topic, focus, and contrast interact with syntactic phenomena like verb placement, and can therefore potentially trigger reanalyses affecting, for instance, the typological character of a language, such as the change from OV to VO (Hinterhölzl 2014, Tiemann, this volume).

The current paper looks at the interaction between information structure and syntactic change in one particular development that is common across languages of north-western Europe, namely Jespersen's cycle, which describes the renewal of the expression of sentential negation. In particular, we aim to lay the groundwork for an experimental methodology to investigate how Jespersen's cycle is affected by categories of information structure also in prosodic and acoustic terms.

## 2. Incipient and full-scale Jespersen's cycle

The diachronic renewal of the expression of sentential negation called Jespersen's cycle by Dahl (1979: 88) after Jespersen's (1917: 4) original observation describes the process by which an original sentential negator is first reinforced by a second element, and ultimately replaced by it, after the new element – the reinforcer – takes over the function of expressing standard negation:

The history of negative expression in various languages makes us witness the following curious fluctuation: the original adverb is first weakened, then found insufficient and therefore strengthened, generally through some additional word, and this in its turn may be felt as negative proper and may then in course of time be subject to the same development as the original word. (Jespersen 1917: 4)

This process can be exemplified by the developments from early Latin to French in (1). The example shows repeated cycles of phonological and formal reduction and lexical reinforcement (Schwegler 1988):

- (1) early Lat. > Clat > Ofr > MFr > ModFr  
*ne (+ oenum)* > *non* > *ne* > *ne (+ pas)* > *(ne +)pas*  
 'not'+ 'one' > 'not' > 'not' > 'not'+ 'step' > 'not'

The stages of this development are very similar in all languages undergoing such syntactic changes, and have been well-described in a large body of literature that has grown substantially in the past twenty years (for an overview see Willis et al. 2013). Jespersen's cycle consists of three basic stages: (I) the *ne*-stage, (II) the *ne+pas*-stage, and (III) the *pas*-stage. However, this division is based purely on formal description, and obscures the details of the transition between the stages. In the current paper, we focus on what superficially is stage II, that is, everything between the emergence of a new element reinforcing the expression of negation (like French *pas*, or English *not*), the bipartite expression of negation by this new element together with the original preverbal negator, and (to a lesser degree) the transition to the new element becoming the standard expression of negation. In this paper, we will consider three dialects spoken in Veneto as a testbed for such analysis, as they represent different points of Jespersen's cycle stage II. Cross-linguistic comparison of languages' diachronies has shown that new negators arise from originally optional reinforcers. Such reinforcers typically express an endpoint on a pragmatic scale, and represent semantic minimizers/generalizers, e.g. (*not*) *a drop*, (*not*) *a crumb*, (*not*) *a thing*. Due to the pragmatic strengthening effect (scale reversal) arising from this scalar semantics under negation (Fauconnier 1975; Horn 1989; Eckardt 2006; Israel 2011; Breitbarth et al. 2020), they can serve to emphatically reinforce the expression of sentential negation. Most languages seem to have such elements at their disposal. Often they are (initially) semantically restricted to contexts related to their lexical meaning (e.g. *not drink a*

*drop*), and in many cases, syntactic restrictions are present, too (e.g. w.r.t. transitivity). At this point, we speak of *incipient* Jespersen's cycle (Breitbarth et al. 2013, 2020).

A necessary precondition for entering a *full-scale* Jespersen's cycle, i.e. for gaining the ability to replace the original negator, is that emerging negators successfully overcome such initial context restrictions, as well as lose or conventionalize the original scalar implicature (Breitbarth et al. 2013). One therefore needs to distinguish at least two, possibly three, additional substages of stage II, as shown in Table 1.

**Table 1.** Possible semantic contribution of negation markers at stage II of Jespersen's cycle (Breitbarth et al. 2020: 35)

Stage IIa	(Stage IIb)	Stage IIc
<i>ne</i> = logical neg.	( <i>ne</i> + <i>pas</i> = logical neg.)	<i>ne</i> = (optional) remnant
<i>pas</i> = (optional) reinforcer		<i>pas</i> = logical neg.

Stage IIa represents the transition from stage I to stage II, that is, *incipient* Jespersen's cycle. At this point, the standard expression of sentential negation (Miestamo 2005) is the same as in stage I, viz. the original preverbal negator. As soon as the emphatic reinforcer has overcome any initial context restrictions, but not yet gained the ability to express neutral standard negation, it is what Breitbarth et al. (2020) call a negative polarity adverb (NPA), that is, a non-argument with an NPI distribution. Only after a further reanalysis, when an erstwhile NPA becomes obligatory part of standard sentential negation, do we speak of *full-scale* Jespersen's cycle. In the current chapter, we zoom in on the transition from stage IIa to stage IIc, to see how exactly *incipient* Jespersen's cycle turns into *full-scale* Jespersen's cycle, and to see whether we can find some new experimental methodologies to provide a more comprehensive explanation for the change of the NPA.

### 3. Information structure and incipient Jespersen's cycle

Breitbarth et al. (2020: 45–49) observe a tight connection between *incipient* Jespersen's cycle and information structure, as in several historical languages, new negation markers initially come to express narrow focus of sentential negation, as well as constituent negation, before they become available in neutral, broad focus negative clauses.<sup>1</sup>

NPAs derive their emphatic value from the scalarity of their lexical sources: denoting low points on pragmatic scales, they narrow the denotation of the negated predicate. As a consequence, a negative sentence containing an NPA is more specific, and hence more informative, and its proposition entails the proposition

1. Cf. also Poletto & Rossi (this volume) on *niente*.

of an equivalent sentence without the NPA (cf. Israel 2001, 2011). Furthermore, like other NPIs, NPAs activate a set of alternatives and trigger obligatory exhaustion of these alternatives, eliminating any alternatives that are not entailed by the assertion (Chierchia 2013). As a consequence, they are particularly suitable to express narrow-focus and constituent negation, and this is indeed what can be observed for instance in the historical Germanic languages at the point that new adverbial reinforcers of the expression of negation emerge. Contrary to the original stage-I negators, the emerging new negative reinforcers have the additional advantage of not being restricted to co-occurring with finite verbs. This reinforces their suitability in narrow-focus and constituent negation contexts, which scope over subsentential constituents excluding the verb.

In the Old Saxon example in (2), the adverbial reinforcer *niet* only scopes over the focus marker (*ekir* ‘only’), contrasting the DP modified by it (*iro selon* ‘their souls’) with another constituent (*neuen ok ...* ‘but also ...’).

- (2) *thuo niet ekir iro selon neuen ok ...*  
 then NEG only 3PL.GEN soul.PL but also  
 ‘then not only their souls, but also ...’ (Glossen zu den Homilien Gregors  
 des Großen 63, 15–16, in Breitbarth et al. 2020: 48)

Similarly, in the Old English example in (3), *noht* negates only a subsentential constituent, viz. only the adjective *feorr* ‘far’, implicitly contrasting it with hamlets further away.

- (3) *ða wæs in sumum tune noht feorr sum*  
 there be.PST.3SG in some.M.DAT.SG hamlet.DAT NEG far some  
*ging ðearfa ...*  
 young pauper  
 Lat. *Erat autem in uilla non longe posita quidam adulescens mutus...*  
 ‘There was in some hamlet not far (away) a certain young pauper ...’  
 (YCOE, cobede, Bede\_5:2.388.14.3858; Willis 2016: 482)

But emerging NPAs are not restricted to contexts without finite verbs. Even where negation has sentential scope, NPAs are found to express narrow contrastive focus on individual constituents, as seen in the Old English example in (4).

- (4) *ne dorste he nawuht hrædlice ut of ðære ceastre faran*  
 NEG dare.PST.3SG 3MSG nothing quickly out of DEF.F.DAT city.DAT go.INF  
*up on ða muntas*  
 up on DEF.P mountain.ACC.PL  
 ‘He didn’t dare go at all quickly out of the city up to the mountains.’  
 (YCOE, cocura, CP:51.397.32.2708; Willis 2016: 482)

The recent literature suggests that different, hierarchically organized, types of negators need to be distinguished, depending on their scope and etymological source (Poletto 2008a, 2008b, 2010, 2017; De Clercq 2013, 2017). Both Poletto and De Clercq make a distinction between 'neutral' sentential negation ('scalar' negation for Poletto, 'polarity' negation for De Clercq) and what they call focus negation. These markers differ in internal complexity and scope, and as outlined by De Clercq (2017), there is a diachronic connection between focus negation and polarity negation in the sense that one contains a subset of the features of the other. Focus negators are used to express narrow focus and some types of constituent negation. Breitbarth et al. (2020) adopt De Clercq's (2017) idea that focus negation diachronically feeds into polar negation, but unlike De Clercq, argue that focus negation contains more features than polar negation, and therefore is internally more complex. According to them, a language makes the transition from stage IIa to IIb/c of Jespersen's cycle when an original focus negator is reanalysed as a polar negator.

Comparing various languages, Breitbarth et al. (2020) show that what De Clercq calls polarity negators are often homophonous with what she calls focus negators, apart from their prosodic properties: focus negators are stressable, modifiable, contrastable, and can occur in positions of the clause where only 'strong' elements can occur, for instance in the prefield in Germanic V2 languages. (5), for instance, demonstrates that the English sentential-scope polarity negator *not* can, but need not, be reduced to *n't*, while the stressed variant *NOT* expresses narrow focus negation, and scopes below deontic possibility and dynamic modals.

- (5) a. *Edwin can't/cannot climb trees, can he?*

NEG > MOD

'Edwin is not permitted/able to climb trees.'

- b. *Edwin can NOT climb trees, can he?*

MOD > NEG

'Edwin is permitted/able not to climb trees.'

(after Cormack & Smith 2002: 137)

This leads us to a number of hypotheses regarding the transition from incipient to full-scale Jespersen's cycle, and the establishment of a new standard expression of negation in languages undergoing this renewal of the expression of negation.

- H1. A new negator should first emerge in contexts where it expresses narrow focus negation, i.e. where it has narrower than sentential scope. These may be contexts where the original sentential negation marker is excluded, for instance because it is restricted to occurring with finite verbs. After reanalysis as a neutral/polar negator, the new element should lose this distributional restriction.



- H2. A new negator should therefore prosodically interact with the expression of certain information structural categories, particularly focus and contrast.
- H3. A new negator should be prosodically independent, as it is initially syntactically phrasal. The head of this phrase (e.g. *mica*), being a lexical word, projects a fully-fledged phonological word. After reanalysis, the new negator may lose its prosodic strength.

Obviously, these hypotheses are difficult to test on the historical record. First, attested data are scarce, particularly for languages that made the transition from incipient to full-scale Jespersen's cycle a long time ago, such as the Germanic languages. This means that while we find occasional examples such as (2–4), we cannot be sure whether they are indeed a confirmation of H1. Second, prosodic information such as intonation or breaks is nearly impossible to glean from historical texts. Also, information structure is not always easy to track in historical data. In order to test our hypotheses, therefore, we need a language or languages that are in the process of undergoing this change. Such a language does exist: The dialects of the Veneto (northern Italy) are in different stages of reanalysing the reinforcer *mica* (*mia*, *miga*) 'at all > NOT > not' < 'crumb' as a new expression of negation.

#### 4. Pilot study

While semantic and syntactic bleaching as underlying mechanisms of grammaticalization have been abundantly explored in literature (Horn 1989; Eckardt 2006; Breitbarth et al. 2020), the way they interact with the phonological representation of the items undergoing grammaticalization has not sufficiently been documented. Venturing into the interface which ties information structure, syntax and phonology is not an easy task: one can start analysing acoustic features such as duration to track the reduction (van Bergem 1993; Bafile 1997; Adda-Decker & Lamel 2018), but other acoustic exponents can play a role in supporting cross-categorical distinctions in the information structure. Besides this, the dialects under consideration here are poorly documented on the prosodic level and we lack a description of their tonal grammars which could function as a baseline. In order to untangle the complexity of this field, we designed a qualitative pilot study. In the next sections, we will present this exploration and phonetic features that can be indicative of the change in progress in the way Jespersen's cycle interacts with information structure (cf. H2 and H3). The aim of the pilot is then twofold: first, we wanted to explore the syntactic diversity in the expression of negation among the varieties spoken in Veneto and secondly, we aimed to inspect acoustic cues that can help probe the syntactic change and track Jespersen's cycle.

In the pilot experiment we asked three dialectal speakers to translate the same 39 short dialogues from Italian. The speakers were selected from the centre of Venice, the centre of Padua, and from Gazzolo, a small town in the province of Verona (one speaker per location). Every dialogue contained a target sentence whose structure was SVO. 30 target sentences were designed as two triplets of 15 affirmative and 15 negative, each triplet consisting in 5 broad focus, 5 narrow informational focus, 5 narrow contrastive focus sentences. We decided to keep the distinction between these two types of narrow focus, as in the literature they are shown to differ both on the semantic (É. Kiss 1998) and on the intonational level (Gili Fivela et al. 2015). For these sentences, the material in focus was new, i.e. neither explicitly introduced in nor inferable from the communicative context (Birner 2006). Some examples are reported below to show the different scopes and types of focus elicited. In the narrow informational and contrastive contexts (7) and (8) a post-focal adjunct was added in order to avoid tonal crowding, i.e. the conflict of a pitch accent expressing focus with those tones that typically show up at end of the sentence (Silverman & Beckman 1990; Arvaniti et al. 2006).

## (6) Venetian

- a. *Perché ze inrabià co ti, Tommaso?*  
 why be.PRES.3SG angry with you, Tommaso?  
 'Why is Tommaso angry with you?'
- b. *Perché no go spetà la Monica.*  
 because NEG have.PRES.1SG waited the Monica  
 'Because I didn't wait for Monica.'

## (7) Venetian

- a. *No me ricordo. Chi ze che no ti*  
 NEG me.REFL remember.PRES.1SG. Who be.PRES.3SG that NEG you  
*gavevi invità a-la festa?*  
 have.IMPF.2SG invited to-the party  
 'I can't remember. Whom didn't you invite to the party?'
- b. *No go invità la Monica, a-la festa.*  
 NEG have.PRES.1SG invited the Monica, to-the party  
 'I didn't invite Monica, to the party.'

## (8) Venetian

- a. *No ti ga gnanca saludà la Elisa, a messa!*  
 NEG you have.PRES.2SG not even greeted the Elisa at mass  
 'You haven't even greeted Elisa, at mass!'
- b. *No, la Elisa, la go saludada. No go saludà*  
 No, the Elisa, her have.PRES.1SG greeted NEG have.PRES.1SG greeted  
*LA MONICA, a messa.*  
 the Monica, at mass  
 'No, I greeted Elisa. I didn't greet MONICA, at mass.'

The target words in focus also share the structure CVCVCV with as many voiced consonants as possible to minimize micro-prosodic effects on the pitch track (Kohler 2006). Moreover, in these words the stress falls on the antepenultimate syllable, to help separating accentual tones and edge tones and hence make the observation of the latter ones easier (Arvaniti et al. 2006).

Besides these dialogues, we also included some other negative sentences, namely five cases of counter-expectational/emphatic negation, two prohibitive sentences and two negative questions as fillers. The rationale behind this inclusion lies in the peculiar status of emphatic negation. In particular, counter-expectational sentences contain negators which scope over old/given information, i.e. information which is already activated in the context or is at least inferrable (9). This denial of presuppositions is the most productive domain of Jespersen's cycle in its earliest stages (see, for example, Cinque (1976) or Zanuttini (1997) for Italian and Schwenter (2005) for Brazilian Portuguese), whereas the new negator reaches new and broad focus only in more advanced varieties (but see also discussion in Section 3). By also experimenting on this function, we aimed to detect the change in progress among the varieties.

(9) Venetian

- a. *Ti ze ndà a messa ancuo?*  
 you be.PRES.2SG gone to mass today?  
 'Did you go to mass today?'
- b. *Ancuo no ze miga domenega!*  
 today NEG be.PRES.3SG NEG Sunday!  
 'Today is not Sunday!'

All sentences were recorded in .wav format, sampled at 44100 Hz, segmented with ELAN (ELAN 2019) and examined with Praat (Boersma & Weenink 2020).

## 5. Results

Before reporting on our qualitative exploration, we briefly present some interesting facts that emerged during the translation process, as they might be relevant to classify the current status of each variety with regard to Jespersen's cycle.

First of all, the emerging negator, etymologically parallel to the Latin and Italian form *mica*, assumes two different forms in here: *mia* ['mɪa] for the variety of Gazzolo and *miga* ['mi:ga] for Padua and Venice. The variant *mia*, which is typical of the variety spoken in Gazzolo (VR), was employed in every negative sentence in our set (24 sentences). Hence, the new negator is not only used in emphatic contexts but can also be found in the scope of standard negation. This also means that *mia* can

be found in those contexts where the focus is new and not necessarily activated or inferable from the context (e.g. (10)) and is more advanced in stage II (H1).

(10) Gazzolo (VR)

- a. *In ciesa, ieri, ci è che no te si stà*  
 in church yesterday who be.PRES.3SG that NEG you be.PRES.2SG been  
*bon salutare?*  
 good greet.INF  
 'Who is the one you didn't get to greet in church yesterday?'
- b. *Go mia saludà me zenero, in ciesa.*  
 have.PRES.1SG NEG greeted my son-in-law in church  
 'I didn't greet my son-in-law in church.'

In the varieties spoken in Venice and Padua, as well as Italian, (10b) would be acceptable only if the action of greeting one's son-in-law was already activated in the context and the speaker was denying it, i.e. the material in focus is already given. The pervasiveness of *mia* is also consistent with the finding for Gazzolo in the ASIt atlas (<http://asit.maldura.unipd.it/index.html>), where, for instance, *mia* is employed in conditionals and nine other examples.

- (11) *Se no piove mia, vegnio da noialtri?*  
 if NEG rain.PRES.3SG NEG come.PRES.2PL by us?  
 'if it doesn't rain, will you come over?' (Gazzolo, ASIt questionnaire 2, pos. 8)

On the other hand, in the translated set of Venice, *mica* in its variant *miga* was only found in five sentences, viz. in contexts where it serves the function of denial of a presupposition (see Example (9)). In the neutral sentences, where the focus contains new information, *miga* is neither used nor found acceptable.

A similar situation was also recorded during the translation process for the Paduan variety. Here again, *miga* was employed only in counter-expectational and emphatic contexts, although there was some doubt as to whether to include *miga* in those target sentences with new material in their focal scope.

Against this background, by examining a number of acoustic features of *miga/mia* we aim at exploring the prosodic status of the negator in the three dialects at stake. We consider three acoustic cues, i.e. duration, formant structure and  $f_0$  variation, that are related to the (weak or strong) status of phonological words (Selkirk 1996; Clopper & Turnbull 2018) and might be therefore suitable candidates to evaluate a change of prosodic status in progress.

## 5.1 Duration

According to our exploration, temporal aspects such as duration can provide some insight to the reanalysis process of Jespersen's cycle. In order to see whether any reduction had taken place, instances of *mica* in its variants were annotated with their duration in seconds. Firstly, we report length values of *miga* in the data from Padua (PD in the figure) and Venice (VE) (Figure 1).

As Figure 1 shows, *miga* has a compact distribution in both the speakers from Padua and Venice: its length ranges from 0.225 to 0.2970 seconds, displaying little variation. We do not want to make comparisons between speakers, whose speaking style can be different in terms of speed and rhythm: what we want to remark here is that *miga* shows a long and consistent duration within each speaker. When looking Gazzolo (VR), on the other hand, the data become more scattered for the reason that *mia* displays more variation. We report such values in the boxplot in Figure 2. This boxplot represents the expanded distribution of the duration values in Broad Focus (BF), Narrow Informational Focus (IF), Narrow Contrastive Focus (CF) and Counter-expectational sentences (CE).

From the visualization of the data from Gazzolo, *mia* stands out in counter-expectational contexts: first of all, it displays more variation compared to the other contexts, its distribution spans from a minimum of 0.125 to 0.189 seconds with two outliers (0.249 and 0.259 s), which are also the maximum among the entire distribution. Despite this distribution being slovenly, phonetic realizations of *mia* tend to

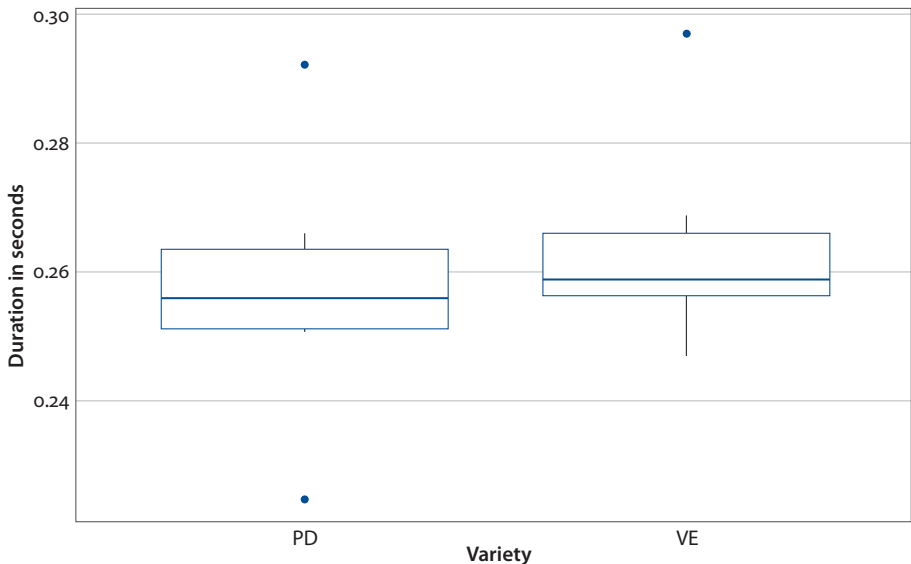


Figure 1. Duration values of *miga* in Padua and Venice

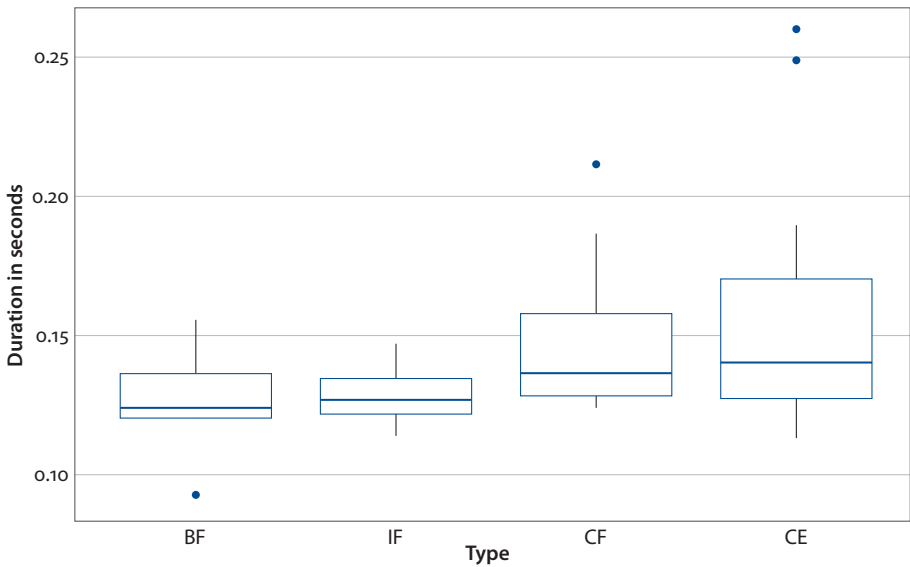


Figure 2. Duration values of *mia* in different contexts in the variety spoken in Gazzolo

be longer here: besides one outlier, all the cases of *mia* in counter-expectational contexts have longer duration than the general tendency. Conversely, in those sentences where new information is in the focal scope, *mia* has a more compact distribution, also with shorter duration compared to the counter-expectational one.

We interpret these data as relevant for our hypothesis (H1): the higher degree of variation for contrastive focus and counter-expectational sentences may be the result of a change in progress and can be relevant in capturing the effects of Jespersen's cycle. Theoretically speaking, we believe that change in duration is just a facet of a more complex process which is weakening the prosodic status of the NPA. In the varieties where the new negator can only deal with narrow and old information, it retains its prosodic strength, which is visible in duration, while in a more advanced variety there could be some signs of durational shrinking, particularly in those informational categories where *mia* must have grammaticalized to emerge. Therefore, we include duration among those acoustic properties which can be indicative of the impact of Jespersen's cycle on the segmental layout of the emerging negator: we expect variation in duration to be attributable to whether the negative operator is losing its prosodic independence in variance with new or old information.

Although duration can be the result of many factors at interplay (Clopper & Turnbull 2018), the durational variation patterns well with other reduction phenomena that were explored in our pilot experiment and that will be presented in the following subsections, suggesting that it is a suitable candidate for measuring the gradual change of the prosodic status of the negator.

## 5.2 Formants

If grammaticalization is in progress and is interacting with the segmental material of the NPA, phonetic erosion should not be unexpected (Heine and Kuteva 2002). The first natural observation is that for Gazzolo, the new negator is reduced to *mia*, although this variety does not typically employ intervocalic elision among its rules inventory (cf. Lat. URTICA > *ortiga*),<sup>2</sup> whereas the varieties of Padua and Verona still retain the variant *miga*. The loss of the intervocalic plosive from a common source *miga* is typologically plausible, considering that deletion can surface as a final stage of lenition (Lass 1984). This very impressionistic observation suggests a more fine-grained analysis of the segmental layout of the emerging negator.

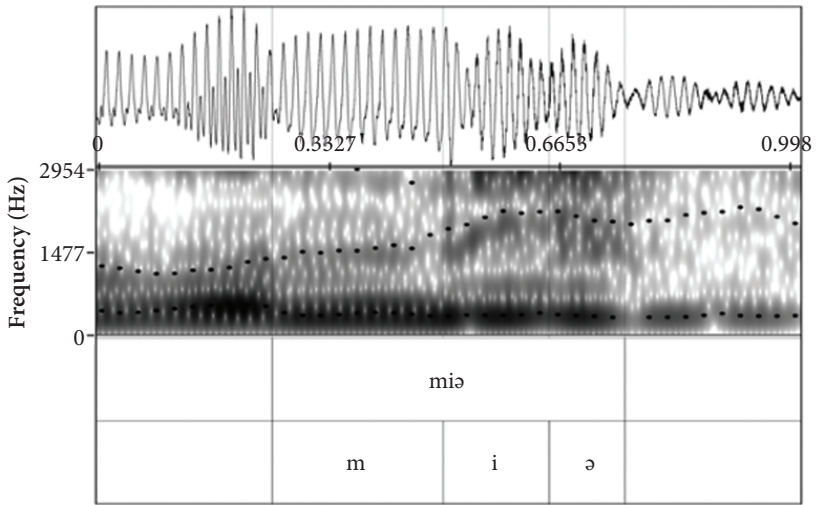
For Venice and Padua, we cannot report any instance of segmental reduction for *miga*. Both auditorily and instrumental examinations have not found significant signs of hypo-articulation phenomena or undershooting. The same does not hold for the data from Gazzolo, where first auditory inspection revealed some instances of less articulated forms of the emerging negator. In those particular cases, the vocalic nucleus in *mia* sounds as reduced to one centralized vowel and then realized as [mə] or similar, suggesting the NPA is being reduced to a monosyllabic word. In order to verify this impressionistic evaluation, formants were extracted and analyzed with Praat. Our data show that those forms judged as perceptually hypo-articulated present relatively steady formants in the vocalic portion, which could explain the perception of a stable single vowel (Figure 3a), compared to other forms displaying a neat formantic transition between two vocalic nuclei (Figure 3b).

After visual inspection of the spectrograms of *mia*, we calculated the trajectory by measuring the formants (F1 and F2) values at 20% and 80% of the vocalic portion in order to avoid co-articulation effects, then we plotted them in a Cartesian F1 × F2 space and Euclidean distances were calculated. By adopting this methodology, we are able to measure the trajectory between the two points whose formants are the coordinates (see Harrington 2010: 171ff). As the boxplot in Figure 4 shows, *mia* in counter-expectational sentences manifests a bigger Euclidean distance, i.e. larger trajectory, indicating a transition between different vowels. Here again, IF stands for Informational Focus, BF for Broad Focus, CF for Contrastive Focus, CE for Counter-expectational sentences.

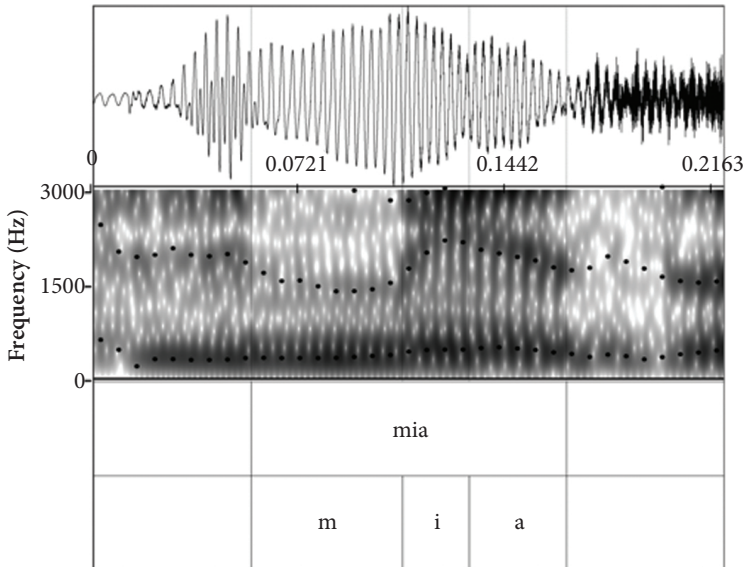
When *mia* appears with new information focus, on the other hand, the transition path distance is smaller than for the other cases. Possibly, this deviance can be accounted as a result of phonetic erosion affecting the segmental layout of the

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2. We would like to thank Silvia Rossi for pointing this out.



a. Information focus statement

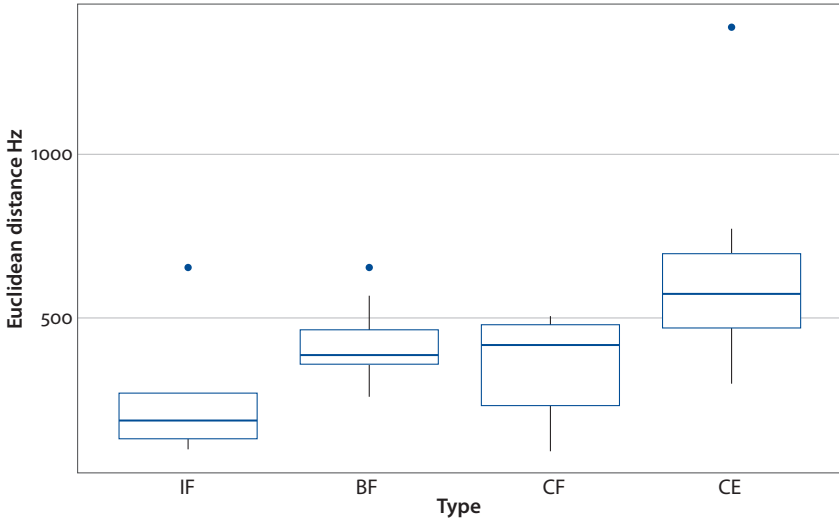


b. Counter-expectational statement

Figure 3. Waveform and spectrogram with formant track (black dots)



negator as well: monophthongization and centralization can be part of the same vocalic reduction mechanism (Lindblom 1963; Harrington 2010). This finding is in line with the hypotheses put forth by Ansaldo & Lim (2004), who clearly state that phonetic erosion in grammaticalization is to be sought in vowel quality, inasmuch as grammaticalized items are often more reduced. In their study on Sinitic languages, they provide the example of diphthongs which, in grammaticalized functional words, tend to monophthongize.



**Figure 4.** Euclidean distance of formants in the syllabic nucleus of *mia*<sup>3</sup>

In conclusion, also with regard to formant structure, if the negator scopes over old information in counter-expectational statements, it preserves its form and does not undergo reduction of segmental material, while we find traces of reduction in the more advanced stage represented by Gazzolo (H3).

Hence, in the light of former studies and of our data, we consider the shaping of phonetic realization as a potential dimension affected by the complex machinery which is behind Jespersen's cycle and information structure. In particular, phonetic substance is more preserved in the original bridging contexts of counter-expectational statements, where the speaker denies information which is already activated in the context.

3. Note that the order of categories in the boxplot is not the same as in Figure 2. This is because we present the data in increasing order of median values.

### 5.3 Fundamental frequency

In order to provide a more comprehensive description of the acoustic correlates of the grammaticalization process, we also inspected prosodic features: among these, pitch provided relevant results. We checked for the presence of a pitch accent (Ladd 2008; Beckman & Hirschberg 1994) located on *mica* in its variants. Concerning the data from Venice and Padua, *miga* is found only in counter-expectational statements<sup>4</sup> and bears accentual prominence (Figure 5) acoustically realized as a pitch rise on the stressed syllable.

The association of pitch accent with negation is not unattested in literature: Bocci (2013: 140) refers to contrastive *non* in Italian. In his reported case, *non* does not hold the status of clitic in a contrastive focus construction like negative tags such as “*Germanico vorrebbe presentare Pierangelo a Veronica, NON a Marinella*”.<sup>5</sup> Hence, by representing a phrasal metrical head, it must be intonationally specified and associated with a pitch accent. Although *non* and *mica* are different elements, Bocci's example would still constitute a promising match concerning the association of a pitch accent with a negator.

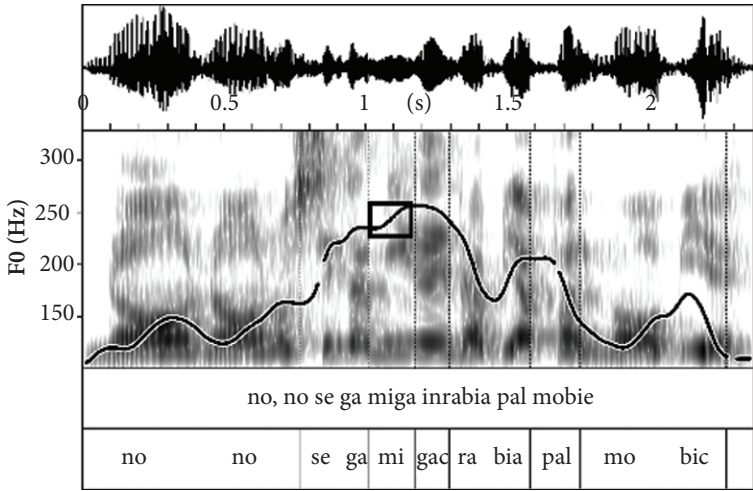
Interestingly, when analyzing the data from Gazzolo, pitch accents located on the new NPA were also found, similarly to Padua and Venice. However, also for this acoustic dimension, we found a less clearly-cut distribution. Although *mia* is equally available in every negative sentence of this variety, we checked whether variation across the different categories of information structure can be expected in terms of pitch, i.e. whether the type of pitch accent is recurrent in all data, or whether it displays variation. Figure 6 shows the pitch track for a counter-expectational sentence in the corpus. For Gazzolo, too, the prosodic constituent containing *mia* hosts the highest  $f_0$  peak in the tonal curve. This peak is consistently present in all the other counter-expectational in the Gazzolo corpus.

*Mia* patterns with acoustic prominence and presents a rising tone also in narrow focus conditions, both for informational and contrastive types (Figures 7a and 7b).<sup>6</sup> Surprisingly, all negative sentences with a broad focus structure do not display a pitch accent aligned with the prosodic constituent of *mia*. As Figure 8 shows, the pitch curve follows the natural declination of declarative sentences and there is no

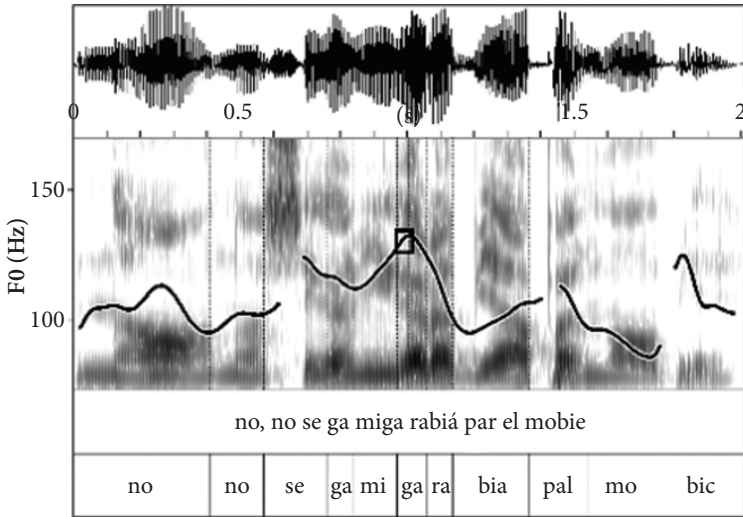
4. For instance, the examples in (5) and (6) refer to a dialogue where speaker A argues that Elisa is upset because someone broke her furniture at the party. Speaker B, in the reported examples, contradicts A's utterance (She didn't get angry for the furniture).

5. “Germanico would like to introduce Pierangelo to Veronica, not to Marinella” (Bocci's translation)

6. Since we are still at the earliest stages of the exploration of the tonal inventory of these varieties, we precautiously keep informational and contrastive focus separate, although they were labelled in the same way here.

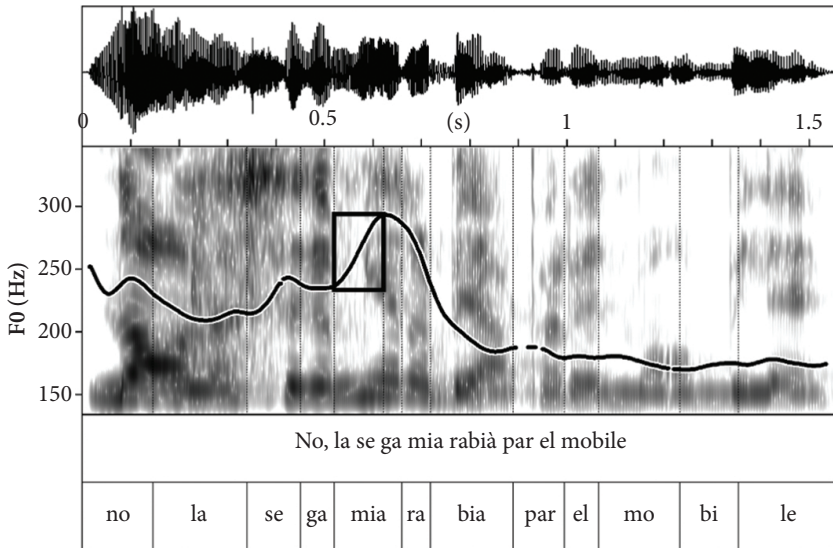


a. Statement in Paduan



b. Statement in Venetian

**Figure 5.** Waveform and f<sub>0</sub> pitch track for the counter-expectational statements in the varieties spoken in Padua and Venice

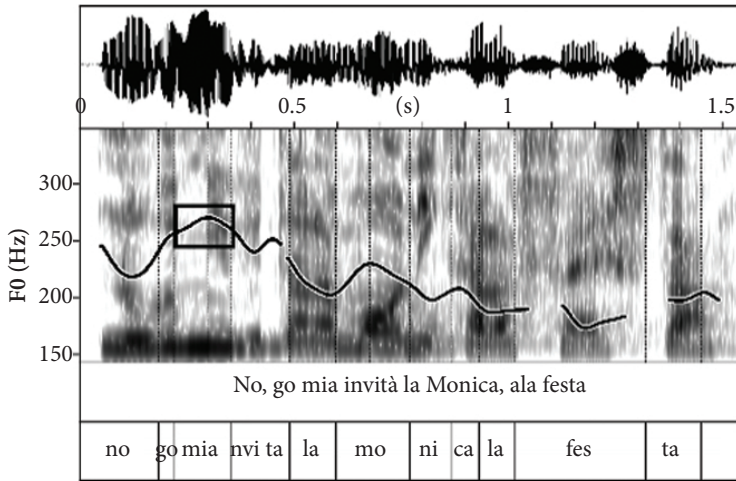


**Figure 6.** Example of waveform and  $f_0$  pitch track for a counter-expectational statement in the Gazzolo variety

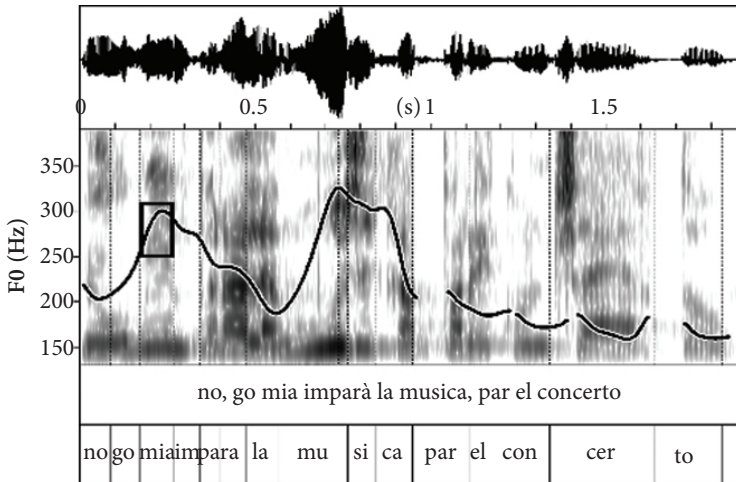
tonal event aligned with the new negator. The lack of pitch accent on the new NPA is only found in broad focus sentences. Therefore, we claim that for the negative sentences in the Gazzolo corpus, two instances of *mia* are found: in some contexts, it is aligned with a rising pitch accent, while in others this is not the case. We believe that such fuzziness can be a promising result for our hypotheses, inasmuch as these data would show the loss of prosodic strength of the emerging negator.

Apparently, this distribution does not depend on the givenness of material in focus, since both old counter-expectational and new narrow focus contexts present a pitch accent: the distribution might rather split according to the scope of focus, i.e. the partition background-focus, insofar as *mia* does not lend acoustic prominence in broad focus sentences.

Before wrapping up our results, we would like to remark that these data should be interpreted under one of the main tenets of the Autosegmental-Metrical framework, namely that pitch accents are affiliated with metrically strong syllables. This means that the distribution of pitch accents does not depend on the meaning *per se*, but on the underlying metrical structure, to which the intonational organization of an utterance is tied (Ladd 2008). What our exploration shows is that in counter-expectational and narrow focus conditions (where applicable), the new negator is still metrically strong and independent, and can therefore host prominence and pitch accent. On the other hand, in broad focus sentences, Gazzolo *mia*, the new negator, may be losing its prosodic strength.



a. Informational focus



b. Contrastive focus

**Figure 7.** Waveform and  $f_0$  pitch track for narrow informational<sup>7</sup> and contrastive focus<sup>8</sup> statements in the Gazzolo variety

7. In this context, speaker A asks who was not invited at B's party, B answers that Monica was not invited.

8. Here, speaker A is scolding B for not learning the lyrics of the song. B asserts to have learnt the lyrics, what B did not learn is the melody of the song.

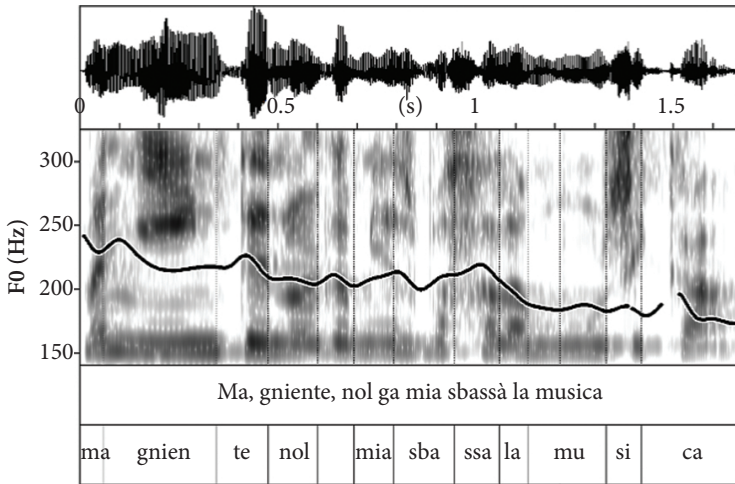


Figure 8. Waveform and  $f_0$  pitch track for a broad focus statement in the Gazzolo variety<sup>9</sup>

## 6. Summary and conclusion

This article was intended as an exploratory report investigating to what extent Jespersen's cycle is working at interfaces, both on the information-structural and phonological level. In particular, we wanted to test the alleged homophony between the different functions that the new negator can adopt. These functions differ from an information-structural point of view, inasmuch as we believe that the negative adverb first emerges in narrow and contrastive focus where it stands for denying old information, activated in the context.

Formal modelling shows how semantic and syntactic reanalysis leading to the emergence of the new negator starts from that bridging context and paradigmatically extends its use to other information structural contexts. In order to have tangible descriptors of this evolution, we designed a pilot to investigate changes in the prosodic status of the negator.

It seems that in those varieties where the new negator *miga* is at the beginning of its grammaticalization process (i.e. can deny only old information), it retains prosodical strength, being able to carry a pitch accent and not undergoing reduction both in spectral and durational terms. In the data recorded for Gazzolo, however, the situation seems more complex. Evidence shows that two types of *mia* with a different

9. In this dialogue, A asks why the neighbours were upset with Domenico, B explains that he did not turn down the volume of the music.

phonological status may exist. This difference is reflected by distinct phonetic properties: one instance of *mia* is still a fully-fledged word, with a strong metrical head capable to carry a pitch accent; the other case of *mia* seems shorter, weaker and non-pitch-accented. Although these observations need to be confirmed on a larger corpus and through larger-scale quantitative analyses, our pilot investigation suggests that reduction seems to affect the new negator, *mia*. Reduction is avoided in counter-expectational context, where the negator emphatically denies a given piece of information. This pattern suggests that the co-existence of prosodically different markers can be attributed to the effect of Jespersen's cycle, possibly signalling the transition from a prosodically independent incipient negator (NPA) to a prosodically weakened full-scale neutral negative marker, which is more advanced in Gazzolo than in Padua and Venice.

The presence of both items in the same variety fits with the theoretical framework of grammaticalization. Hopper (1991) uses the term layering to describe the overlapping of older layers with newer ones through the grammaticalization process. More recent approaches also refer to this possibility, for instance Roberts and Roussou (2003) describe the grammaticalization cline in terms of lexical split driven by progressive reanalysis. Furthermore, as discussed in the introduction, such a pattern is also described for the specific case of Jespersen's cycle by Breitbarth et al. (2020), who suggest that two negators structurally different are simultaneously present; a strong focus and a new neutral one. Our data set the basis for finding phonetic and phonological evidence parallel to this particular change (cf. the *Parallel Reduction Hypothesis* by Bybee et al. 1994).

Phonological layering with different forms is also attested in other (few) works documenting grammaticalization: see for example in Hebrew, where different intonational contours disambiguate the function of *naxon* 'right', according to its word class as an adverb or discourse marker (Maschler & Shapiro 2016). For Italian, Crocco (2013) suggests that prosodic and pragmatic differentiation of yes/no questions and declaratives with Clitic Right Dislocation may be the result of a grammaticalization process. Another encouraging study in this direction comes from Plug (2005), where, in a corpus of spoken Dutch, an array of more or less reduced forms of *eigenlijk* relies on pragmatic grounds, i.e. less sloppy forms are found when addressing information uttered by another speaker. Nonetheless, Ernestus et al. (2018) do not exclude the impact of the average speech rate and idiolectal properties of speakers among the predictors regulating spectral properties of *eigenlijk*. Reduction due to grammaticalization was also found in English, where expressions like *I think* or *I believe* can behave as epistemic adverbs and lose prosodic prominence (Dehé & Wichmann 2010).

In conclusion, prosodic and temporal reduction can be found in diachronic change in previous studies and our findings do not deviate from these. We believe that the pilot experiment supports the hypotheses formulated in Section 2. First, our data showed that in more advanced varieties, the emerging negator can appear in more information structure types, viz. not only in contrastive focus, but also when new material is in focus scope (H1/H2). Additionally, we observed different prosodic properties of *mica* in Venice and Padua on the one hand, and Gazzolo, on the other. The results of the pilot suggest that in Gazzolo *mica* can be reduced and unaccented in broad focus contexts (H2/H3). We also unearthed the main acoustic cues which could be representative of the ongoing change affecting the NPA: Based on our exploration and previous studies, we believe that prosodic weakening can be sampled through duration, formant structure and accentual prominence. We also suspect that reduction is not completely affecting the negator, whose strength varies according to information structure, bringing into existence two types of negator, as a gradual effect of the ongoing change. These promising findings suggest that reanalysis can also be detected on the interface with phonology, which would support our main hypotheses.

The current study was only intended as an explorative pilot. When more robust empirical evidence becomes available, we will be able to further test our hypotheses, and better understand the connection between interfaces, for example the much-debated issue of informativity and hypo-articulation (Lindblom 1990) or the fine-grained details of Jespersen's cycle.

## Abbreviations

CLat	Classical Latin
OFr	Old French
MFr	Middle French
ModFr	Modern French

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# The object position in Old Norwegian

## An interplay between syntax, prosody, and information structure

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OV/VO variation in Germanic languages is a widely discussed subject. However, Old Norwegian has so far received little attention and is syntactically generally treated as one with Old Icelandic. However, in contrast to the findings of Hróarsdóttir (2000, 2009) for Old Icelandic, stating that OV orders are triggered mainly by the prosodic weight of the object, the present study shows that OV/VO variation in Old Norwegian is still more dependent on an interplay of both information status and prosodic weight of a constituent in a clause. I argue that the results for the information status of the object reflect the syntactic development in the history of Norwegian as a change in the way information-structural categories are displayed in the grammar.

### 1. Introduction

The variation of OV/VO in Old Norwegian has not received much attention in present-day studies on West Norse. Investigation on syntactic phenomena have mainly been conducted for Old Icelandic, accounting for all West Norse material, where Old Icelandic (ca. 1100–1540) and Old Norwegian (ca. 1050–1350) are often treated as one under the broader category of ‘Old Norse’.<sup>1</sup> This happens even though the material is often primarily Icelandic and not Norwegian, mainly due to the much higher amount of material for Old Icelandic. In the literature on the syntax of Old Norse, we also find statements reinforcing this undivided treatment by declaring that “[t]here are a few minor phonological and morphological differences between Old Icelandic and Old Norwegian, but no known syntactic

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1. To avoid confusion with the common abbreviation ‘ON’ for Old Norse, I chose not to abbreviate the languages in this article.

differences” (Faarlund 2004: 2). Mørck (2016: 320f.) verifies this in his overview of the syntax of Old Norse, stating that “... beskrivelsene av norrønt med sitt i stor grad islandske grunnlag ... er gyldige også for gammelnorsk” [the descriptions of Old Norse mainly on an Icelandic basis ... are also valid for Old Norwegian].<sup>2</sup> Analyses of Norwegian syntax of the thirteenth century thus show in many ways an incomplete picture. Therefore, this article will discuss syntactic variation in Old Norse by analyzing Old Norwegian material separately from Old Icelandic material. A direct comparison of the two languages will thus be made possible, leading to new insights into the state of OV/VO variation in West Norse and the possible starting point for a syntactic divergent development of the two languages.

As for the case of historical Icelandic, the variation of word order has been studied in numerous works, discussing different aspects of this issue (cf. Sigurðsson 1985, 1988, 1994; Indriðason 1987; Rögnvaldsson 1994/1995, 1996; Hróarsdóttir 1996; Haugan 2000 among others). More recently, Hróarsdóttir (2000, 2009) discussed this issue from a pragmatic point of view, focusing on the influence of information structure and prosodic parameters of the object in correlation to word order phenomena. Her analysis is the most detailed analysis of purely Old Icelandic material with respect to these two parameters, and the data presented by her will therefore serve as a basis for the direct comparison between Old Icelandic and Old Norwegian. Following her study, I will investigate the extent to which VO and OV word orders in Old Norwegian are systematically influenced by information-structural and prosodic triggers (see Section 3).<sup>3</sup>

The primary goal of this article is to bring Old Norwegian material into the discussion of Old Norse syntax, and thus giving a broader basis for the description of the development of Old Norse towards the two modern descendants Icelandic and Norwegian as a result of information-structural restrictions and prosodic influence early in the language history. The material used for the analysis is taken from a new corpus developed at the University of Bergen, KoNoKs (Korpus over den

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2. Mørck (2016: 320f.): “Siden det ser ut til å være ganske små syntaktiske forskjeller innanfor det norrøne området i denne perioden, kan vi tillate oss å gå ut fra at beskrivelsene av norrønt med sitt i stor grad islandske grunnlag i det store og heile er gyldige også for gammelnorsk.” [Since there seem to be very small syntactic differences within the Old Norse area in this period, we can assume that the descriptions of Old Norse mainly on an Icelandic basis are generally speaking also valid for Old Norwegian.]

3. The focus in this study lies on relational and referential structures within subordinated clauses. The tendencies described by Hróarsdóttir (2009: 265f.) can also be seen in Old Norwegian, although the examination of the correlation between the two factors shows differences with a clear distribution according to their information status of light elements (see Sections 4 and 5).

Norske Konungs skuggsjá).<sup>4</sup> This corpus entails the Old Norwegian text of *Konungs skuggsjá* in the Norwegian main manuscript, AM 243ba fol. written around 1270. The text is structured in a coherent way, divided into 70 chapters, written in a dialogue form between father and son. The dialogue follows a question-answer-(repetition)-pattern and is clearly structured in terms of ‘questions under discussion’. The variation in the Old Norwegian VP is thus analyzed by providing a close investigation of one prose text from the late thirteenth century. However, as this corpus only includes a single text, the present study can only offer preliminary results that have to be tested for broader conclusions concerning a wider range of the Old Norwegian period and different text genres. We know from other languages that texts can be quite different with respect to word order and information structure. However, the results of this paper should encourage to do more comparative work on Old Icelandic and Old Norwegian.

The article is structured as follows. In Section 2, I briefly present the discussion on word order variation in Old Norse, giving an overview of some relevant previous literature on Old Icelandic, and establishing the basis for the discussion of word order alternation in Old Norwegian. In Section 3, I lay out the two factors discussed here that are set to influence word order choices – information status and prosodic weight, including a description of the methodology used for the study and the presentation of the dataset. After that, in Section 4 the data are discussed followed by the theoretical implications that can be drawn from the results in Section 5.

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4. The text has been annotated for syntax and information structure following other corpora searchable via ANNIS (ANNotation of Information Structure, <https://corpus-tools.org/annis/>), was originally designed within the project of SFB 632 ‘Information structure: The linguistic means for structuring utterances, sentences and texts.’ 2003–2015), and the two DFG-projects ‘Informationsstruktur in komplexen Sätzen – synchron und diachron’ (2011–2017) and ‘Informationsstruktur in älteren indogermanischen Sprachen’ (2009–2016). KoNoKs is still an upbuilding corpus and the first annotation set that is used in the analysis here includes the first of three parts of the text. Most of this part was earlier analyzed as representing genuine Norwegian syntax, while the second and third part include parts of Latin paraphrases and translations (with identifiable sources, e.g. *Vulgate*, see Larson 1917). Passages that clearly are translations were excluded from the corpus to avoid translation effects and with this to prevent the potential problem of influence by Latin originals/templates.



## 2. Word order variation in Old Norse

‘Old Norse’ is a term used to describe the West Norse languages, historical Icelandic and historical Norwegian. Both are considered SVO languages, however, they did allow variation in the position of the object and the verb, leading to both VO and OV patterns<sup>5</sup> on the surface structure, as shown in (1a–d).<sup>6</sup> These examples display clauses with two or more verbs, including a finite verb (auxiliary or modal verb) and a non-finite lexical verb. Clauses with a finite lexical verb were excluded from consideration. Analyzing clauses with at least two verbs helps determine the position of the object since the inflected verb is assumed to move to T. Also Hróarsdóttir (2000: 63) notes in her study that “the position of the finite verb is irrelevant in the discussion of OV and VO word order in Old(er) Icelandic, since it is generally assumed that it has always moved to Infl (AgrSP), thus preceding non-finite verbs (auxiliaries and main verbs) and their complements.” The position of the object is analyzed relative to the lexical verb. In the material used for this study, OV patterns were mainly found in subordinate clauses, which is why I will focus on the relative order of object and lexical verb in embedded clauses.<sup>7</sup>

- (1) a. OV order in Old Icelandic  
*efftir þat þeir höfðu eplid eted.*  
 after that they had apple.the eaten  
 ‘after they had eaten the apple.’  
 (*Dínus saga drambláta*, late 14th century, from Hróarsdóttir 2009: 262)
- b. VO order in Old Icelandic  
*að hann hefði etið kjötið.*  
 that he had eaten meat.the  
 ‘that he had eaten the meat.’  
 (*Munnmælasögur*, 17th century, from Hróarsdóttir 2009: 262)

5. The notion ‘pattern’ is used descriptively here and refers to the linear orders on the surface structure.

6. If not stated otherwise, all examples are taken from KoNoKs. Examples taken from KoNoKs refer to the exact place in the manuscript text by the manuscript page (*recto* and *verso*), the column on the page (a and b) and the line number within the given column.

7. Note that for Old(er) Icelandic, Hróarsdóttir (2000: 71) writes that “[i]t is generally claimed that there is no significant difference between main and subordinate clauses with respect to the relative frequency of OV and VO word order ... similar to that found in German and Dutch”. The exact distribution of OV and VO structures in main clauses in the Old Norwegian corpus material is set aside here and has to be studied in more detail in later research.

## c. OV order in Old Norwegian

*at faer manu um [slica luti] fleira spurt hafa en þu.*  
 that few may about such things more asked have than you  
 ‘as few may have asked more about these things than you’

(15r, col.a:27–28)

## d. VO order in Old Norwegian

*at þeir munu (eigi) hafa heyrt [slica lute] fyr*  
 that they may (not) have heard such things before  
 ‘that they may (not) have heard such things before.’

(7r, col.a:20–21)

The object, marked in bold, precedes the lexical verb, marked with underlining, in (1a) and (1c), and follows it in (1b) and (1d). The modern descendants of these languages are strict SVO languages, and allow only little variation in the order of the object and the lexical verb, mainly connected to specific contexts (Hróarsdóttir 2009: 274 mentions negative (and quantified) phrase constructions, object shift and stylistic fronting for Icelandic, and Haugan 2000: 83 mentions special pragmatic effects such as contrast for Norwegian). Traditional grammarians described the variation between VO and OV within one language system as word order preferences that are due to a large degree of stylistic factors (e.g. Behaghel’s 1909 law of increasing constituents). This description led to the generalization that light elements precede heavy elements, which is one of the features tested in the study presented here (prosodically light and prosodically heavy, see Section 3.2).

In addition to the variation of the verb and the object, Old Norse shows variation in the order of Aux and V, as shown in (2a–f) for OV order (see also (5) below for examples with VO order). I will here use the abbreviation Aux for both auxiliary and modal verbs, while V is used for the lexical verb. The patterns OVAux, OAuxV and AuxOV are thus analyzed as OV patterns.

## (2) a. OAuxV in Old Icelandic

*ef hann hefði það viljað faga.*  
 if he had it wanted clean  
 ‘if he had wanted to clean it’

(Biskupa sögur, 14th century, from Hróarsdóttir 2009: 260)

## b. OVAux in Old Icelandic

*þjófar mundu við hann gletzt hafa*  
 thieves would with him teased have  
 ‘that thieves would have toyed with him.’

(Munnmælasögur, 17th century, from Hróarsdóttir 2000: 188)

## c. AuxOV in Old Icelandic

*að hann haf hana drepið*  
 that he had her killed  
 ‘that he had killed her.’

(Álf, from Hróarsdóttir 2009: 259)

- d. OAuxV in Old Norwegian  
*at [iam margar þrauter oc pinsler] hafa þeir þar þolt*  
 that great trouble and torment have they there suffered  
 ‘that they suffered great trouble and torment there.’ (6v, col.b:24–26)
- e. OVAux in Old Norwegian  
*at þer muner mec lærðan hafa æpter yðrum siðum.*  
 that you would me taught have after your sides  
 ‘that you have taught me after your own ways.’ (1v, col.a:11–12)
- f. AuxOV in Old Norwegian  
*æf ec mætti [alla luti þa] muna*  
 if I may all things these remember  
 ‘if I could remember all these things’ (15r, col.a/b:30–1)

As can be observed in (2b), I analyzed complements that are required by the lexical verb as objects, meaning that both nominal objects and PPs are included in the analysis.

## 2.1 Old Icelandic

As mentioned above, variation within VP has been discussed more widely for Old Icelandic (see among others Sigurðsson 1988; Rögnvaldsson 1994/1995, 1996; Indriðason 1987; Hróarsdóttir 1996). Especially Hróarsdóttir (2000, 2009) analyzes mixed OV/VO word orders as a result of prosodic parameters and information structure. She lists four possible base word orders for the Old(er) Icelandic VP, as given in (3), relying on approaches to OV/VO variation in different languages.<sup>8</sup>

- (3) a. Head-final (base OV order): with movement of arguments (DPs, PPs, adverbials, etc.) to the right  
 b. Head-initial (base VO order): with movement of arguments (DPs, PPs, adverbials, etc.) to the left  
 c. Head-final (base OV order): with leftward V-movement (cf. Larson’s 1988 VP-shells)  
 d. Both head-initial and head-final: with a variable OV and VO base generation<sup>9</sup> (Hróarsdóttir 2000: 80)

8. See also Sundquist (2006: 110ff., 127f.).

9. Cf. Rögnvaldsson (1994/1995, 1996), based on Kroch’s (1989a, 1989b) *Double Base Hypothesis*. Rögnvaldsson (1994/1995, 1996) takes time as a factor into account, arguing against the universal base hypothesis (see Kayne 1994) for the Icelandic VP, since there would be too many movement operations involved in a timespan from over six centuries.

It is generally held that the base order in Proto-Norse was uniformly head-final in the VP and TP (cf. Lehmann 1974; Rögnvaldsson 1996), with variation in the surface position of the object (OVAux vs VAuxO)<sup>10</sup> triggered by discourse constraints. Towards Old Norse, the parameter changed, and this stage has been analyzed with a uniform head-initial base (VO-base; see Hróarsdóttir 1996, 2000, 2009; Faarlund 2004; Aamodt Nielsen 2013)<sup>11</sup> based on Kayne's (1994) theory of phrase structure. The varying surface orders including OV structures are then derived as the result of a series of cyclic leftward movement operations (e.g. short and long object movement, (remnant) VP intraposition).<sup>12</sup> I follow these studies for my analysis and assume a VO-base for Old Norwegian where OV patterns on the surface are explained through leftward movement operations. Hróarsdóttir (2000, 2009) describes the OV derivation in Old Icelandic by Subextraction out of VP and movement of the remnant vP to SpecFP in the C-domain<sup>13</sup> (see also Hinterhölzl & Petrova 2018 for Old High German). This implies leftward movement of the finite verb to a functional projection in the left periphery of the clause as a licensing movement of arguments to check the c-selection of the verb (see also Biberauer & Roberts 2005). Additional operators are then triggered by information-structural and prosodic factors. Here, I will not be concerned with further structural details of an analysis which derives OV order by leftward movement (cf. Hróarsdóttir 2009 for a formal analysis of Old(er) Icelandic, 1100–1900), but I do argue that such an analysis fits well with the data drawn from the Old Norwegian corpus. In her analysis of information structure and prosodic factors as movement triggers, Hróarsdóttir shows that both play a role for the word ordering in the Icelandic VP. However, she concludes that prosodic weight was the decisive factor in historical Icelandic. This means that old information generally precedes new information, but that light DPs (bearing old or new information) were preferred in preverbal position more often than heavy

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10. In Modern Norwegian both VAux and OV order disappeared.

11. Hróarsdóttir (2000) states that Icelandic is a VO head-initial language throughout its written history.

12. Hróarsdóttir (2000: 89) further writes that “it is generally assumed that the internal argument of the main verb is always generated in the same place, whether it is an NP or a clause” (see also Chomsky 1986, 1993; Baker 1988).

13. Hróarsdóttir (2000: 271) assumes that the crucial difference between VO and OV languages is the lack of VP-intraposition. She accounts for three transformations (2009: 269), (1) derivation of OV obligatorily involves Subextraction out of VP, (2) unfocused DPs move to Spec,AgrOP; focused DPs do not, and (3) obligatory preposing of remnant vP, containing at least the finite verb. OV word order disappears as a possible order in the history of Icelandic as soon as the possibility of Subextraction out of VP was lost. Hróarsdóttir (2009) further mentions language acquisition as a reason for simplification of movements.

DPs, while heavy objects (bearing old or new information) are usually post-verbal. Prosodic weight thus overrides information-structural conditions, displaying a (relatively) clear division of preverbal light objects and postverbal heavy objects in the Old Icelandic VP.

## 2.2 Old Norwegian

As mentioned above, Old Norwegian is mostly discussed together with Old Icelandic, often under the assumption that these two did not differ syntactically. However, it has been noted that there exists an imbalance between the material that has been worked on with regard to syntax for Old Icelandic and Old Norwegian (see Mørck 2016). The material discussed under the notion of Old Norse is often primarily Icelandic and not Norwegian. But at some point in the language history of Icelandic/Norwegian, those two also split in terms of syntax, leading to some still observable differences between Icelandic and Norwegian (as well as the other Mainland Scandinavian languages). The examples given in (4) show e.g. that the relative order of the finite verb and sentence adverbials in embedded clauses differs between Modern Icelandic and Modern Norwegian. In Icelandic, we find the verb in second position in both main and subordinate clauses, which means that the inflected verb precedes sentential adverbs (or negation) in embedded subject-initial clauses (cf. Franco 2010: 26f., Holmberg & Platzack 2008: 437f.), as in (4a–b). In modern Norwegian on the other hand, rendered in (4c–d), the linear order commonly shows that the verb follows the sentential adverb.

### (4) Icelandic

- a. *Ég veit at María las ekki bókina.*  
 I know that Maria read not book.the  
 ‘I know that Maria did not read the book.’

(Holmberg & Platzack 2008: 437)

- b. *maðurinn sem hann talar stundum við*  
 man.the that he talks sometimes to  
 ‘The man that he sometimes talks to.’

(Franco 2010: 9)

### Norwegian

- c. *Jeg vet at Maria ikke leste boka.*  
 I know that Maria not read book.the  
 ‘I know that Maria did not read the book.’
- d. *mannen som han av og til snakker med*  
 man.the that he sometimes talks with  
 ‘The man that he sometimes talks to’

The order of PPs relative to NPs has also been discussed in the context of syntactic differences between insular and mainland Scandinavian (cf. Hróarsdóttir 2000: 191, who discusses this alternation in OV subordinated clauses). However, I will not go into any details concerning these cases here, as the order of several objects relative to each other is beyond the scope of this paper. Nevertheless, it is clear that we need closer investigations of Old Norwegian and Middle Norwegian (ca. 1350–1525)<sup>14</sup> compared to Old(er) Icelandic to determine the exact nature of the divergent development and the tendencies given in the syntax. In the present study, I will concentrate on the order of objects relative to the lexical verb in embedded clauses. Comparing the results with the data we have for Old Icelandic as presented by Hróarsdóttir (2000, 2009), I argue that there is a less strict influence, or a one-way influence of the factor of prosodic weight involved in word order variation in Old Norwegian. Combined with an already weakened status of information-structural devices in Old Norwegian, the development towards the strict VO order in Modern Norwegian can already be seen in the material under discussion, suggesting syntactic differences at an early stage in the language history of Icelandic and Norwegian, where Icelandic retained the possibility for OV orders longer than Norwegian.

Assuming an underlying AuxVO base for Old Norwegian, the divergent types mentioned above (OV and VAux) are derived by leftward movement (see Section 2.1, Hróarsdóttir 2000, 2009), triggered by information structure and prosodic factors. The data drawn from the syntactically and information-structurally annotated corpus KoNoKs (see Section 1) shows that there is already considerably more VO surface structure in the material from around 1270 than the alternating OV surface structures. However, we still find five attested word order patterns (although not all are equally common), of which the OV patterns are all ungrammatical in Modern Norwegian, abstracting away from topicalization and stylistic fronting. Within AuxV order, objects could surface before both the verb and the auxiliary, between the two, or follow both the auxiliary and the verb, as shown in (5a–c). In VAux order, objects can surface either before the verb, or after the verb and the auxiliary, as in (6a–b).<sup>15</sup> In the examples below, XPs are not given in the structures, but can appear in almost every position. As stated above, the position of objects is analyzed relative to the lexical verb, leading to the OV surface patterns OVAux, OAuxV and AuxOV and the VO surface patterns AuxVO and VAuxO.

14. See Sundquist (2006: 113f.) for a broader analysis of Old Norwegian material. However, in his paper he does not compare Old Norwegian to Old Icelandic. It is also difficult to compare the analysis presented by Sundquist with the present study or the study done by Hróarsdóttir as the methodology including a definition of information-structural notions is not discussed extensively.

15. We do find the same possible patterns in other Germanic languages. See e.g. Struik & van Kemenade (2018) or De Bastiani (2020) for Old English.

- (5) a. OAuxV  
*firi þvi þar unnder bua ængi sa er [væl tæmpraðan*  
 because there under live no.one this which well tempered  
*bolstað] vil hafa*  
 dwelling want have  
 ‘because no one who wants a well-tempered dwelling place (can) live  
 beneath it.’ (12v, col.b:6–8)
- b. AuxOV  
*æf ec mætti [alla luti þa] muna*  
 if I may all things these remember  
 ‘if I could remember all these things.’ (15r, col.a/b:30–1)
- c. AuxVO  
*En æf þu vilt næma monvit*  
 and if you will take wit  
 ‘And if you seek wit’ (1v, col.a:20–21)
- (6) a. OVAux  
*at faer manu [um slica luti] fleira spurt hafa en þu*  
 that few may about such things more asked have than you  
 ‘that few may have asked more about these things than you.’  
 (15r, col.a:27–28)
- b. VAuxO  
*er forvitnaz vil [slica luti]*  
 which informed will such things  
 ‘who becomes informed on such matters.’ (4r, col.a:20–21)

Hróarsdóttir (2000: 94) notes that:

the word order pattern [Vmain–object–Vaux] is absent from the Old(er) Icelandic corpus while [Vaux–object–Vmain] exists. Not even a sentence adverb seems to have been able to intervene between the main verb and the auxiliary in the [Vmain–Vaux] order. [...] Hence, when the head (the auxiliary) allows the main verb to appear on both sides, the auxiliary and the main verb are always necessarily adjacent when the main verb precedes the auxiliary.

In the Old Norwegian material too, there could not be found an example of [Vmain–object–Vaux]. The absence of this pattern seems to be a restriction in most (if not all) languages (see Pintzuk 1996; Kiparsky 1994).

### 3. Methodology

The aim of this study is to examine syntactic variation in Old Norwegian separately from Old Icelandic to open the discussion for a direct comparison between these two languages. Various orders are tested for information-structural properties and prosodic factors. Both play a role in governing variation, as has been noted very early in the discussion of syntactic variation for Germanic languages (see e.g. Gundel 1988). Recent research on information-structurally driven word order includes e.g. Hinterhölzl & Petrova (2018 for Old High German), Taylor & Pintzuk (2012a, b for Old English) or Hróarsdóttir (2009 for Old Icelandic), e.g. in order to focalize or background complements, as well as the expression of prosodic properties associated with syntactic positions (see Hróarsdóttir 2000).<sup>16</sup> As mentioned by Struik & van Kemenade (2018: 4), the given-before-new principle is the basis for a lot of more research done on word order variation in West Germanic languages (they mention among others Bech 2001; van Kemenade & Los 2006; Petrova 2009, 2012, and Taylor & Pintzuk 2012b).

For Old Norwegian (13th century), I will assume that the distribution of OV/VO shows the same or similar results as the findings of Hróarsdóttir (2000, 2009) for Old Icelandic (earliest texts from the 14th century) in correlation to information status and prosodic weight of the object. This means that if information structure triggers word order variation in Old Norwegian, objects in OV word order are moved as a result of an information-structural trigger, leading to a homogeneous set of objects in this order (they are expected to be given). In VO order on the other hand, a heterogeneous set of objects with new and old information status is expected, as not all triggered objects might respond to the movement trigger (following Struik & van Kemenade's 2018: 4 observations for Old English). Prosodic weight is expected to affect word order to a larger degree, as it according to Hróarsdóttir (2000, 2009), can override information-structural constraints, leading to a relatively clear distribution of heavy and light objects. Heavy objects are expected to appear mainly in

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16. Another factor that may play a role is case, based on A-movement (see Chomsky 1981). Hróarsdóttir (2000: 115f.) writes that if NPs with structural case move to SpecAgrOP, "structural case would be the driving force behind object movement in Icelandic (either in overt or covert syntax), whereas we would not expect movement of dative or genitive NPs to this position in Icelandic and other languages that distinguish between structural (accusative) and inherent (dative and genitive) case marking on nominal objects, since that would require a movement from a position where inherent case is checked to a structural case position [...]" Also Taylor & Pintzuk (2012a, 2012b, 2014) mention a correlation between case and word order for Old English, where dative and genitive objects are more frequently post-verbal. I will leave this discussion for a later study of the material.



VO order (also as a blocking condition for the information-structural triggers),<sup>17</sup> while light objects (including light DPs and pronouns) are expected to be preferred in preverbal position.

I will now discuss the categories used for the analysis of information status and prosodic weight, also explaining the type of annotation done in the KoNoKs corpus. Methodologically, I tried to replicate the studies carried out by Hróarsdóttir (2000, 2009) to ensure a direct comparison of the results. However, I adjusted my annotation due to more recent research on information structure (see Birner 2006; Struik & van Kemenade 2018). I will note differences with respect to Hróarsdóttir's analysis in the following discussion.

### 3.1 Information status

In the corpus material, information status was annotated as either *new*, *given*, *anchoring* or *bridging*. While given (old) information is recoverable from the preceding discourse (following Hróarsdóttir, I limited this to referents previously mentioned within five preceding sentences), new information is not. Given information is thus not restricted to referents explicitly mentioned before, but also includes inferable information that is evoked by the situational context or shared knowledge. Based on Birner's (2006) work and the analyses given by Prince (1981) and Gundel et al. (1993), I collated the labels of information status into a binary given-new distinction for the analysis in this paper, where 'given' includes anchoring cases and 'new' includes bridging cases, as discussed in the next two sections. Also Hróarsdóttir (2000: 111f.) counts inferable cases as given, discussing information-structural notions in the context of definiteness. Information mentioned for the first time in the context, and not being inferable, was analyzed as new information.

#### 3.1.1 *Given*

The most obvious case of a given entity is an entity previously mentioned explicitly (within five preceding sentences) as shown in (7). Also entities that are situationally evoked (the referent forms part of the situation of the discourse and can be expected to be a familiar entity), or display shared or cultural knowledge, as shown in (8), are analyzed as given.<sup>18</sup>

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17. Rögnvaldsson (1996: 70) has noted a similar observation for the Old Icelandic VP, claiming that the word order [Vmain–Vaux–Object] “is very frequent if the object is a full NP, but is almost nonexistent if the object is a pronoun”.

18. The English translation of the following longer passages is taken from Larson (1917). Modifications to this translation are marked in square brackets.

## (7) Previously mentioned entities

Ða er þar ænn **vatn æitt** miket þat er heiter Logri. en i þvi **vatni** liggr ey ein litil oc ero þar í reinlifis mænn þa er calla ma hvart er vil kanonca eða eremita oc ero þeir mæð sva myclum fioldá at þar er full convænt af. stunnðum ero þeir fleiri. En sva er sagt fra **œy þeiri** at hon er heilsom oc æcki sottal oc sæinna ælldazc mænn þar íþeiri œy en iaðrum stoðum alandino.

‘There is still another quite extensive **lake** that is called Logri. In **that lake** is an **islet** inhabited by men who live a celibate life and may be called, as one likes, either monks or hermits; they live there in such numbers that they fill the island, though at times they are fewer. It is said concerning **this isle** that it is healthful and quite free from diseases, so that people grow aged more slowly there than elsewhere in the land.’ (6v, col.a/b:27–5, translation by Larson 1917: 109)

The example refers to a lake called *Logri* and an isle that can be found in this lake. The same lake and the same isle are referred back to with a demonstrative and the same referent used in repetition in *þvi vatni* and *œy þeiri*.

## (8) Situationally evoked / shared knowledge

En æf þu ert staddr í kaupstauðum eða hvar sæm þu ert þa ger þec siðsaman oc lettlatan þat gœrir mann vinsælan við alla goða mænn. Væn þu þec arvacran um morna oc gacc þægar fyst til **kirkiu** þar sæm þer þyckir bæzt fallit at lyða tiðum. ‘When you are in a market town, or wherever you are, be polite and agreeable; then you will secure the friendship of all good men. Make it a habit to rise early in the morning, and go first and immediately to **church** wherever it seems most convenient to hear the canonical hours.’

(2r, col.a:24–30, translation by Larson 1917: 80)

Here the church has not been mentioned before in the context, but it can be assumed that the reader of this text was familiar with the fact that market towns have churches at this time, since Christianity was tightly connected to the Norwegian society, and that it was expected of a Christian to go there to hear the Mass and prayers.

As mentioned above, also elaborating inferables in the sense of Birner (2006), where the referent is anchored to an already mentioned referent, were analyzed as *given* entities, as in (9). Here the referent itself has not been mentioned before in the discourse. It can, however, be inferred from a related constituent and is also accessible without an anchor.

## (9) Elaborating inferable

En æf ukunn eru þer kaup i bœ þa skygn þu vandlega at hværstu þeir fara mæð **sinum kaupum** er mæster oc bæztir kaupmænn ero kallaðer.

‘If you are unacquainted with the traffic of the town, observe carefully how those who are reputed the best and most prominent merchants conduct **their business**.’ (2r, col.b:5–8, translation by Larson 1917: 80)

In the example, *sinun kaupum* is activated due to the concept that is evoked by a merchant. The merchant has been mentioned before in the discourse and the existence of some sort of business can thereby be inferred from the existence of the merchant. Struik/van Kemenade (2018: 8) mention that “inferred objects are often body parts or cases of inalienable possession.” The example above does not show this kind of possession, but anchors *kaupum* directly to the referent of the merchant due to the use of a possessive pronoun, and is even accessible without this anchor.

### 3.1.2 *New*

Elements that are unrecoverable or unpredictable from the preceding discourse were analyzed as new entities. This includes referentially new objects (Gundel et al. 1993), and new discourse referents (Karttunen 1976), as in (10). But also bridging inferables (Birner 2006), where the referent is anchored to an already mentioned entity, were analyzed as new when they were not accessible without an anchor, as in (11).

#### (10) New discourse referent

þa ætla ec fa vita mikilleica lannzens en aller geta þæss at þat se mæginlannd oc afast við annur mæginlonnd þvi at þat er asynt at þar er fiolðe þeira dyra er mænn vitu at amæginlonndum fœðaz en litt i ey lonndum. Þar er **heri margr** oc **vargar** oc **mikill fiolðe reindyra** oc þyckaz mænn vita at þæssu dyr fœðaz æcki á œylonndum nema mænn flyti í þat þyckiaz mænn oc vist vita at ængi maðr hæfir flutt þau á Groenaland nema þau hafa siolf runnit af oðrum mæginlonndum.

‘(...) but I believe that few know the size of the land, though all believe that it is continental and connected with some mainland, inasmuch as it evidently contains a number of such animals as are known to live on the mainland but rarely on islands. [Many a hare] and wolves are [there ...] and there **are multitudes of reindeer**. It seems to be generally held, however, that these animals do not inhabit islands, except where men have brought them in; and everybody seems to feel sure that no one has brought them to Greenland, but that they must have run thither from other mainlands.’

(11v, col.a/b:26–7, translation by Larson 1917: 143)

#### (11) Bridging inferable

þat er oc hovæska at kunna vita ner er hann þarf hændr sinar niðr firir sec at racna lata oc kyrrar hafa eða ner er hann ma sinar hænndr röera til æinar hværrar þionosto annat hvart sialfum ser eða aðrum at væita eða hvært hann skal andliti sinu snua oc briosti eða hværsu hann skal snua baki eða hærðum. Sva oc at kunna goða skilning a þvi ner hann ma **skikkiu sina** i frælsi bæra eða **hott eða kvæif** æf hann hæfir eða ner hann skal þarnazk.

‘It is also courtesy to know when a man ought to let his hands drop gently and to keep them quiet, or when he ought to move them about in service for himself or for others; to know in what direction to turn his face and breast, and how to turn his back and shoulders. It is courtesy to know precisely when he is free to wear his cloak, hat, or coif, if he has one, and when these are not to be worn.

(33r, col.a/b:28–8, translation by Larson 1917: 227)

In the example, *skikkiu*, *hott* and *kvæif* are linked to the man described above because of the use of the possessive pronoun *sina*. The introduction of these entities, however, cannot itself be inferred from the man.

### 3.2 Prosodic factors

Hróarsdóttir (2000: 109ff., 2009: 263ff.) analyzed object-*heaviness* by dividing the objects first into two groups according to their type, with pronouns as light objects and full NPs and DPs as heavy objects. In a second step she divided DPs further into three groups according to the number of words involved: one word, two words and three+ words. For the present study, I measured prosodic weight continuously in two steps, but decided on a more transparent analysis concerning length connected to heaviness. Objects were divided into three categories for their type: (1) light DPs (pronouns<sup>19</sup> and demonstratives), (2) bare NPs (nominals without specifier or adjunct), (3) heavy (full) DPs and PPs, following the hierarchy given in (12).

(12) Hierarchy for prosodic weight by object type

[*light elements* light DP (pronoun < demonstrative) < bare NP < full DP < PP  
*heavy elements*].

The examples in (13) illustrate the division of DPs according to their heaviness following the hierarchy in (12). Here, only sentences with OV word order are exemplified.

(13) a. Light DP

*oc æf ec hæfi þætta ætlat æptir rettri skipan*

and if I have this thought after right form

‘and in case I have thought this out correctly.’

(13r, col.a:5, translation by Larson 1917: 148)

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19. I excluded clitics from this. Pronouns in the annotation had to fill a position separate from the verb.

## b. Heavy DP

*oc samtængiz þa annat sinni ny sætt þæira a mæðal*  
 and tie/bundle.up then other way new peace their on between  
*æptir því sæm fyrir var sagt. þa er [um þæira*  
 after this as before was said then which about their  
*sættar gerð] var rætt.*  
 peace.making was told  
 ‘so they make a covenant once more in the way that we told earlier when  
 we described the peace making.’

(16v, col.a:25–27, translation by Larson 1917: 161)

In a second step, I measured prosodic weight by the number of syllables and divided objects into two categories: Light objects, including entities with 1–2 syllables, and heavy objects, including entities with 3–6 syllables. Clausal objects that obligatorily follow the main verb were excluded from both analyses concerning prosodic weight. The examples given in (13) can be transferred to this division of light and heavy objects as well, with *þætta* representing an object with two syllables and *um þæira sættar gerð* as object with six syllables.

Hróarsdóttir (2009) states in her analysis of the Old Icelandic VP that prosodic factors override information-structural conditions. Once the object can be characterized as heavy<sup>20</sup> it occurs in postverbal position, while pronouns and light DPs occur in preverbal position.

### 3.3 Dataset

The dataset of the corpus consists of (so far) 16310 words and counts 845 main clauses and 1093 subordinate clauses. In the data drawn from KoNoKs,<sup>21</sup> OV patterns are mainly found in subordinated clauses, which is why I decided to focus on those in this dataset. To study OV/VO variation connected to the factor of

20. Heavy objects are DPs in contrast to pronouns, and DPs with three+ words in contrast to DPs with one word in her analysis.

21. As mentioned above, the KoNoKs corpus entails one Old Norwegian coherent text, annotated for syntax and information structure. For the comparison with Old Icelandic, I chose to take the results from Hróarsdóttir (2000, 2009) into account, as the same factors are considered in her approach. However, as mentioned above, there exists a mismatch between the amount of annotated material for Old Icelandic and Old Norwegian. Hróarsdóttir (2000: 9f.) could thus take 16 texts (14th–19th century) into account for her analysis of the Old Icelandic VP. Most of the texts are literary works (mainly romances and stories of bishops). I therefore cannot exclude the possibility that different results might occur due to differences in specific text genres considered in the two corpus studies.

information status and prosodic weight of the object, I extracted clauses with a finite auxiliary, a non-finite main verb and an object. These structures enabled me to find word orders displaying movement of the object rather than movement of the verb. Of 1093 sentences studied, 475 matched the dataset requirements, and of those 93 clauses displayed the order VAux and 382 clauses the order AuxV. I followed Struik & van Kemenade (2018) and excluded negated and quantified objects from the study and this dataset. These objects are not referential and may show different syntactic behavior (see also Pintzuk & Taylor 2004, 2006). I also excluded cases in which the information status of the object was unclear – mostly due to generic reference, as in (14) below with the definite constituent *hina bæztu mænn*, which has not been mentioned before in the discourse.

- (14) *oc kenn hværium gott er þat vil af þer næma oc þyz*  
 and know every good which this want from you take and construe  
*iamnan [hina bæztu mænn]*  
 always the best men  
 ‘and teach the right to every (man) who wishes to learn from you; and always  
 associate with the best men.’ (2v, col.b:19–21, translation by Larson 1917: 82)

The annotation of information status and prosodic factors was done in the 1.6. EXMARaLDA Partitur Editor,<sup>22</sup> mainly following the annotation scheme used in the two DFG-projects ‘Informationsstruktur in komplexen Sätzen – synchron und diachron’ (2011–2017) and ‘Informationsstruktur in älteren indogermanischen Sprachen’ (2009–2016). The data of KoNoKs is planned to be part of the ANNIS3 corpus (see Krause & Zeldes 2016) to ensure that the Old Norwegian annotated data material is accessible for future research and easily comparable with other languages that are part of ANNIS3. To extract the results for the study, I used the ANNIS3 query system. First, I tested the various surface orders identified for Old Norwegian against their information status. The results and implications are discussed in more detail below. In a second turn, I concentrated on prosodic weight as a factor and then examined the interplay between information status and weight in determining word order.

22. EXMARaLDA for Windows, tool-set 2017: <https://exmaralda.org/de/offizielle-version/>.

## 4. Results and theoretical implications

After the exclusion of uncertain cases, as well as negated and quantified objects, my dataset consists of 243 subordinated clauses with a referential object and two verbs. As this is still a very small set, I will first and foremost discuss tendencies observable in the Old Norwegian corpus material and cannot give conclusive results. Also, within the KoNoKs corpus there is so far just a single Old Norwegian text annotated for syntax and information structure. This is of course not representative of the whole Old Norwegian period or all preserved texts of the time but will give us a starting point to compare Old Icelandic and Old Norwegian in more detail.

### 4.1 Information status

As a null hypothesis, I expect that the data of Old Norwegian (13th century) reflect roughly the same results given for Old Icelandic by Hróarsdóttir (earliest sample texts from the 14th century). This means that there should be a significant difference between word order with objects bearing new information and objects bearing given information in accordance with the categories described above. Drawing on the discussion above, I assume that all word order patterns are derived from a VO-base by information-structurally driven scrambling. First, Figure 1 shows the overall distribution of objects across the various patterns in KoNoKs.

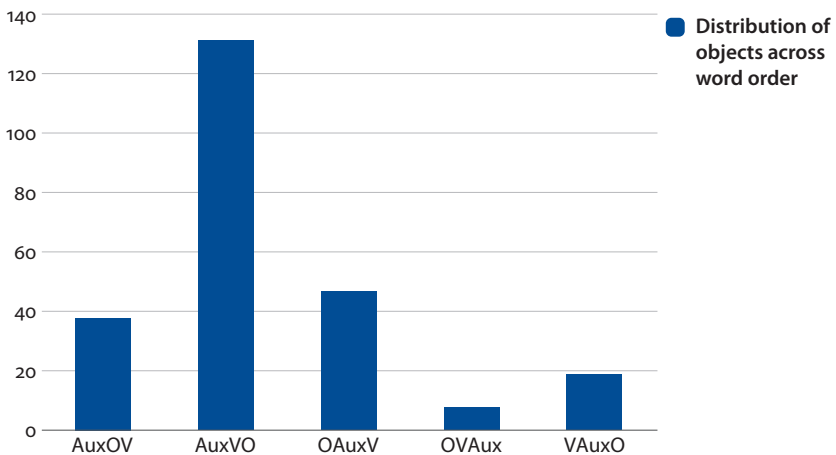
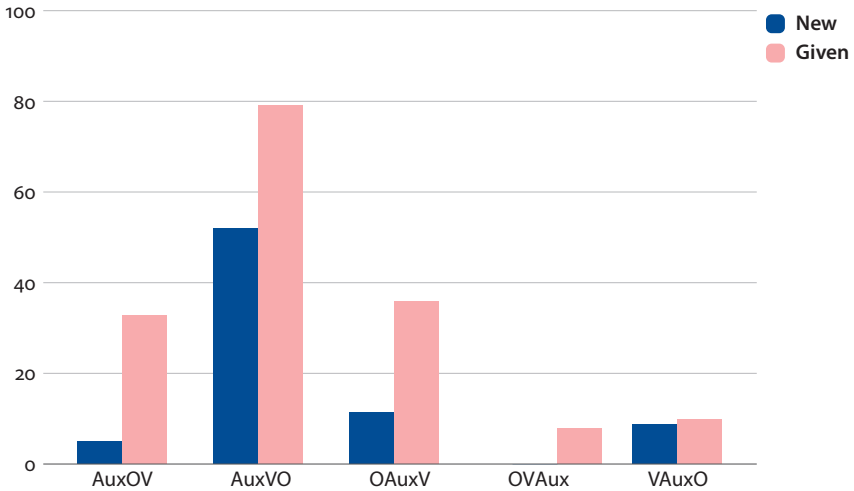


Figure 1. Overall distribution of the word orders

The distribution of VO and OV order in VAux and AuxV clauses shows an overall higher occurrence of AuxV order, and that the assumed AuxVO-base order is indeed the dominant word order pattern in Old Norwegian. Furthermore, there are just a few cases of VAux patterns including a referential object in the corpus material, and VO order is dominant in the remnant VAux cases.

In a second step, I analyzed the objects in these patterns for their information status (*given vs new*). The results are summarized in Figure 2.

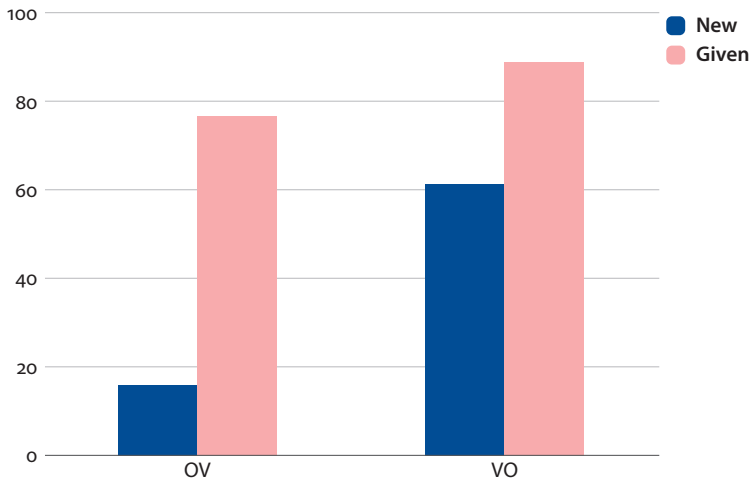


**Figure 2.** Order distribution with regard to information status

The results show that given objects are distributed across all word order patterns (both VO and OV) with considerably more examples than new objects that are especially under represented in OV order. Following the tendency described by the given-before-new principle, given objects in Old Norwegian seem to occur more likely in OV order than new objects. In fact, this distribution is striking, as there are hardly any new objects in preverbal position and none in OVAux order. Thus, objects previously mentioned within the preceding discourse are generally favored in an early position in the clause, while objects introduced for the first time in the context are preferred in a later position (see also Bech 2001; Pintzuk & Taylor 2006, Hróarsdóttir 2000, 2009). The post-verbal position generally seems more mixed, showing a heterogeneous distribution of objects concerning their information status, with VAuxO almost evenly distributed for given/new objects. VO order at this period of Old Norwegian (1270s) already starts to display features more similar to Modern Norwegian, where the information-structural effect in word order is less present and other linguistic devices are in use to express information structure.



The difference between VAux and AuxV cannot be analyzed in much detail in this study since there are just few instances displaying a VAux order.<sup>23</sup> Nevertheless, it seems that the effect of information-structural triggers is stronger in VAux clauses, showing that given objects favor a preverbal position, as there are no cases of new objects in OVAux structures. Post-verbal order again shows a mix of new and given objects. Figure 3, displaying just OV/VO variation in correlation with information status shows the above-described results of information-structural ordering more clearly (see Table 1 and Table 2 below for exact numbers).



**Figure 3.** Overall order distribution OV/VO with regard to information status

Following the literature on Old Norse syntax, I assumed that the distribution of objects over OV/VO in Old Norwegian with respect to information status is similar to the findings of Hróarsdóttir (2009: 264) for Old Icelandic. This seems to be true, however, there are so far no studies focusing on a more detailed comparison between Old Icelandic and Old Norwegian syntax – and thus no studies analyzing the

23. A systematic difference in the distribution of objects in VAux and AuxV was mentioned by Taylor and Pintzuk (2015) for Old English. They showed that post-verbal objects are less frequent in VAux clauses than in AuxV clauses and concluded that the alternations of OV/VO and VAux/AuxV are syntactically independent. Accent and rhythm may play an important role in this context (cf. also Swerts & van Wijk 2004 for Dutch). An interesting research question relevant in this context concerns the reason for why V moves leftward in VAux clauses. Milićev (2016) writes for Old English that VAux clauses express a presupposition, and that because of this the whole proposition is information-structurally marked. This might be a reasonable trigger for the movement of V. I plan to have a more detailed analysis on this matter in the future, comparing AuxV and VAux clauses.

differences between these two. It is true that for both languages the same possible word order patterns occur on the surface. But an in-depth examination of the data shows that Old Norwegian does in fact differ from Old Icelandic. Table 1 shows the distribution of OV order in the Old Norwegian material, divided by structures with new information status and given information status. All numbers are set in relation to VO order (OV-new to VO-new and OV-given to VO-given). The percentages for VO-new and VO-given are not included in the table. To compare this data directly to Old Icelandic, I included the data from Hróarsdóttir's (2009) analysis for two periods of Old Icelandic.

**Table 1.** Percentage OV order in Old Norwegian and Old Icelandic

		OV-new	OV-given
Old Norwegian	13th c.	20.8% (16/77)	46.4% (77/166)
Old Icelandic	14th c.	26.9% (75/279)	81.3% (156/192)
Old Icelandic	18th c.	16.9% (20/118)	47.6% (39/82)

First, these percentages show a general decrease for OV word order in Icelandic. Also for Norwegian it is a well-known fact that at some point in the language history all OV structures disappeared as possible word order patterns, although we cannot make as concrete statements about the decrease in time as for Old Icelandic (due to missing annotated corpora for Norwegian of different time periods).<sup>24</sup> I nevertheless considered this aspect here, since these numbers show an interesting effect of information status in correlation to word order over time. They indicate that in the Old Norwegian text analyzed in this study (13th century) the probability that information status is a factor that has an effect on word order resulting in an OV surface structure is approximately twice as high if the object is given. For Old Icelandic on the other side, the probability for OV orders is thrice as high if the object is given, and this effect does not change throughout the centuries even though there are fewer structures displaying OV order in general in the corpus material. First, this means that the language system of both Icelandic and Norwegian reacts strongly to the factor of information status. Second, the numbers imply that there is a syntactic difference between the two languages early in the language history,

24. An analysis of the decline of OV in Norwegian is given in Sundquist (2006). However, in his material he faces the problem of a shift in text genres throughout the time analyzed (his material after 1275 mainly consists of diplomatic letters, whereas his earliest texts are law manuscripts and the text of *Konungs skuggsjá*), as well as the lack of consistently annotated corpora containing this material. Also, as mentioned in footnote 14, the definition of information-structural notions is not exhaustive in this paper, so that a direct integration of the results presented here within the overview given by Sundquist is not possible at the moment.

where the influence of information status as a structuring device is already weakened early in Old Norwegian, while this factor is stronger for the Icelandic system in approximately the same period.

Considering the language history of Norwegian, the weakened status of information status as a structuring device is already an indicator and part of a larger syntactic development, namely the fixation of a strict VO word order.<sup>25</sup> As a result, information structure is less reflected in word order and more often expressed through other linguistic devices. Note however, that these results might not reflect word ordering tendencies of the whole Old Norwegian period or all types of texts. However, these findings should inspire detailed analyses on Old Norwegian compared to Old Icelandic. The examination presented here and the given results can be used as a starting point for similar analyses on other Old Norwegian texts from a similar time in further research, since they may indicate an early syntactically divergent development.

## 4.2 Prosodic weight

Turning now to the factor of weight, Hróarsdóttir (2009) shows that this is the decisive factor for word ordering in Old Icelandic by analyzing the interplay. She states that (heavy) full DPs appear more often in VO order than pronouns and light DPs, which were preferred in preverbal position. On the other hand, Hinterhölzl & Petrova (2018) show that heavy constituents (phrases containing two words and more) follow the verb more often in Old High German, but that information-structural requirements can override this condition (see also Hinterhölzl 2010), while Taylor & Pintzuk (2012a) argue for the relevance of both factors in Old English. From these studies it becomes clear that both factors are involved in word order variation in Germanic languages, but that their impact varies in the different languages. As mentioned above, for the examination of prosodic factors in Old Norwegian, I analyzed the objects in two independent ways and excluded clausal objects from the analysis. I also did not distinguish between VAux and AuxV clauses anymore. In Tables 2 and 3, the results of both analyses are given separately, and then discussed together afterwards. Table 2 shows the results of the analysis of the object type, and Table 3 the results of the analysis of the syllable number of the object.<sup>26</sup>

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25. Again, ignoring structures with topicalization and stylistic fronting, and accounting only for the predominant word order that sets this language to be a VO language.

26. Clitics are not included here. See footnote 19.

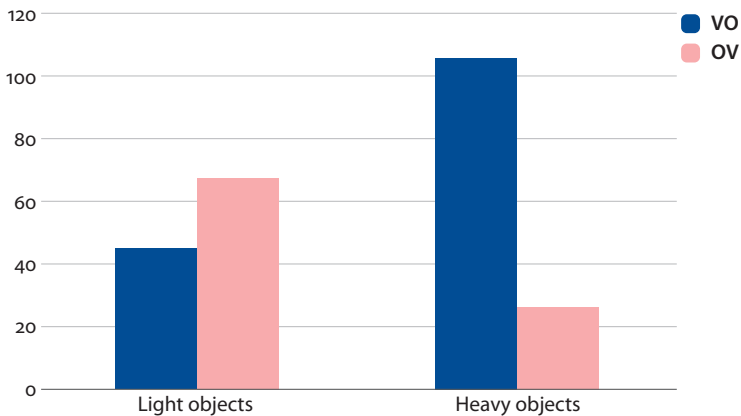
**Table 2.** Order distribution in OV/VO with regard to weight (object type division) in Old Norwegian

Light DPs (pronouns and demonstratives)			Bare NPs			Heavy DPs (full DPs and PPs)		
OV	VO	%OV	OV	VO	%OV	OV	VO	%OV
45	18	71.43%	25	42	37.31%	23	90	20.35%
63			67			113		

**Table 3.** Order distribution in OV/VO with regard to weight (syllable division) in Old Norwegian

Light objects (1–2 syllables)			Heavy objects (3–6 syllables)		
OV	VO	%OV	OV	VO	%OV
67	45	59.82%	26	105	19.85%
112			131		

First, it may be noted that the results of the two analyses show the same tendency, namely that lighter elements are favored in a higher position in the structure and appear more often preverbally. Conversely, the probability of VO patterns increases relative to the heaviness of the object. Figure 4 captures this correlation.

**Figure 4.** Correlation of word order patterns and prosodic weight

Prosodic weight is clearly a driving factor in the ordering of constituents in Old Norwegian. The correlation shown in Figure 4 also reflects the cross-linguistic tendency that light elements precede heavy elements (see e.g. Behaghel 1932). Further, Hinterhölzl (2013: 187) adds to the discussion that “discourse-given elements

are typically realized as light elements [often pronouns], while [new and] focused constituents may count as prosodically heavy elements”. I therefore examined the correlation between prosodic weight and information status in a second step. The results are given in Tables 4 and 5 below.

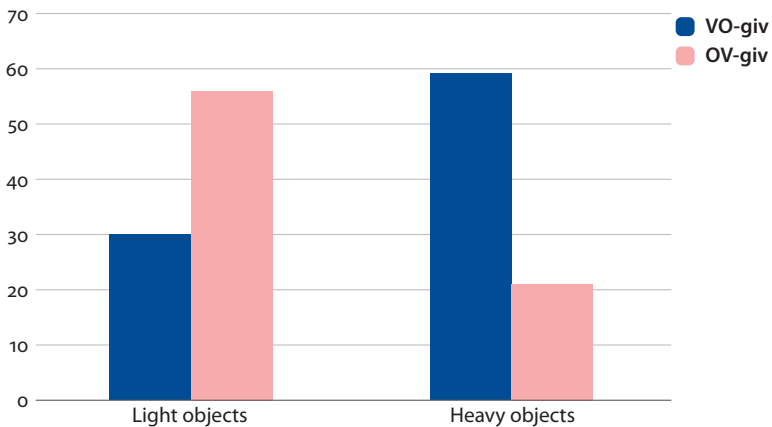
**Table 4.** Order distribution in OV order: Correlation information status and weight (object type division)

	Light DPs (pronouns and demonstratives)			Bare NPs			Heavy DPs (full DPs and PPs)		
	OV	VO	%OV	OV	VO	%OV	OV	VO	%OV
given	45	18	71.43%	14	14	50.00%	18	57	24.00%
new	0	0	0.00%	11	28	28.21%	5	33	13.16%

**Table 5.** Order distribution in OV order: Correlation information status and weight (syllable division)

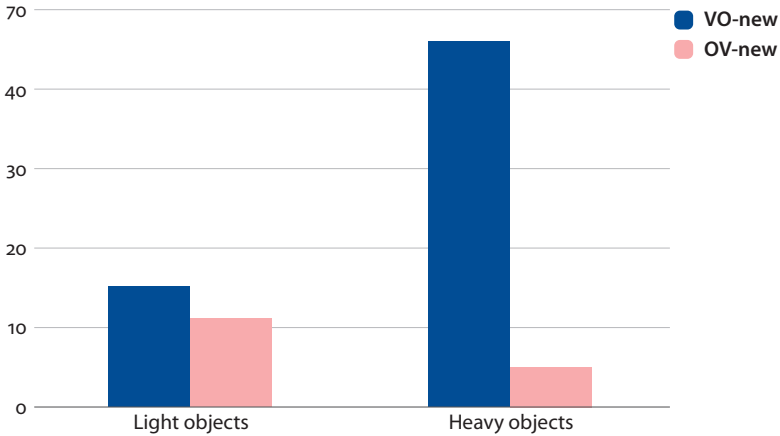
	Light objects (1–2 syllables)			Heavy objects (3–6 syllables)		
	OV	VO	%OV	OV	VO	%OV
given	56	30	65.12%	21	59	26.25%
new	11	15	42.31%	5	46	9.80%

The results of the correlation show that given objects that classify as light indeed occur predominantly in OV order, while given objects that classify as relatively heavy are predominantly post-verbal. This is visually captured in Figure 5 below.



**Figure 5.** The derivation of given objects with regard to prosodic weight

The distribution of new objects in correlation with prosodic weight shows an overall tendency for VO for both relatively light and heavy elements (except pronouns and demonstratives, which normally are given elements and thus do not appear as new entities). This derivation is captured in Figure 6 below.



**Figure 6.** The derivation of new objects with regard to prosodic weight

Relatively heavy objects favor a later position regardless of their information status, while light objects show a tendency to be distributed according to their information status with given objects occurring more often in preverbal position and new objects occurring more often in post-verbal position.

Hróarsdóttir (2009) concluded that weight is the decisive factor in word ordering in Old Icelandic. Also for the data extracted from the KoNoKs corpus, the interplay of prosodic rules in terms of weight and information status is visible. Weight clearly is a significant factor in the ordering of constituents in Old Norwegian, and it seems to be able to override information-structural conditions. However, this does not seem to function in the same strict way as described by Hróarsdóttir (2009) for Old Icelandic. In Old Icelandic, heavy objects appear predominantly in post-verbal position and light objects appear predominantly in preverbal position – regardless of their information status. Even though VO is preferred with new information, relatively heavy objects are also in Old Norwegian favored in a later position regardless of their information status, as can be seen in the Examples (15a–b).

- (15) a. *Ero ænn þeir lutir er æigi ma missa [þæssari ræðo]*  
 are yet these things which not may omitted this talk  
 ‘Yet there are these things which should not be omitted from this talk.’  
 (2v, col.b:10–11)

- b. *nu mæð þvi at ver hafum rætt [um þa luti]*  
 now with this that we have talked about this thing  
 ‘Now that we have talked about this matter.’ (9r, col.b:8–9)

However, if the object is light (both in terms of object type and in terms of syllable number), Old Norwegian does not show a strong tendency for a preverbal position in all information-structural contexts (see Table 5). The information status of the object is the decisive factor in these structures. This distribution is exemplified in (16a–d). The examples in (16a–b) show light new objects that appear in VO order, and (16c–d) are examples of light given objects that appear in OV order. For Old Icelandic, Hróarsdóttir (2009: 265f.) concludes that all light objects (given/new) are generally preferred in a preverbal position.

- (16) a. *at hann mægi niota kyrrar væðrattu um sumarit oc*  
 that he may enjoy calm weather around summer.the and  
*leita ser matar i goðum friðe hia viðum stronndum*  
 search yourself meat in good peace at wide shore  
 ‘so that he may enjoy the calm weather of summer and (may) search for  
 food in peace at the wide shores.’ (5r, col.b:10–11)
- b. *oc vist vita at ængi maðr hæfir flutt þau*  
 and surely know that no man have moved them  
 ‘and surely know that no one has moved/relocated them.’ (11v, col.b:5–6)
- c. *at þer muner mec lærðan hafa æpter yðrum siðum.*  
 that you would me taught have after your customs  
 ‘that you have taught me after your own ways.’ (1v, col.a:11–12)
- d. *oc æf ec hæfi þætta ætlat æptir rettri skipan*  
 and if I have this thought after right regulation  
 ‘and if I have thought this out the right way’ (13r, col. a:5)

We thus find a relatively homogenous set of objects in OV order with regard to information status, namely given objects. In the corpus material, there are also examples of given objects classified as relatively heavy in terms of prosodic weight in preverbal position, as exemplified in (17). However, as prosodic weight seems decisive if the object is heavy and with the started/ongoing fixation towards a strict VO word order, not many examples of given heavy objects in OV order are found in KoNoKs.

- (17) a. *oc skaltu [þann varning] sælia*  
 and should.you this product sell  
 ‘and should you sell this product’ (2v, col.a:1–2)
- b. *er [um þæira sættar gerð] var rætt.*  
 which about this peace.making was told  
 ‘which was said about this peace making.’ (16v, col.a.:26–27)

- c. *æf þu villt [þæssarrarr iðrottar] freista.*  
 if you want this profession try  
 ‘if you want to try this profession’ (16v, col.b:14)

In VO order, we find a mix of new objects (heavy/light) and given heavy objects that are post-verbal for reasons of weight of the object, overriding the information-structural constraints.<sup>27</sup> Also light given objects start to appear in VO patterns, as in (18), which I take as part of the mentioned syntactic development in Norwegian where information structure as a structuring device is already weakened.

- (18) a. *En æf þu vilt næma monvit*  
 but if you want take wit  
 ‘But if you seek wit’ (1v, col.a:20–21)
- b. *en æigi deyia fyr en hann er or flutr eynni*  
 but not die before when he is from move island  
 ‘but not die before he was moved (away) from the island’  
 (6v, col.b:10–11)

## 5. Some remarks on the data

Hróarsdóttir (2009: 265f.) concludes that:

[l]ight objects with old information (unfocused) are always preverbal and heavy objects with new information (focused) are always postverbal. Light objects with new information are also usually preverbal, while heavy objects with old information are usually postverbal.

A tendency for a prosodic division of objects into positions to the right or to the left of V can also be seen in Old Norwegian. However, as stated above, while heavy elements in Old Norwegian occur in post-verbal position more often than light objects (regardless of their information status), the opposite does not hold for light elements. They are found primarily in preverbal position when they are given but appear to a higher extent in post-verbal position when they are new. Prosodic weight does not

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27. The correlation of information status and prosodic weight as word ordering devices leads to an interesting observation within the Germanic languages. According to literature on Old High German and Old English, languages in which prosodic factors determine word order seem to show a development towards VO (Old English, Old Icelandic, Old Norwegian), while languages in which information status determine word order show a development towards OV (Old High German). However, this observation has to be strengthened by the analysis of other languages, such as Dutch.



seem to play a decisive role for structures including light DPs in Old Norwegian. Concerning information status, examples of OV order include to a larger extent given objects in the corpus material, as the result of leftward movement triggered by the information-structural status of the object. However, there are also few examples of new and heavy preverbal objects, as in (19) below.

- (19) a. *En æf þu skalt [kaupfærð þina] yfir haf bua*  
 but if you should trade.journey your over ocean prepare  
 ‘But if you are preparing your trade/journey over the seas’  
 (3r, col.b:12–13)
- b. *at [iam margar þrauter oc pinsler] hafa þeir þar þolt*  
 that great trouble and torment have they there suffered  
 ‘that they suffered great trouble and torment there.’ (6v, col.b:24–26)

The object in cases like these might be preverbal because of stylistic devices used to add emphasis or contrast (cf. Struik & van Kemenade 2018 for Old English). Also cases of light new objects in preverbal position in Old Norwegian might be explained as the result of such devices. Additionally, there are a few instances of new heavy objects including coordination in the corpus material, where just one part of the coordination is fronted, while another part is left behind the lexical verb, as shown in (20).<sup>28</sup>

- (20) *Hann kenner konngom nær þeir skolu [borger gæra eða castala].*  
 he teaches kings near they should fortresses make or castles  
 ‘It (ant) teaches kings that they should build castles or fortresses nearby.’  
 (5v, col.a:27–29)

A detailed discussion of the cases exemplified in (19) and (20) was put aside in this article and needs to be done in future research. Examples of light given objects that are in VO order are assumed to be cases of the syntactic developments mentioned above (fixing of a strict VO order with information-structural triggers as less strong factors already early in Old Norwegian: the information-structural trigger for movement is no longer obligatory). For Old English, Struik & van Kemenade (2018: 19) conclude, because of a similar correlation, that “the correlation between OV order and IS works one way: if an object is preverbal it is given, but this does not mean that a given object is necessarily preverbal.” It seems that the same tendency applies for Old Norwegian. The tendencies for Old Norwegian are summarized in Tables 6 and 7. Table 6 shows the positional distribution for objects in correlation with information status and prosodic weight, and Table 7 shows the percentage distribution

28. Of course, in examples like this, it could be argued that the second part of the coordination is a remnant of an elliptical clause, rather than one coordination that has been split.

for OV order in these contexts. Again, all numbers are set in relation to VO order. The asterisk symbol in Table 6 marks the difference to the Old Icelandic material analyzed by Hróarsdóttir (2009).

**Table 6.** Positional distribution

objects	light	heavy
given	preverbal	post-verbal
new	*post-verbal	post-verbal

**Table 7.** Probability for OV (percentage distribution)

%OV	Light	Heavy
given	65.1%	26.3%
new	42.3%	9.8%

The next step is to get a clear and detailed picture of the facts concerning the exceptional cases mentioned above, and to see to what extent these structures were influenced by information structure and prosodic weight.

## 6. Conclusion

I addressed variation in word order patterns in Old Norwegian from a universal VO base related to the expression of information-structural categories and prosodic factors. The findings showed a tight correlation between both information status and prosodic weight of the referential object in subordinate clauses containing a finite auxiliary and a non-finite main (lexical) verb, and its positional realization relative to the lexical verb. OV is generally preferred with given information, while VO shows a more diverse picture in terms of information status of the object. The prosodic weight of an object significantly determines its surface position, with heavier objects surfacing more often in post-verbal order. This means that even though OV is preferred with given information, weight can override this requirement if the object is heavy (as in Old Icelandic). However, in contrast to Old Icelandic, there does not seem to be the same clear division of objects for preverbal (light) and post-verbal (heavy) position in Old Norwegian. Instead, light objects seem to be distributed over OV/VO according to their information status.

It is now important to determine whether the shown effects of information status and weight on word order are restricted to the text represented in the KoNoKs corpus, or if this is also found in other Old Norwegian texts. In any case, the findings of this study should at least encourage to do more detailed analyses on Old

Norwegian compared to Old Icelandic, as they may indicate that a difference in the syntactic development happens already very early in the language history. As for the next steps, I plan to look into possible effects of case and definiteness,<sup>29</sup> and also investigate if there are considerable differences between the positions of new information focus and contrastive focus as suggested by Hinterhölzl & Petrova (2018).

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<sup>29</sup>. A cross-linguistic tendency shows that indefinite nominal objects usually do not occur in a high position and do thus not move to the left (scramble, cf. de Hoop 1992; Diesing 1992). This correlates with information status, as definiteness generally correlates to old information, which preferably precedes newer information. I therefore expect that indefinite objects are found more often in VO order than definite objects. However, the effect might not be as straightforward, since marking of definiteness is not yet fully developed in Old Norwegian (13th century). Hróarsdóttir (2000: 141) found for Old Icelandic, that indefinite complements precede definite complements with a correlation to weight: “heavy and/or referential NPs prefer a postverbal position in Old(er) Icelandic; they almost never occur preverbally.”

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# Bare quantifiers and Verb Second

## The view from Old Italian

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The pre-participial syntax of the bare quantifiers *tutto* ‘everything’, *molto* ‘much’ and *niente* ‘nothing’ in Old Italian has been argued to be determined by the optional or obligatory presence of a classifier-like category  $n^{\circ}$  in their internal structures (Poletto 2014; Garzonio & Poletto 2017, 2018). Their ‘upstairs’, i.e. CP syntax, however, does not seem to be sensitive to this distinction. All of these bare QPs are equally subject to the V2 property and can appear before the inflected verb, showing the exact same distributional properties. It will be shown, however, that on the basis of interpretative differences, *tutto*, *molto* and *niente* are not moved to the same projection: *molto* targets a lower projection in the focus field, we identify as Mod(ifier)P in Rizzi (2004), while *tutto* and *niente* target positions for either contrastive or ‘new information’ focus. More generally, this will be shown to follow from the pragmatic nature of the V2 phenomenon in OI.

### 1. Introduction

Bare quantifiers, i.e. quantifier words that seemingly have no domain restrictor, either in their structure or in the sentence, are known to have a peculiar distributional behaviour in many languages of the world. The classic go-to example is Modern French, where object bare *tout* ‘all, everything’, *rien* ‘nothing’ and other bare degree QPs (or quantity words) like *beaucoup* ‘much’ and *trop* ‘too much’ appear pre-participially, a position from which regular and/or quantified DPs are generally banned (examples from Kayne 1975):<sup>1</sup>

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1. Regular DPs are not allowed in pre-participial position in French (Kayne 1975: 11, n12), and, conversely, bare QPs are not found in post-participial position, unless they are focused (Kayne 1975: 38ff.).



- (1) a. *Elle a tout lu.*  
 she has everything read  
 ‘She has read everything.’  
 b. *Elle n'a rien lu.*  
 she not=has nothing read  
 ‘She hasn’t read anything.’

Modern Italian does not show such a special placement: bare *tutto* ‘all, everything’, bare *niente* ‘nothing’ and bare *molto* ‘very/much’ appear post-participially as any regular DP,<sup>2</sup> although some of them, in particular *tutto* and *molto*, can be shown to have a dedicated position in the IP domain (Cinque 1999).

But this was not always the case: in the earliest stages of the language (13th–14th century; Old Italian, OI),<sup>3</sup> these very same bare QPs behaved much like their Modern French counterparts above. Garzonio and Poletto (2012, 2017, 2018) and Poletto (2014) show however that their distribution presented some interesting asymmetries, which are not found in French: while *tutto* and *molto* always occurred pre-participially, *niente* could appear both pre- and post-participially. This distributional difference in the ‘downstairs’ syntax (low IP area) has been argued to be the reflex of the different internal structures associated with each of these QPs: movement of a bare QP to a dedicated position in IP depends on the optional or obligatory presence of a classifier-like element in its internal structure (see Section 2 for more details).

In the present study we turn our attention to the ‘upstairs’ syntax of *tutto*, *molto* and *niente*, that is, we concentrate on cases in which these bare quantifiers are fronted to a pre-finite position in the Left Periphery (Rizzi 1997; Benincà 2001; Benincà & Poletto 2004 a.m.o.). Our aim is twofold: (i) to observe whether there are any detectable distributional and/or interpretational differences among these QPs in the

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2. In the modern languages, pre-participial *molto* ‘much/very’ is not fully acceptable when it is an argument, (i), but becomes fully acceptable (although slightly formal) when it is a scalar degree intensifier, in particular with psych verbs and change of state (excluding motion verbs):

- (i) *Ho molto mangiato.*  
 have.1SG much eaten  
 ‘I’ve eaten a lot.’  
 (ii) *Ho molto apprezzato il tuo regalo.*  
 have.1SG much appreciated the your gift  
 ‘I really appreciated your present.’

On the interaction of degree QPs, scalar structures and past participles/adjectives we refer to Kennedy & McNally (2005) and references therein. See also the discussion in Cinque (1999: 101–103) on the interactions of manner adverbs, and Voice.

3. Following Salvi and Renzi (2010), we use the term Old Italian to refer to the Florentine variety as recorded in written texts until the first half of the 14th century (1320 ca.).

CP layer; and (ii), if and how their internal syntax plays any role not only in the position(s) they target in CP, but also how they interact with the Verb Second syntax (V2) of OI (Benincà 1983; Benincà 2006; Poletto 2014). It will be shown that all these bare QPs do not show any syntactic differences in the CP layer, which might lead us to postulate that they target the exact same position in the lower part of the Left Periphery, the Focus field. However, there are some interpretative differences among *tutto*, *niente* and *molto* in CP: not only are bare *tutto* and bare *niente* rather uncommon while respect to *molto* in this position, but also the former are detectably more pragmatically marked than the latter. Thus, a more general aim is to gain a better understanding of the discourse properties of the “Focus field” (Benincà & Poletto 2004) in a relaxed-V2 language like OI (see Section 3 for a definition of relaxed V2), lending further diachronic support for the proposals that the Focus field is indeed a field with dedicated projections for operator-like or focus elements of various types.

The article is organized as follows: Section 2 briefly summarises the results of Garzonio & Poletto (2012, 2017, 2018) and Poletto (2014) on the ‘lower syntax’ of *tutto* and *niente*, and presents their claim that the difference in their positions with respect to other low IP area elements can be tied to their different internal structures (Section 2.1). In the second part of Section 2 (2.2), we focus in more detail on the identification of what functional projections make up the internal structure of *molto*, and how they differ from *tutto*. Section 3 introduces the data on the CP position of these bare QPs, discussing both the main evidence pointing to the fact that they all target a low position in a split-CP configuration. Section 4 discusses the subtle interpretative differences between fronted *tutto/niente* on the one hand, and fronted *molto* on the other, addressing moreover the main questions outlined above. Section 5 concludes the paper.

A final note on data and methodology: our corpus is composed of all the cases of bare *molto* found in the Old Florentine prose texts up to 1320 of the *Opera del Vocabolario Italiano* corpus (OVI; <https://artfl-project.uchicago.edu/content/ovi>) through specific queries by form. Every single instance thus obtained has been subsequently checked manually and sorted against its contexts and background in the texts in order to better identify, when possible, interpretative nuances. We retrieved a total of 492 cases of bare *molto* in tensed clauses, equally distributed between main and embedded clauses, as can be seen in Table 1.

Moreover, examples are found in diverse prose genres such as philosophical, religious and natural treatises, narratives, chronicles, in both original texts and translated versions of French and Latin texts. This is particularly important for the CP placement of bare *molto*, which is extremely restricted in Modern Italian as we will see, because it indicates that fronted *molto* is an original characteristic of OI word order, and not due to ‘loan’ syntax (especially from Old French, where *mult* was often found in the Left Periphery, see below).

Table 1. Total occurrences of bare *molto*

	Nr.	% partial	%total
<b>In IP</b>			
<i>Main</i>	167	61%	33.9
<i>Subordinate</i>	107	39%	21.8
<b>Total IP</b>	<b>274</b>	<b>100%</b>	<b>55.7%</b>
<b>In CP</b>			
<i>Main</i>	122	56%	24.8%
<i>Subordinate</i>	96	44%	19.5%
<b>Total CP</b>	<b>218</b>	<b>100%</b>	<b>44.31%</b>
<b>Total</b>	<b>492</b>		<b>100%</b>

## 2. *Tutto, molto* and *niente* in the low IP area

### 2.1 Internal syntax and ‘downstairs’ syntax

As mentioned in Section 1, *tutto, molto* and *niente* occurred between the tensed auxiliary/modal and the non-finite verb in OI – a configuration which is no longer possible in ModI (but see fn. 2 above). Yet, while bare *tutto* and bare *molto* always occur pre-participially (Poletto 2014 Chapter 5; Garzonio & Poletto 2017, 2018), bare *niente* can occur either before or after the non-finite verb (Garzonio & Poletto 2012; Poletto 2014: Chapter 6). Both *tutto* and *molto* appear in the pre-participial position independently of their argumental or adverbial use (this is particularly evident for *molto*, cf. 3a vs. 3b),<sup>4</sup> but bare *niente* shows a strong correlation between sentence position and the argument vs. adverb nature: in post-participial position, *niente* is only argumental (4a), while in pre-participial position it could be both an argument (4b) and an adverb (4c).<sup>5</sup>

- (2) *seguire* *Idio* *chi* *à* *tutto* *venduto*  
 follow.inf God who has everything sold  
 ‘Who has sold all his possessions (can) follow God.’ (*Fiore di Rettorica* 232)

4. Out of the 102 cases of bare *molto* found with compound tenses (Aux + Past Participle; Modal + V), there are just 9 cases of post-participial *molto*. Yet, they are cases in which either *molto* modifies a past participle used as an adjective, or cases in which it modifies a coordinated past participle.

5. The adverbial vs. argumental nature of *niente* also correlates with Negative Concord, see Poletto’s (2014: 150) generalization that “[A]rgumental *niente* can be found in postverbal position without the negative marker, while adverbial *niente* cannot”.

- (3) a. *ch'egli avea molto speso in que' servi* (argumental)  
 that=he had.3SG much expended in those servant  
 'that he had paid a lot for those slaves' (Pistole di Seneca 61)
- b. *Quando ha molto pugnato* (adverbial *much* or *long?*)  
 when has much fought  
 'When he has fought a lot' (Vizi e Virtudi 23)
- (4) a. *ch'io non t'ho tolto neente* (argumental)  
 that=I not you=have taken nothing  
 'That I took nothing away from you' (Novellino 294)
- b. *là non averemo noi niente guadagnato* (argumental)  
 there not will.have we nothing gained  
 'we will have gained nothing there' (Paternostro 42)
- c. *Ma io non ve l'ò niente consentito, ...* (adverbial)  
 but I not you=it=have nothing permitted  
 'But I did not allow it to you at all... ' (Storia di Troia 148)

Evidence that both *tutto* and *niente* occur in the aspectual domain of the clause comes from their relative position with respect to lower manner adverbs like *bene* 'well', the order being *tutto/niente* > *bene* (Poletto 2014). In the case of *molto* however, no such test is available as *molto* can directly modify manner adverbs, a problem also encountered by Cinque (1999: 173 n.31) when testing the position of French *beaucoup* and Italian *molto* with respect to *tout/tutto* and *bien/bene* 'well'. Partial evidence that *molto* does occur in the IP domain comes, however, from cases in which *molto* precedes vP-internal material, such as direct objects, (5a), or vP-internal subjects (5b):

- (5) a. *... perchè i leofanti turbaro molto le schiere de' Romani.*  
 since the elephants disturbed much the lines of Romans  
 '... since the elephants wreaked havoc in the Roman lines' (Pagani 251)
- b. *e quando la gente ..., sì s'acendea molto l'animo loro a*  
 and when the people so refl=ignite very the=soul their to  
*la battaglia*  
 the battle  
 'and when the people..., their souls got greatly inflamed for battle'  
 (Vizi e Virtudi 86)

The mandatory pre-participial placement of *tutto* and *molto* in OI could be due to their 'weak' nature, as has been proposed by Cardinaletti & Starke (1999), for instance, for the French *tout*. However, the pre-participial position of *tutto* is mandatory even when this bare QP is under a preposition in adverbial PPs such as *del tutto*, lit. 'of=the everything' or *al tutto* lit. 'to=the everything', both meaning 'completely

(Poletto 2014: 122, her examples (13)).<sup>6</sup> Bare *molto* could also appear under Ps, in such adverbial PPs like *da molto* lit. ‘from much’, meaning ‘of high quality’ or ‘long’, or even some early but rare instances of *dimolto* lit. ‘of much’, the Modern Tuscan counterpart of ModI and OI *molto* (Rohlf’s 1969: § 954), but no occurrence of such PPs has been found in the relevant syntactic environments (before past participles or infinitives; before low adverbs). Thus, it is not possible to test whether bare *molto* appears in a dedicated projection even when it is under a P.

Poletto (2014) and Garzonio & Poletto (2017, 2018) opt for a different approach to the set of data in (2) and (4). They maintain that OI bare QPs appear in the exact same structural position in the aspectual field of the clause (Cinque 1999) as their present-day descendants, the only difference between OI and ModI is the extent of past participle movement. Following Cinque (1999), *tutto*, *molto* and *niente* occupy different positions in the low IP area: *tutto* occupies the position for completive aspect;<sup>7</sup> *molto* occupies a position in VoiceP dedicated to Manner adverbs like *well* (see the discussion in Cinque 1999: 11; 173 n31); *niente* might be sitting in an FP higher than VoiceP (as it precedes Manner *well* in OI, Poletto 2014: 153) when adverbial, or in the argument position in the vP when argumental. The structure in (6) exemplifies the position for each bare QP in a simplified hierarchy:

- (6) [TP ... [AspPICompl *tutto* [FP *niente*<sub>adv</sub> [VoiceP *molto* ... [vP [TopicP [FocusP ... [VP *niente*<sub>arg</sub> ]]]]]]]]]]

The difference in the position between Old and Modern Italian bare QPs is to be recast then as a difference in past participle movement. In ModI, the past participle raises higher than *tutto*, while OI had a sort of ‘lower V2’, by which the verb was attracted to the head of Foc° (see Belletti 2004 on Focus positions in IP), paralleling the same movement to Foc° in the Left Periphery (see Poletto 2006, 2014 on OV orders as a form of V2 in the Low IP domain). One might also envisage the possibility that bare QPs are actually moved to the left periphery of the vP area to a Focus/Operator position, as they do within the CP layer (as we will see in Section 3). However, this

6. Universally quantified DPs can appear either before or after the past participle with very similar rates as regular (non-quantified) DPs: in a sample of 2,000 sentences with the QP *tutto* extracted from OVI, Poletto (2014: 121) shows that roughly one third of universally quantified DPs are pre-participial. She assumes that such OV/VO oscillations with *tutto*+DP are due to the same syntactic mechanisms that displace regular DPs in OI to the Topic/Focus layer at the edge of the vP phase, that is, a V2 configuration in the lower phase. See Poletto (2014: Chapter 2) for details on OV as a lower form of a V2 constraint.

7. *Tutto* in Cinque’s hierarchy occupies one of the three different positions for completive aspect, specifically a position for ‘plural’ completive aspect (Cinque 1999: 100), which is higher than Manner Adverbs in VoiceP.

would predict that bare Qs are found to the right of vP Topics, i.e. we should find cases in which a DP crosses over bare Qs, sitting in the Focus/Operator position. Since bare quantifiers consistently occur in front of both Topicalized and Focalized objects in OV position and never interspersed with them as it would be expected if they exploited the vP periphery, we conclude that this option is not the right one to account for the data found in OI (see Poletto 2014 for an extensive treatment of the sequence bare QPs, object DPs part participle). Actually, the basic difference between the CP and the vP left periphery is that bare Qs move out of the low phase, while they do not with the CP.

However, how do these bare QPs reach these positions in the first place even when they are clearly arguments and not adverbs as in (2), (3a) and (4b) above? The abovementioned studies on bare *tutto* and bare *niente* in OI put forward the hypothesis that the sentence positions of these QPs, and the clear asymmetry between *tutto* and *niente* are a reflex of their internal structure. Specifically, what allows a bare QP to stay put in the v/VP is the presence of a silent sortal classifier-like category  $n^\circ$  (cf. Leu 2005) in its internal structure. Bare *tutto* is for instance not analysed as the universal QP *tutto* paired with a *pro*, i.e., a silent DP, but with a  $n^\circ$  of the type THING:

- (7) [QP *tutto* [ClassP THING]]

Evidence for such a structure comes not only from OI which had cases of *tutte cose* lit. ‘all things’ used as *tutto* (Giusti 2010a: 388–390),<sup>8</sup> but also from Southern Italian dialects that have *tutticosi* lit. ‘all things’ and *tutti quanti* lit. ‘all how many; everybody’ alongside *tutto* (see Garzonio & Poletto 2017 for discussion). Without entering into specific derivational details, the structure in (7) gets split in the course of the derivation, so that *tutto* ends up in SpecAspCompI and THING remains trapped inside the edge of vP, remaining thus silent under Kayne (2006), (see Garzonio & Poletto 2017, 2018).

Conversely, bare *niente* can remain inside the vP, or can appear in IP. This entails that its internal structure is ambiguous between a structure in which *niente* contains a lexicalized  $n^\circ$  and one in which it is a negative Q word, an adverb. The two structures for *niente* are exemplified in (8):

- (8) a. [NegP *niente*]  
 b. [NegP *ni-* [ClassP *-ente*]]

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8. Giusti (2010a: 388–390) notices that in OI, *tutte cose* only had a distributive reading, as was always the case with the universal QP *tutto* modifying determinerless generic nouns like *cose* ‘things’ or *parte* ‘part’, *tutta parte* ‘in every place’. *Tutto* + DP had both a collective and/or a distributive reading.

Again, evidence for the structure in (8a), where the part *-ente* is still recognized as an n° comes both from the etymological origin of *niente*<sup>9</sup> pointing to the presence of a negated nominal element, and from language typology, with languages building negative indefinites and indefinite series in general from generic nouns linked to ontological categories such as *thing*, *body* (see Haspelmath 1997).

## 2.2 *Molto* inside

Turning to *molto*, we could hypothesize that given its distributional similarity to *tutto*, that is, given the fact that it never occurs in the v/VP, bare *molto* might have an internal structure similar to the one in (7) for *tutto*.

(9) [QP *molto* [ClassP THING/PERSON/DEGREE/TIME]]

In such case, we should also hypothesize that *molto* pairs with different types of n° sortal classifiers, given its different meanings and its morphosyntactic versatility as an indefinite determiner, an adjective, and an adverb. Thus, the n° TIME, for instance, can be assumed on the basis of the fact that bare *molto* has a clear temporal meaning as in '(for) a long time' or 'on many occasions, often'.<sup>10</sup> Similarly, the n° DEGREE could capture the cases in which *molto* behaves like an adverbial modifier of both gradable adjectives and gradable predicates like *to love*. Thus, the n°s THING and DEGREE structuralize the fact that *molto* is a scalar Q modifying both quantities and quality/intensity (along the lines of Bolinger's 1972 extensional vs. intensional readings; see also Doetjes 1997 a.m.o.).

However, we would like to pursue a second line of thinking here, which is essentially in agreement with what De Clercq (2017) proposes for the internal decomposition of quantity words like *much/many* and *few/little*. In her typological

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9. As is often the case with functional elements, the etymology of *niente* is uncertain: it may derive either from Lat. \**NEC ENTE*(M) 'not entity' or from Lat. \**NE GENTE*(M) 'no people'. See Gianollo (2018: 228–229) for discussion.

10. In many numeral classifier languages certain units of time show the typical behaviour of classifiers (see Cinque 2006 for examples and a proposal that even languages like Italian might have these special uses of time units). Another interesting fact that certainly needs further investigation but that we nonetheless wish to mention in passing is that while bare *molto* allows a temporal interpretation of the type 'for a long time' (and also 'on many occasions' overlapping with *spesso* 'often', much in the same way as French *beaucoup* 'very much' and *souvent* 'often' can overlap, see Doetjes 2007 and references), bare *tutto* has no such interpretation, that is, in no instance can bare *tutto* be interpreted as 'always' ('for all the time' or 'on all occasions'). This seems to lend further, although indirect, support to the line of reasoning pursued here, that *tutto* has a n° THING while *molto* does not have such a n° category.

study, De Clercq (2017) proposes that what differentiates these Q-words from other lexically rich items is the lack of a root feature, that is, these Q-words consist just of functional material. We adopt a very similar view and propose that *molto* is indeed just functional material, but that it also lacks an  $n^\circ$  category in its spine.<sup>11</sup> Yet, being a quantifier, it requires a domain to quantify over. Thus, *molto* moves to a specific position where it can quantify over a phase containing an  $n^\circ$ . In other words, *molto* is parasitic either on  $n^\circ$ s contained in other domains (as in DPs when used as a weak determiner, (10b)), or on arguments contained in v/VPs and AdjPs (amount, or degree argument depending on the structure of V or A):

- (10) a. bare *molto*  
 [CP [TP [AspP [VoiceP *molto* [vP [VP V]]]]]]]  
 b. *molto* as indefinite D  
 [DP [Num *molto* [AP [NP N]]]]]  
 c. *molto* adverbial modifier of adjectives/adverbs  
 [DegP *molto* [QP [AdjP A]]]

If *molto* does not contain an  $n^\circ$ , what else is inside *molto*? If we follow DeClercq (2017), the lexical entry for English *much* contains just a feature Q which is responsible for scalarity/gradability, while in a language like Italian (patterning basically with Dutch in her proposal), *molto* would lexicalise not only Q, but also a Num(ber) and Div(ision) feature. Though her proposal nicely accommodates the adjectival and determiner uses in a single structure, the adverbial use exemplified above would involve the Q feature and nothing more, offering us no further insight into its internal structure.

As for the case with *niente*, we could turn to the etymology of *molto*, which however does not offer any clear indication: OI and ModI *molto* is the direct descendant of the Lat. quantity adjective *MULTUS*, -A, -UM ‘numerous’, whose origin is however uncertain.<sup>12</sup> The development of this adjective, and in general of other Latin adjectives into Romance quantifiers has been discussed in Camus-Bergareche and Pérez-Soldanya (2011) for Old Catalan, and in Carlier (2011), who in particular

11. De Clercq (2017) does not explicitly mention the presence of a classifier element in the structure of scalar Q-words. However, she assumes a cardinality feature Num (or #) and a Div feature in the sense of Borer (2005), which are typologically connected to plurality and classifiers. The lack of a root and the feature Q for scalar quantity is what allows these elements to be compatible with different morphosyntactic categories.

12. De Vaan (2008: 394, s. v. *multus*) proposes PIE *\*m(o)l-to-*, probably from the same IE root possibly meaning ‘big’, ‘good’ or ‘strong’ as in Lat. *melior* ‘better’. Yet, both the etymology of this root and the function of the suffix *-to* are far from being clear.



individuates a clear cline of development from Latin *multum* through Old French *mult/moult* and finally to Modern French *beaucoup* (and *très*).<sup>13</sup> Thus, the historical development of such quantity/degree words is well documented and discussed, yet we are still at a loss as to what *molto* or even Lat. *multum* can contain in its structure to permit such a grammaticalization development.

We propose here an account which puts together three essential ingredients: (i) the fact that *molto* has an etymological origin as an adjective (and it is used as an adjective in both Old and Modern Italian); (ii) the idea that, for various semantic accounts (Kennedy & McNally 2005 a.m.o.), degree words and intensifiers are gradable predicates; and (iii), the idea that the bare use of *molto*, essentially an adverbial use, be it for quantities or for degrees, derives by the same functional structure contained in the adjective (see Corver 1997b who treats cases of adverbial *much* as an adjectival head introducing its own degree argument; see also Androutsopoulou and Español Echevarria 2009 on degree adverbs in Spanish essentially as nominal, i.e., adjectival).

Following the long tradition of studies on the internal structure of gradable adjectives (Abney 1987; Corver 1997a, b; Kennedy 1999 a.m.o.), the lexical head A and its projection AP is selected by a functional head Deg°:

$$(11) \quad [{}_{\text{DegP}} [{}_{\text{QP}} [{}_{\text{AP}} A]]]$$

The splitting of the Deg head into the functional projections DegP and QP has been motivated on syntactic grounds in Corver (1997a; b): the Q head hosts elements such as *enough*, *more*, *less* and *much* in English, while the head Deg° and its projection hosts either degree morphology (comparatives) or degree elements such as *too*, *how*, *that*, *as* – Deg° acting as a sort of D° in the adjectival domain. It would be now tempting to propose that the OI (and the ModI) *molto* occupy the same position as English *much*, however this is not tenable as, unlike *much*, *molto* is never involved in cases of *much*-support (see (12) adapted from Corver 1997b), as indeed,

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13. Carlier (2011) summarizes the use of Lat. *multum* (usually followed by a genitive N or by a PP headed by *ex* ‘out of’) showing that it was first used in direct object position (as object of transitive verbs, or subject of passives and unaccusatives). Latin already had a degree adverbial use, primarily in the verbal domain. In the transition to Old French, *mult/moult* became even more adverbial, showing many distributional similarities with OI *molto* (in particular as regards its position in CP), and also presenting some very early instances of Split Quantification or Quantification at a Distance (Q – past participle – *de* N; see Kayne 1975; Obenauer 1994; Doetjes 1997; Baunaz 2011; Authier 2016 just to quote a very few). Interestingly, *beaucoup* emerges and substitutes *moult* around the 15th–16th century, but it shows the same distributional cline of Latin *multum*, direct object > measure adverbs/ intensifier of verbs > adverbial degree modifiers of adjectives/adverbs > determiner and pronominal use. See Carlier’s (2011: 17ff) for a detailed discussion.

*much*-support is not found in Italian (nor is it found in Spanish, Androutsopoulou & Español Echevarria 2009).

- (12) *The weather was hot in Cairo*  
 [DegP *so* [QP *much* [AP *so*]]] that we stayed indoors all day.

We assume alternatively that as a gradable adjective, *molto* starts out as an adjective meaning ‘numerous’, which can be coordinated with other gradable (non-quantity) adjectives, a possibility which has remained unchanged since Latin. But, in the course of time, it acquired the possibility to move to DegP through Q (we assume As move as phrases, in accordance with Cinque 2010):

- (13) [DegP *molto* [QP *molto* [AP *molto*]]]

That *molto* moves all the way up to Deg can be supported by the fact that modification of *molto* in OI and ModI by elements comparable to *how* or *so*, is never possible: \**così molto* lit. ‘so much’.<sup>14</sup>

Moreover, we follow Svenonius & Kennedy’s (2006) proposal that Deg<sup>o</sup> is actually a *Measure* head, whose Spec can be occupied by measure phrases, by words like English *how* or even by intensifiers like *very*. By assuming an interpretation of a measure phrase by virtue of its occurrence in the Spec of DegP, *molto* becomes akin to cardinals, and a suitable candidate for the NumP Spec, hence a weak determiner (see Leu 2008, 2015 on certain D elements as adjectives). Once entered in the DP functional spine as a numeral element as a weak quantifier, it can undergo the same processes turning it into an adverbial quantity modifier of verbs, much in the same way as Latin *multum* and French *beaucoup* were first found as quantity adverbs with transitive predicates, and then with other predicates as well (see Carlier 2011, and fn. 13). In the case of gradable verbal predicates, like the ones in (5), *molto* quantifies over a degree argument contained in the verb’s argumental grid.

One final remark is in order for the degree intensifier uses. In many Italo-Romance dialects where Lat. *multum* was substituted by various forms, one typical

14. The element *tanto* ‘much, very, many’ (etymologically ‘so much’ < Lat. *tantus*, linked to *tam* ‘so’) seems to be a better candidate for the Q head as it can take a modifier like *così* ‘so’, and interacts with its *wh* counterpart *quanto* ‘how much’ in correlatives (and indeed, some Italo-Romance varieties use *tanto* for the *wh*-word *quanto*). (On *tanto* ‘so much’ as a degree quantifier licensing unpronounced MUCH in Spanish, see Androutsopoulou & Español Echevarria 2009). Interestingly, while *tanto* is now nearly synonymous with *molto* and indeed, most Italo-Romance varieties only use *tanto* in this sense (Rohlf’s 1969: § 954), this Q-adjective/pronoun/adverb was only used in correlative structures in OI (as it was in Latin). The Italo-Romance widespread use of *tantum* in place of *molto* with the same categorical flexibility of *molto* could be captured by assuming a grammaticalization from A to Q to Deg in (11).

formative of such items is a morpheme linked to the manner adverb *bene* ‘well’ or even to the adjective *bello* ‘nice, beautiful’<sup>15</sup> (see also *beau* in French *beaucoup*). *Bene* and *bello* can encode an evaluative, speaker-oriented meaning. Such meanings are generally hypothesized to be encoded in the higher portions of the extended projections of the clausal and verbal domain. We could very tentatively suggest that even APs present CPs on top of functional projections like D, or T, encoding Topic or Focus feature, and speaker/hearer orientedness (see the higher Mood heads in Cinque 1999, and the general idea that such meanings are encoded in the higher portions of the extended projections of both verbs and nouns). Thus, *molto* could acquire such an evaluative meaning when used as an intensifier by moving a further step into the CP layer of its AP. The evaluative features are the featural content that the head of MannerP attracts to its Spec, forcing movement of *molto* to the low IP position not only when it is an argument, but also when it is an adverbial degree intensifier.<sup>16</sup>

In conclusion, the lower syntax of bare *tutto*, bare *niente* and bare *molto* is indeed triggered by their internal makeup. Yet, these three bare QPs differ in the way they interact with their n°s, ultimately leading to their distributional asymmetries (or similarities): *niente* is ambiguous as its classifier-like n° *-ente* is still recognizable and is thus lexicalized; *tutto* is paired with a null n° THING, which is always

15. Rohlfs (1969:§ 954) reports various reduced cases of *molto bene* ‘very well’ for the degree intensifier in various dialects of the North of Italy, as for instance *molto bene* in Turin. Such a case could be analysed as leftward movement of *molto* from Degree and left-incorporation onto *bene* (for a syntactic derivation of such order with Specs and silent heads see Cinque 2017):

- (i) [CP/Mood *molto bene* [Degree ~~*molto*~~ [Q [A]]]]

Other cases of *bene* inside both the degree intensifier and the indefinite determiner forms for *molto* in the dialects are reported in Poletto (2019). As for *bello*, Calabrese varieties make use of *bello* ‘nice’ as an indefinite determiner *belle volte* lit. ‘nice times; many times’ or like the colloquial Italian use *bella contenta* lit. ‘nice happy; very happy’.

16. Notice that OI could show cases of extraction of degree intensifier *molto* out of its AP, but only when the AP is itself or within a DP in a small clause structure, Giusti 2010b: 598). Displaced *molto* usually targets the CP layer, but it could occasionally target MannerP in the low IP domain before the past participle:

- (i) *Questo Ruggieri di Loria era molto stato gran nemico de la Chiesa, ...*  
 this Ruggieri of Loria was very been big enemy of the church  
 ‘This Ruggieri of Loria had been a very big opponent of the Church, ...’

(Cronica Pieri 60)

Such cases are rather uncommon. This is in all probability due to the fact that extraction of *molto* typically occurs in copular sentences, and copular sentences with a past tense of the type in (i) are themselves rather uncommon.

left unpronounced as *tutto* must be moved to its position in IP, stranding *THING*; and *molto*, being a Degree element, has no  $n^{\circ}$  in its structure. In the next section we consider the syntax of these three QPs in the CP domain, with the intent of identifying whether their different internal makeup has any import on their further displacement, i.e. movement, into the Left Periphery.

### 3. Bare QPs and V2

Old Italian was a ‘relaxed’ V2 language with clear cases of Germanic-type linear V2 orders, with subject auxiliary/inflected verb inversion, i.e. where the subject occurs between the auxiliary and the past participle. It also displayed quite a number of V1, V3 and V\* cases (Benincà 1983, 2006; Poletto 2014), as many Old Romance and Germanic languages. The V2 grammar of OI also manifests itself in a number of main vs. embedded asymmetries like (a) the presence of the CP expletive *si* followed by the verb only in main clauses; (b) the positioning of object clitics which displays enclisis only in main clauses; and (c) an asymmetric *pro*-drop system (see Benincà 1983; Poletto 2014, 2019).<sup>17</sup> OI was a “pragmatic V2 language”, in which left peripheral elements have either an informational or contrastive Focus or a Topic value of the types discussed in the literature (familiarity, backgrounding, aboutness, list, contrastive etc.) depending on the position they occupy in the CP with the exception of the subject, which has no particular pragmatic import.<sup>18</sup>

One of the most important properties shown by V2 languages, that OI shares, is that the immediately pre-finite V position is not restricted to subjects, but can host various types of constituents, among which also the bare QPs we are considering. Here are some examples from texts before 1320:

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17. These characteristics are found, in varying degrees, in a number of Old Romance varieties, but it is still very much debated whether Old Romance did in fact have a V2 syntax (we refer to Wolfe 2019 for a general overview on these aspects, and to Benincà 1983, 2006 and Poletto 2014 for OI V2 in particular). More recently, moreover, also the idea that Old Italian asymmetric *pro*-drop is licensed by V to C movement has been challenged. Cognola and Walkden (2019), for instance, show that *pro*-drop in OI is fairly uncommon in main interrogative clauses, and seems to be sensitive to Person – two facts that are better accounted for by linking the licensing of *pro* to the presence of a null Topic in the Left Periphery. Poletto (2019) has shown that in Old Venetian there is a clear asymmetry between interrogatives, which do not display any *pro* drop, and declaratives. All these issues are tangential to the point we are making here.

18. Contrary to Old French, OI has very few cases of lexical expletive subjects.

- (14) a. *il sole, ..., non solamente il mondo di caldo maculò, ma parve*  
 the sun not only the world of heat spotted but seemed  
*che tutto lo ardesse.*  
 that all it=burnt.  
 ‘the sun ... did not only touch the world with its heat, but it seems that it scorched it all’ (Pagani 44)
- b. *e venne tanto misericordioso, che ‘mprima tutto l’avere*  
 and became so generous that first all the=possessions  
*disperse a’ poveri per Dio e poi, quando tutto ebbe*  
 gave to(=the) poor for God and then when everything had  
*dato, et elli si fece vendere, ...*  
 given and he himself made sell  
 ‘and he was so generous that he first donated all his possessions to the poor as per God’s will, and then, when he had sold everything (completely), he sold himself...’ (Novellino 162)
- c. *I priori scrissono al Papa segretamente: però tutto seppe*  
 the priors wrote to=the Pope secretly but everything knew  
*la parte nera, però che tutti quelli che giurarono credenza non*  
 the part black because that all those that swore silence not  
*la tennono.*  
 it kept.  
 ‘The priors secretly wrote to the Pope: but the Black Guelphs came to know everything because those who had sworn to keep the secret did not keep it.’ (Cronica Compagni 163)
- (15) a. *Fue uno re molto crudele, il quale perseguitava il popolo di*  
 was one king very cruel the which vexed the people of  
*Dio; ed era, la sua, grandissima forza; e niente poteva*  
 God and was the his very-big power and nothing could  
*acquistare contro a quel popolo,*  
 gain against to that people  
 ‘There was a very cruel king, who used to oppress God’s people; his power was great but he could do nothing against these people.’ (Novellino 210)
- b. *molti niente seppono, se non quando i nemici furon rotti.*  
 many nothing knew, if not when the enemies were broken  
 ‘Many did not realise anything at all, (they got to know something) only when the enemies were defeated.’ (Cronica Compagni 139)
- (16) a. *Molto giova la parola che ...*  
 much helps the word that (Fiori e Vita p. 193)
- b. *[A pigliare il muro] molto valgono le scale, e ...*  
 To take the wall much help the stairs, and  
 ‘Stairs are very helpful in taking a wall...’ (Arte della Guerra 173)

- c. *Maestra delle Virtudi, molto m'hai consolato delle mie*  
 Mistress of=the Virtues, much me=have soothed of=the my  
*tribulazioni, ...*  
 sorrows  
 'Oh Lady of Virtues, you have soothed me greatly of my sorrows...'  
 (Vizi e Virtudi 24)
- d. *e molto si contò poi la novella in Proenza, ...*  
 and much refl=told then the story in Provence  
 'and afterwards, the story was long retold in Provence...'  
 (Novellino 204)

The examples in (14)–(16) do not show any particular distributional asymmetry for any of the bare QPs we have taken into consideration: all of them occur immediately before the finite verb, and, if the verb presents clitic pronouns, these are always proclitic. If we follow Benincà's (2006) syntactic account of the Tobler-Mussafia Law,<sup>19</sup> the presence of proclitics on the verb indicates that the Focus field of the clause is occupied by some constituent and the tensed verb occupies to the C head of that field/projection (Foc°). By contrast, when an XP appears before the finite verb and enclisis obtains, this XP is hosted in one of the higher projections, i.e. TopicP. Hence, the position of clitics can be used as a diagnostic for verb position and for the position of XPs appearing before it. The structure in (17) below reports the split-CP as proposed in Benincà (2006); the Focus field is in bold-face:<sup>20</sup>

- (17) [Force C° [Relative *wh* C°]/{Frame [Scene Setters] [Hanging Topics] C°}  
 {topic [(Clitic) Left Dislocation] [List Interpretation] C°}  
 {Focus [**I Focus-New Information Focus**] [**II Focus – Contrastive Focus**]/[Inter-  
 rogative *wh*] C°}[Fin C°]

19. The Tobler-Mussafia Law is active in various Old Romance varieties. It is the ban on object clitic pronouns to appear in sentence-initial position, that is, object clitic pronouns must appear enclitically when the finite verb is in initial position. When the inflected verb is preceded by negation, or is found in a subordinate clause, pronouns must occur in front of the verb (as is typical of most Modern Romance languages). However, when an XP is fronted before the verb, both enclisis and proclisis can obtain.

20. The number and order of the functional projections hosted in the Left Periphery varies quite markedly in the literature. Notoriously, Rizzi (1997) and subsequent work maintains that Topics can occur after Focus (see also Frascarelli & Hinterhölzl 2007), while Benincà and Poletto (2004) exclude such possibility. More recently (Wolfe 2019; Haegeman & Greco 2018 a.m.o.), it has been proposed the Frame field sits on top of Force, and hosts elements that do count for V2 such as frame setting adverbs and adverbial clauses. For other scholars still, the order of New Information Focus and Contrastive Focus is the opposite of that found in (17). As all the cases of bare QPs we encountered are found in the lower portion of the CP as we will show, we maintain Benincà's original proposal in (17). This is however not directly relevant for our analysis of quantifiers, which are located much lower in the CP layer.

The different projections in the Focus Field host Contrastive (or emphatic) Foci, New Information Foci, the particle *si* and interrogative *wh*-pronouns (for the higher positions of Contrastive Focus w.r.t. new Information Focus, see Benincà & Poletto 2004; Benincà 2006: 255, Cruschina 2012). Given the variety of pragmatic functions found with the XPs of this field, Poletto (2014) prefers to refer to this field as an Operator field, targeted by Operator movement of both verb and XPs.

As no case of a fronted bare QP has been found followed by enclisis on the verb, we must conclude that such QPs target one of the projections in the Operator Field. Further supporting evidence in favour of such a low placement in the CP layer comes from two separate distributional facts:

1. No case has been found in which these three bare QPs co-occur with the Focus particle *si*,<sup>21</sup> indicating that, if they are in complementary distribution, they compete for the same projection (see Poletto 2014: 27–33 on *si* as a Focus element marking that the whole sentence is new information against the preceding context).
2. These bare QPs can be preceded by Topics and SceneSetting elements, but, generally, no other XP can intervene between them and the finite V (except from object clitics or the sentential negative marker).<sup>22</sup> In the case of *molto*, the only elements that can precede it are Scene Setting adverbs and PPs, subjects and other CPs. No case has been found of *molto* co-occurring with a direct object in the texts up to 1320. Since they are in complementary distribution, this shows that bare quantifiers are located in the Focus/Operator field.

We give a structural representation of the sentence in (16b) below:

- (18) [Force [Rel<sub>wh</sub> [ScSett [A *pigliare il muro*] [HT [Topic [Focus [***molto***] C° *valgono*] [Fin [TP *le scale* T° *vagliano* ... [VoiceP ***molto*** [vP ...] ...]

At this point, bare *tutto*, bare *niente* and bare *molto* seem to show uniform ‘upstairs’ syntax, pointing to the same projection for all, FocusP.<sup>23</sup> Hence, we might conclude

21. Old French presented various cases of fronted *mult*, but no occurrence with the particle *si* (C. Meklenborg p.c.).

22. In the texts we considered up to 1320 there are just 6 instances of the order *molto*-XP-V, but most of these are to be interpreted as cases of remnant movement to either Foc or Fin of the entire chunk containing *molto* + XP:

- (i) [***Molto sopra queste cose***] *potrei dire* [~~*molto sopra queste cose*~~] *dire* ....  
 much on these things could say  
 ‘I could say a lot about these things...’ (Pagani 526)

23. Poole (2016) shows that the displacement of quantifiers to the Left Periphery is found also in Old Spanish, and that such movement is incompatible with *wh*-movement and focus fronting (and other structures involving the Left Periphery as interpolation, see Poole 2016 for references). He proposes that an EPP is active in Old Spanish attracting elements to the Focus/Operator Field for purely formal reasons, without any intrinsic information-structure value.

that their different internal structures do not play any role in their CP placement: in a sense, what the V2 property in CP ‘sees’ and needs for triggering their displacement to the Operator Field is their operator nature (and their phrasal nature), which is not dependent on the presence/absence of an n°, but rather on the type of featural content encoded by the functional heads in their internal structure.

This is hardly surprising given that *tutto*, *niente* and *molto* being primarily quantificational, are part of a specific featural class for Rizzi (2004), together with *wh*, negation, focus items, showing Relativized Minimality effects across each other when moved to the CP, for instance. However, it will be shown in the next section that these three QPs are fronted for slightly different reasons, specifically for different information structural requirements.

#### 4. Fronting of *molto* is different

In the texts we considered, there are some indications that *tutto* and *niente* are displaced to the CP under different circumstances than those of *molto*. One first indication comes from information structure: the vast majority of the cases in which they are fronted to the CP, *tutto* and *niente* seem to bear some sort of focus interpretation, which can be at times clearly identified as contrastive.<sup>24</sup> Consider (14c) above, here repeated for ease of reference:

- (14c) *I priori scrissono al Papa segretamente: però tutto seppe la*  
 the priors wrote to=the Pope secretly but everything knew the  
*parte nera, però che tutti quelli che giurarono credenza non*  
 part black because that all those that swore silence not  
*la tennono.*  
 it kept.

‘The priors secretly wrote to the Pope: but the Black Guelphs came to know everything because those who had sworn to keep the secret did not keep it.’

(*Cronica Compagni* 163)

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24. Some instances show a pragmatically marked order, which is evident from the surrounding text. However, in some cases, it is very difficult, if not impossible in the absence of prosodic cues, to exactly pinpoint the focalization type involved. Cruschina (2012), for instance, shows that in Sicilian and in Standard Italian two distinct Focus movements can be identified, a Contrastive and a Mirative one. Mirative Foci (which are treated as new information foci) are not possible in subordinate clauses, and cannot be separated from the verb by other XPs. See Bianchi, Bocci, and Cruschina (2016) for empirical, semantic and syntactic characterization of Mirative Focus as opposed to other forms of Focus. Cases like (14a,b) show that this type of quantifier movement, involving focalization of some sort, can indeed be found in subordinate clauses as well. Fronting of *molto* is also well-attested in subordinate clauses, in particular relative clauses.



In the previous lines, we are informed that the Priors had to make a decision on the Black Guelphs, from which a civil war could have started. The Priors tried to contact the Pope, but, despite their secrecy, the Black Guelphs came to know everything. Similarly, in (15a), regardless of his might and power, the cruel king had absolutely no power at all against God's people. Hence, at least some cases, like the ones just described, seem to point to a focus interpretation in which the information is surprising or unexpected against a specific background, or against, at least, one more likely implied alternative. In a sense, these sentences are reminiscent of the semantic import of Mirative Focus as described in Bianchi, Bocci & Cruschina (2016) for Standard Italian, as an instance of movement to a focal position yielding unexpectedness. Yet, in several other cases, no such interpretation seems readily available or recognizable, for instance in (14b) and (15b), where the focus import of these items is less identifiable on interpretative grounds.

By contrast, the cases of fronted *molto* reported in (16) do not seem to give rise to such an interpretation, either as contrastively focalized or as unexpected/surprising information. For instance, the example reported in (16b), repeated below, is a good case in point:

- (16b) [A pigliare il muro] *molto* valgono le scale, e ...  
 to take the wall much help the stairs and  
 'Stairs are very helpful in taking a wall...' (Arte della Guerra 173)

This example occurs at the very beginning of a small chapter (Book 4, Chapter 30) on what means can be used to overcome city walls, and the sentence simply states that stairs are very useful to that end (no alternative, or alternative degree of usefulness is evoked, and there is no comparison with some other device more or less useful than stairs, nor is it implied that what is said is surprising or unexpected). Similarly, in (16c) the author is stating that the degree to which he has been soothed by the Lady of Virtues is high, and this degree is not presented as surprising or contrasted with a lower degree (either implicitly or explicitly).

The second difference between fronted *tutto/niente* on the one hand and fronted *molto* on the other is quantitative. Excluding cases in which these QPs are subjects (which are very rare in general, see also Poletto 2014 on the absence of subject *niente* before 1300), cases like the ones in (14) and (15) above are relatively scarce in OI: Poletto (2014: 159) reports for instance just about 20 cases of fronted *niente* before 1300, and we found another 13 up to 1320 (most of which form one single text). Fronted bare *molto*, on the contrary, is relatively common: as we can see from Table 1, we found 208 cases, and more interestingly, equally distributed in main and subordinate clauses. We schematize this in Figure 1:

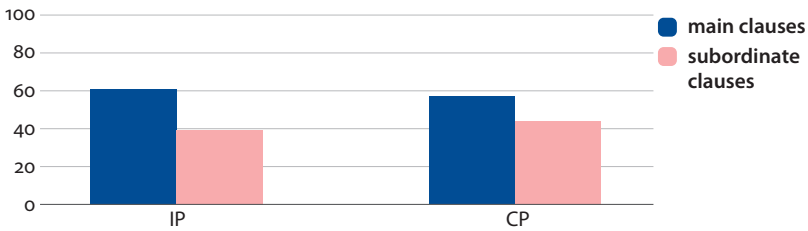


Figure 1. Distribution of bare *molto* in main and embedded clauses

Figure 1 shows that there is no real main vs. embedded symmetry in the CP displacement of bare *molto* – a result which is expected if, as shown by other studies, at least the lower part of the Left Periphery is accessible.

If we now combine the two observations just made, that is, that *tutto/niente* and *molto* show some slight interpretative and quantitative differences when fronted, we could suggest that the type of movement involved in the fronting of *niente/tutto* and the one of *molto* are slightly different, the fronting targeting *molto* being less pragmatically marked, hence more common. Since we adopt the perspective originally put forth by Poletto (2002) and developed by Samo (2019) that V2 is actually triggered by the movement of the fronted constituent and not by a property of the inflected verb, movements to the left periphery are conditioned by the nature of the pragmatic import they contribute to the sentence. In this view V2 is not the reflex of a specific CP-projection, but the generalization of criterial positions to the whole left periphery, or at least part of it. It could be concluded that, although all three of these QPs satisfy the V2 requirement (with clear cases of subject verb inversion, see 14c or 16a,b), they are fronted via operator movement to different but closely related projections in the CP layer.

Following again the proposals in Rizzi (2004), *niente*, *tutto* and *molto* do share the quantificational feature triggering their movement as operators (just like *wh* item and focalized constituents), but bare *molto* is also, and more often interpreted as, a Manner adverb (see also Rizzi 2004 for French *beaucoup*). In other words, *molto* is also part of the featural class Modifiers in Rizzi's (2004) terminology, which present features like evaluative, epistemic, Neg, frequentative, measure, manner etc, and which are hosted in specific projection in CP. On the basis of minimality effects between elements of the same class, Rizzi (2004) proposes that CP has a specific projection, ModP for non-focal, non-topic adverb preposing, sitting right under the (contrastive) Focus position.

Thus, we propose that *molto* moves from within the IP domain in OI, in particular from its MannerP position which it has reached by virtue of the evaluative component it bears (see Section 2 and fn. 14), and can be displaced to the CP, targeting

at least two distinct landing sites in the lower CP/Operator field, FocusP when it is contrastively focus (similarly to *tutto* and *niente*), or ModP, in the non-topical, non-focus interpretation as in (16) above.<sup>25</sup> In other words, its quantificational component, encoded in its lexical entry/internal structure as an adjective (see Q in (11)) allows for its movement to a Left Peripheral position in the Focus Field, while its ‘manner/evaluative’ feature makes it a more suitable candidate for ModP.<sup>26</sup> Bare *tutto* and bare *niente*, we propose, target either one of the Focus projections, I Foc or II Foc in Benincà’s (2006) map in (16), as their displacement in the Left Periphery comes at a ‘pragmatic’ cost:<sup>27</sup>

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25. This clearly does not mean that *molto* cannot be contrastively focalised (in FocusP) or topicalized (Top, HT etc.). Rizzi (2004) clearly shows that manner adverbs in Italian could be contrastively focalized and also topicalized, but when this happens, they are compatible with negation and do not show minimality effects with preposing of adverbs of the same class. We assume that this was also the case in OI, but it is rather difficult to find in written texts similar cases to those discussed in Rizzi (2004). One indication however that this is also the case in OI can come from the fact that fronted *molto* is very rarely followed by negation in the OI texts of the OVI database up to 1320 (3 occurrences). Here is one such examples:

- (i) *E molto non è da confidare se il cavaliere rozzo la battaglia desidera,*  
 and much not is to confide if the knight uncouth the battle desires  
*perché nel non usato è dolce la battaglia;*  
 because in=the not used is sweet the battle  
 ‘And one should not trust much an uncouth knight when he wishes the fight, as fights  
 look sweet to those who have no experience.’ (Arte della Guerra 112)

Moreover, this example is reminiscent of cases of Quantifier Fronting (Cinque 1990; Quer 2002; Leonetti & Escandell-Vidal 2009 a.m.o.) as discussed for different Romance languages in Giurgea (2015). In many instances of Quantifier Fronting a modal of sorts is present (typically a necessity epistemic modal). Here we have a necessity deontic modal, which however interacts with negation: (i) means *must > not*, ‘it is necessary that you do not consider much’. This means that the displacement of *molto* is something different from the cases in (15) where no special interpretational effects arise due to its placement in the CP. Many thanks to Jacopo Garzonio for discussion on this point.

26. From the typology of Rizzi’s (2004) featural classes also follows the fact that *niente/tutto* and *molto* never co-occur in CP. Modifier *molto* and quantificational focussed *tutto* and *niente* share a quantificational nature that gives rise to Minimality effects. The same explanation could be given for the fact that *molto* in CP does not co-occur with a fronted direct object as already observed. Unless clearly topical, a new information direct object would be fronted via focus movement to I Foc in (16), and would again give rise to Minimality effects with the special type of focus movement involved in the displacement of *molto*.

27. An anonymous reviewer suggests to take Wolfe’s (2015) view that V2 is not triggered by Focus, but by FinP. We do not think this is a viable move for the data we have here for the reasons discussed in Poletto (2019) which we do not go into here, since it would take us too long to argument this point and we refer to the quoted work.



Despite this easily accessible CP, fronted bare QPs in the modern language usually only receive a contrastive focus (or mirative focus) interpretation (unless they appear in the so-called Quantifier Fronting construction, see fn. 24). In particular, cases of fronted *molto* similar to those in (16) sound particularly bad to the modern ear, and would only be admissible as contrastively focalized, i.e., *molto*, despite still being a Manner adverb in ModI, it can no longer target Rizzi's ModP. That at least some other Manner adverbs have lost the possibility to move to the ModP<sup>28</sup> is also confirmed by the fact that while OI showed various cases of fronted manner *bene*, Modern Italian strongly rejects these (unless *bene* is strongly focalized):

- (20) a. *Ben so tutta coteſta materia, e ...*  
 well know all this matter and  
 'I know this matter well, and ...' (Vizi e Virtudi 15)
- b. *e ben ſeppe cantare e ſeppe il provenzale oltre miſura bene*  
 and well knew sing and knew the provençal over measure well  
*proferare ...*  
 talk  
 'and he could ſing very well, and he could ſpeak Provençal well, beyond  
 measure...'. (Novellino 311)

## 5. Conclusions

The distribution of bare QPs in the low IP area in OI is the effect of their internal structure, i.e. the presence of a classifier-like element. In the Left Periphery, however, their distribution is driven by their featural makeup: the displacement of evaluative DegP *molto* is driven by different Information Structural requirements than non-evaluative *tutto/niente*. More generally, by considering the interpretative differences of bare QPs, this study confirms the pragmatic nature of the V2

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28. Notice that OI had other degree intensifier items that could be found in the CP layer. Apart from *assai* 'enough, very', OI had also cases of *forte* 'strong' (found in Modern Romanian for *very*):

- (i) *Figlioul mio, forte mi meraviglio che ...*  
 son=little mine strong myself marvel that  
 'My ſon, I am very ſurpriſed that...' (Vizi e Virtudi 4)

Degree-uses of *forte* are preſent ſtill in Colloquial Italian, for certain ſpeakers only as adjectival modifier in a poſt-nominal poſition with a negative interpretation: *è brutto forte* 'he is very ugly', *??è intelligente forte* 'he is very intelligent'. Such uſes are a further piece of evidence for the propoſals in Section 2.

phenomenon in OI, where elements that are moved to the left periphery can assume different values depending on their internal syntax (and semantics) which allows them to be hosted in different positions in the operator field, which is the one that displays the V2 phenomenology.

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## Source Abbreviations and Editions of Texts

- Arte della Guerra* = Bono Giamboni, *Dell'arte della guerra di Vegezio Flavio volgarizzata libri IV* (a cura di Francesco Fontani, Florence, Marenigh, 1815).
- Cronica Compagni* = Dino Compagni, *Cronica delle cose occorrenti ne' tempi suoi* (in I. Del Lungo, *Dino Compagni e la sua Cronica*, vol. III, Florence, Le Monier, 1887).
- Cronica Pieri* = Paolino Pieri, *Cronica* (a cura di Anton Filippo Adami, Rome, Monaldini, 1755).
- Fiore di Rettorica* = Bono Giamboni, *Fiore di rettorica (redazione beta)* (Bono Giamboni, *Fiore di rettorica*, a cura di Gian Battista Speroni, Pavia, Dipartimento di Scienza della Letteratura e dell'Arte medioevale e moderna, 1994, pp. 3–107).
- Fiori e Vita* = Anonymous, *Fiori e vita di filosafi e d'altri savi e d'imperadori* (ed. critica a cura di Alfonso D'Agostino, Florence, La Nuova Italia, 1979).
- Novellino* = Anonymous, *Il Novellino*, sec. XIII (a cura di Guido Favati, Genoa, Bozzi, 1970).
- Pagani* = Bono Giamboni, *Delle Storie contra i Pagani di Paolo Orosio libri VII* (a cura di Francesco Tassi, Florence, Baracchi, 1849).
- Paternostro* = Zuccherro Bencivenni, *Esposizione del Paternostro* (Luigi Rigoli, *Volgarizzamento dell'Esposizione del Paternostro*, Florence, Piazzini, 1828).
- Pistole di Seneca* = Anonymous, *Pistole di Seneca volgarizzate (Volgarizzamento delle Pistole di Seneca e del Trattato della Provvidenza di Dio)*, a cura di Giovanni Bottari, Florence, Tartini e Franchi, 1717, pp. 1–418).

- Storia di Troia* = Binduccio dello Scelto, *La storia di Troia* (a cura di Maria Gozzi, Milan and Trento, Luni, 2000, pp. 81–594).
- Vizi e Virtudi* = Bono Giamboni, *Il Libro de' Vizi e delle Virtudi (Il Libro de' Vizi e delle Virtudi e Il Trattato di Virtù e Vizi*, a cura di Cesare Segre, Turin, Einaudi, 1968, pp. 3–120)

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# On the role of information structure in the licensing of null subjects in Old High German

An analysis of null subjects in *inti* coordinated  
clauses in the Old High German *Diatessaron*

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This paper focuses on the distribution of null subjects in *inti* coordinated clauses in the Old High German translation of Tatian's *Diatessaron* and shows that the presence of null referential subjects in this construction should not be analysed as a case of Topic drop of the same type of present-day German, but as a case of pure *pro*-drop of Romance type, involving the presence of a silent category *pro* licensed via a matching relation with a null Topic in CP (cf. Frascarelli 2007, 2018). The analysis will be shown to be able to also account for the presence of V1 main clauses with free-inversion (*Inversion nach inti* sentences, cf. Coniglio & Schlachter 2013) and to offer a novel scenario on the loss of both the *Inversion nach inti* construction and *pro*-drop in the history of German.

## 1. Introduction

The aim of this paper is to investigate the mechanisms ruling the distribution of null subjects in Old High German (henceforth: OHG). Unlike present-day German, OHG was characterized by the availability of referential null subjects, as attested in the three main early OHG texts (cf. Sonderegger 2003), e.g. the Monsee Fragments (ca 800, adaptation of the Isidor in Bavarian, and other translations of religious texts), Isidor (ca 800, South-Rhine-Franconian), Tatian (ca 850, East Franconian), as the examples in (1) from Axel (2007: 293, in Cognola & Walkden 2019: 101) show.<sup>1</sup>

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1. In example (1c), I do not provide a specific gloss for the expletive *thô* due to its special status in OHG, which will be discussed in Section 4 below.

- (1) a. *Sume hahat pro in cruci*  
 some hang.2PL to cross  
 Lat. *et ex illis ... crucifigetis*  
 ‘some of them you will crucify.’ (MF XVIII, 17; Mt 23:24)
- b. *In dhemu druhtines nemni archennemes ... pro fater*  
 in the Lord.GEN name recognise.1PL father  
 Lat. *In persona enim domini patrem accipimus*  
 ‘in the name of the Lord we recognise ... the Father’ (I 279)
- c. *Steig pro thô in skifilin*  
 stepped thô in little.boat  
*Et ascendens in naucula*  
 ‘he then stepped into the boat.’ (Tatian 193,1)

The possibility of dropping referential subjects in OHG was mostly restricted to main clauses, i.e. null subjects distribute *asymmetrically* across clause type. Axel (2007: 310, using data from Eggenberger 1961) asserts that in main clauses 63% (Monsee Fragments), 44% (Isidor) and 40% (Tatian) of referential subjects are null, whereas in embedded clauses percentages of null subjects are much lower, at 12% (Monsee Fragments), 8% (Isidor) and 7.5% (Tatian).

The traditional studies in this field (Eggenberger 1961; Hopper 1975) have considered the presence of null subjects as an example of loan syntax; in other words, null subjects should not be considered as a genuine OHG phenomenon, but are instead due to the influence of the Latin text. This view is marginal in recent studies, which have shown, at least for the Diatessaron (the text considered in this paper), that the translators were autonomous and did not slavishly follow the Latin (Denschewa 1987; Dittmer & Dittmer 1998; Axel 2007; Fleischer et al. 2008).<sup>2</sup>

Among modern studies there are two general approaches to the topic of null subjects in OHG. The first, which Cognola & Walkden (2019) label the “syntactic” approach (Axel 2005, 2007; Axel & Weiß 2011; Volodina & Weiß 2016; Weiß & Volodina 2018), analyses the distribution of null subjects as a syntactic phenomenon according to which a null subject is licensed in TP if the finite verb is in C°: this is because the features of T° are features of C° in OHG and only appear due to the raising of the verb to C° (cf. Weiß & Volodina 2018, as well for the parallels with

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2. An anonymous reviewer has asked whether pure loan syntax exists at all, or whether syntactic loans are only enhancers of syntactic possibilities that the target language offers regardless. Although providing a full answer to this issue is beyond the scopes of this paper, I generally believe that syntactic loan is much rarer than is assumed, and is also in very unstable varieties like those spoken in heritage contexts (Cognola 2013, 2014, under review; Cognola & Bidese 2016). That said, this obviously does not exclude the fact that loan syntax can be found in some specific contexts or older texts.

the phenomenon of complementiser agreement in present-day German dialects). According to the syntactic approach, the licensing of the null subject is ruled out in embedded clauses, since V-to-C movement does not take place in this clause type (cf. den Besten 1983, 1989).

The second approach, the “topic-matching” approach advocated by Schlachter (2010, 2012), Walkden (2012, 2013, 2014) and Cognola & Walkden (2019, 2021), considers null subjects to be a discourse/pragmatic phenomenon whose distribution is fed by the availability of a Null Topic or logophoric operators in the left periphery, as proposed by Frascarelli (2007, 2018) and Sigurðsson (2011) for the licensing of null subjects in pro-drop languages. Within this approach the asymmetric character of the OHG null phenomenon is assumed to follow from asymmetries between the structure of the left periphery of main and embedded clauses. More specifically, it is assumed that main clauses and embedded clauses with root properties rely on a full structure of the left periphery, and can therefore host the Functional Projections needed for the null Topic/logophoric operator, whereas embedded clauses rely on a reduced structure of the left periphery in which the positions for the null Topic/logophoric operators are not available (see Haegeman 2006 and further work for the idea that adverbial embedded clauses rely on a reduced structure of the left periphery, and Rizzi 1997; Poletto 2002; Benincà 2006 on the left periphery of embedded clauses). Since most embedded clauses exhibit a reduced left periphery, it is expected that in asymmetric pro-drop languages the majority of null subjects are found in main clauses and in embedded clauses with root properties.<sup>3</sup>

The aim of this paper is to contribute to an understanding of the nature of null subjects in OHG by investigating the distribution of null subjects in coordinated clauses introduced by *inti*, which, along with main interrogative clauses, represent an understudied syntactic context (with the exception of Cognola & Walkden 2019, 2021, who discuss interrogative clauses in detail). More specifically, I will focus on the derivation of null subjects in coordinated *inti* clauses challenging the idea that they involve a Topic-drop construction, as proposed by Weiß & Volodina (2018) and Cognola & Walkden (2019) and I will further propose that these clauses also involve the Topic-matching derivation assumed for other OHG main clauses.

The paper is organised as follows. In Section 2, I give an overview of the empirical properties of the null-subject phenomenon and of its theoretical account within Generative Grammar. In Section 3, I present the empirical basis of the study, i.e. the

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3. An anonymous reviewer has noted that in older generative analyses, German embedded clauses are considered genuine CPs, whereas root clauses are considered only IPs (Travis 1984; Reis 1985; Haider 1993). Such an analysis is in contrast with the one adopted in this paper, according to which both main clauses and root embedded clauses have a CP in OHG.

distribution of null subjects in *inti* coordinated clauses exhibiting different word orders. In Section 4, I propose a theoretical account for the data and in Section 5, I summarise the conclusions reached in this study.

## 2. Null subjects in Old High German

### 2.1 On the null subject phenomenon

The null-subject phenomenon can be stated as the empirical observation that in some languages, but not in others, a definite, referential, pronominal subject must be expressed in all finite clauses (Roberts & Holmberg 2010: 3, also for a complete historical overview of the treatment of null subjects in traditional grammar). Italian represents a case of a null-subject language, whereas English and German are prototypical non-null-subject languages.

- (2) a. (*Lei / la mamma*) *ha comprato una macchina*  
           she / the mum   has bought a car  
       b. \*(*Sie / die Mutter*) *hat ein Auto gekauft*  
           she / the mum   has a car bought  
       c. \*(*She / mum*) *bought a car*

Within the framework of Generative Grammar the null-subject phenomenon was captured in terms of a parameter: the pro-drop parameter (Perlmutter 1971). This parameter was intended as a cluster of properties which correlate with the possibility of having a null referential subject (Rizzi 1982, cf. also Chomsky & Lasnik 1977; Kayne 1980; Taraldsen 1978; Jaeggli and Safir 1989; Roberts & Holmberg 2010):

- (3) a. The possibility of a silent, referential, definite subject of finite clauses.  
       b. Free subject inversion.  
       c. The apparent absence of complementiser-trace effects.  
       d. Rich agreement inflection on finite verbs.

The properties (3a)–(d) are not found in all null-subject languages in the same fashion. In some null-subject languages like Italian and Greek, they are all present: these languages are thus called consistent null-subject languages. In other languages, the radical / discourse null-subject languages, the properties in (3) are found despite the absence of rich agreement inflection on the finite verb (Huang 1984).

Recent research has shown that a further type of null-subject language has to be added: partial null-subject languages (Finnish: Holmberg 2005; Holmberg & Sheehan 2010, European and Brazilian Portuguese: Barbosa 1995; Holmberg et al.

2009, Russian: Madariaga 2018). Partial null-subject languages are characterized by the fact that “a silent, referential, definite subject is licensed in a restricted number of syntactic contexts, which appear to be to a greater extent language-specific and do not feature among the cluster properties in (3)” (Cognola & Casalicchio 2018: 3).

One of the syntactic contexts known to have an effect on the distribution of null and overt subjects in partial pro-drop languages is clause type. In a variety of languages, known as “asymmetric pro-drop” languages, null subjects are a typical root phenomenon. Among the asymmetric pro-drop languages several Old Germanic languages (see Axel 2007; Schlachter 2012; Weiß & Volodina 2018; Cognola 2015; Cognola & Walkden 2019 for OHG; Walkden 2014; van Gelderen 2013; Rusten 2019 for Old English; Håkansson 2008 for Old Swedish and Kinn 2016 for Old Norwegian) and Old Romance languages (see Benincà 1984, 1995, 2006, 2010; Cognola 2015 and Cognola & Walkden 2019 for Old Italian, Adams 1987; Vance 1989, 1997; Zimmermann 2014, 2018 for Old French, Wolfe 2015 and Cognola & Walkden 2021 for Old Spanish) are found. In other partial null-subject languages, null subjects are highly restricted in embedded clauses because they can only be licensed if controlled (see Sheehan 2018 and Madariaga 2018).

Another typical property of partial pro-drop languages is that referential null-subjects are only possible, or much more frequent, in some persons. In Hebrew (Shlonsky 2009) and Finnish (Holmberg 2005; Holmberg & Sheehan 2010) referential null subjects are typically found in the first and second persons. Third person null-subjects are more frequent in present-day Russian (Madariaga 2018) and in Old Germanic (Old English: Walkden 2014, OHG: Schlachter 2010, 2012; Cognola & Walkden 2019). In present-day Southern German dialects, null subjects are typically found in the second person and in the first person plural (for Bavarian dialects, cf. Fuß 2011; Cognola 2014; Volodina & Weiß 2016, Rosenkvist 2018). For OHG Axel (2007: 315 based on data from Eggenberger 1961) shows that third person pronouns are null in 54% (singular) and 59% (plural) of cases, whereas the second persons are null in around 30% of cases and the first persons are null in 20% (singular) and 14% (plural) of cases.<sup>4</sup>

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4. Partial pro-drop languages differ from other pro-drop languages in the syntax of generics. See Barbosa (2011a, b), Holmberg (2005), Holmberg & Sheehan (2010), Madariaga (2018) on this.



## 2.2 Derivation of null subjects

Rizzi (1982, 1986, see also Biberauer, et al. 2010 for implementations of this analysis) proposes that the properties in (3) follow from the presence of a null pronoun (*pro*) appearing in Spec,IP which must be licensed (via government, by a case-assigning head) and the null element's feature specification must be recoverable through agreement for interpretation. For radical / discourse null-subject languages the null category is assumed to be a null topic, since in these languages the presence of a null referential subject correlates with the absence of rich agreement morphology on the verb.<sup>5</sup>

Based on a corpus study of spontaneous speech, Frascarelli (2007, 2018) proposes for Italian that null subjects are consistently interpreted in relation to the closest Aboutness topic (Shift/Aboutness topics, hosted in ShiftP), which is a constituent “newly introduced, newly changed or newly returned to” (Givón 1983, in Frascarelli & Hinterhölzl 2007: 87–88). This Aboutness topic must be local, and can be overt or silent. Crucial evidence for the proposal is that, if an overt Aboutness topic and a null subject are both present, the two must necessarily corefer. According to Frascarelli, the Shift head bears a feature which acts as a probe, and enters into an Agree relation with a *pro* in Spec,*v*P as in (4) (Frascarelli 2007: 718, her (30)).<sup>6</sup>

- (4) [<sub>ShiftP</sub> DP<sub>[αPn]</sub> [ Shift° [ ... [AgrSP [ Agr° ... [<sub>vP</sub> *pro*<sub>[αPn]</sub> [<sub>VP</sub> ]]]]]]]]]

Frascarelli further assumes that ShiftP is a criterial position, at least in predicational sentences, and that a topic (possibly silent) must be present in the specifier of ShiftP. This is summarised in her ‘Topic Criterion’, given in full in (5).

- (5) **Topic Criterion** (Frascarelli 2018: 212)
- a. The high Topic field in the C-domain contains a position in which the [+aboutness] feature (an extended EPP feature) is encoded and matched (via Agree) by the local (third person) N[ull]S[ubject].
  - b. When continuous, the [+aboutness] Topic can be null (i.e., silent).

Frascarelli (2018: 221f.) shows that in Italian *pro* is apparently not only licensed by a Shift/Aboutness-Topic, but can be “[...] focused or is part of the Comment in the

5. See Cognola & Casalicchio (2018) for a complete overview of the null categories proposed to be involved in null-subject languages.

6. As Cognola & Walkden (2019: 100) note: “The [αPn] bundles are person features in the sense of Sigurðsson (2004, 2011). The left-peripheral head is the one bearing the interpretable feature, this requires that Agree take place in a configuration in which the valuer c-commands the valuee, as in Wurmbrand (2012) and Zeijlstra (2012)”.

previous sentence” (Frascarelli 2018: 221). An example is the sentence in (6) (from Frascarelli 2018: 221):

- (6) *Vorrei presentarti Leo<sub>k</sub> pro<sub>k</sub> è il mio migliore amico.*  
 want.COND.1SG introduce-to.you Leo is the my best friend  
 ‘I’d like to introduce Leo to you. He is my best friend.’

Frascarelli (2018) proposes that in examples like (6) the antecedent of *pro* is not the object DP *Leo* in the previous Comment, but a silent Shift/Aboutness Topic in the local C-domain licensed by the new-information focus in the previous sentence, as shown in (7) (null topics are indicated in angle brackets <>).

- (7) *Vorrei presentarti Leo.* [<sub>ShiftP</sub> <LEO<sub>k</sub>> [<sub>TP</sub> pro<sub>k</sub> è il mio migliore amico]]

The head of a new topic chain can only be established in a clause that is capable of bearing illocutionary force.

First and second person null subjects work differently: Frascarelli (2018: 219–222) argues that these do not interfere in topic chains and are not licensed by the same mechanism as third person null subjects. Instead, first and second person null subjects enter into an Agree relation with a logophoric agent ( $\Lambda_A$ ) or logophoric patient ( $\Lambda_P$ ), syntactically present in the left periphery. Like the [+aboutness] Topic feature, the features of  $\Lambda_A$  and  $\Lambda_P$  are C/edge linkers (CLn) in the sense of Sigurðsson (2011).

- (8) **C/Edge-Linking Generalization** (Sigurðsson 2011: 282):

Any definite argument, overt or silent, positively matches at least one CLn in its local C-domain, where CLn is an element of the set  $\{\Lambda_A, \Lambda_P, \text{Top} \dots\}$

A second very influential approach assumes that there is no null category in null-subject languages, i.e. the  $\varphi$ -features on Agr/I are interpretable and phonologically expressed as a verbal affix with the same features as a referential, definite pronoun (see Alexiadou & Anagnostopoulou 1998; Borer 1986; Barbosa 1995, 2011a; b). Therefore, there is no need to postulate an empty category because the  $\varphi$ -features are supplied by Agr/I (see Sheehan 2016; Holmberg 2005 and D’Alessandro 2015).

In this paper, following Cognola & Walkden (2019), I stick to Frascarelli’s (2007, 2018) analysis which has the advance of capturing the connection between the distribution of null subjects and its relation to information structure.

## 2.3 Old High German as an asymmetric pro-drop language

### 2.3.1 General overview

In the previous section I have briefly outlined the main properties and the different subtypes of null-subject languages. In this section I discuss the status of OHG as a partial, asymmetric null-subject language.

The claim that OHG instantiates an asymmetric pro-drop system was proposed first by Axel (2007) and Axel & Weiß (2011) based on Eggenberger's (1961) data, which show that null subjects are much more frequent in main clauses and rarer in embedded clauses. Axel's analysis relies on analyses of Old Romance (see Benincà 1984; Vanelli, Renzi & Benincà 1986; Adams 1987; Vance 1989, and Munaro 2010 for a recent overview), in which null subjects are typically found in main clauses and particularly rare in embedded clauses, as shown in (9) with Old Italian (henceforth: OI) data (examples from Cognola & Walkden 2019: 103).

- (9) a. *Quand tu veniss al mondo, se tu voliss pensar, negota ge*  
 when you came to.the world if you wanted think nothing there  
*portassi \_\_\_\_, negota n poi \_\_\_\_, portar*  
 brought.2sg nothing from.there can.2sg take  
 'When you came into the world, if you think about it, you didn't bring anything, and nothing you can take away.' (OMil.; *Bonvesin*, 179)
- b. *E cosi ne provò \_\_\_\_, de' più cari ch'elli avea.*  
 and so of.it tested.3sg of(-the) most dear that=he had  
 'So he tested some of the best friends he had.' (OFlor.; *Testi fiorentini*, 74)
- c. *E certo quando tu; il voli fare docile conviene*  
 and obviously when you him want.2sg make docile is.advisable  
*che tu; insieme lo facci attento*  
 that you together him make.2sg alert  
 'If you want to make him docile, you should also make him alert.'  
 (Brunetto Latini, *Rettorica*, p. 192, rr. 4–5, Benincà 2010: 43)
- d. *se-lla natura domanda ciò ch'ella; ha perduto*  
 if=the nature asks that that=she has lost  
 'If Nature asks back what she has lost' (Novellino, 4, rr. 31–32)

The data in (9) are somehow unexpected from the perspective of present-day Italian, in which overt pronouns are strongly disfavoured in embedded clauses when coreferential with the matrix subject (see Filiaci et al. 2013, though see Frascarelli 2018: 225).

The analysis offered for asymmetric pro-drop in OHG and Old Romance languages is identical and crucially ties the distribution of overt and null subjects to the V2 nature of the languages (see Benincà 1984, 2006; Poletto 2002, 2013, 2014;

Ledgeway 2008; Wolfe 2018; Cognola 2019 among others for the idea that Old Romance languages instantiated a V2 grammar).

V2 languages feature V-to-C movement via INFL (I or T in modern terms) in main clauses which is blocked when a complementiser is hosted in C° (den Besten 1983, 1989). The relationship between V2 and the distribution of overt/null subjects follows from the fact that *pro* is assumed to be governed by INFL. Since INFL can only govern *pro* when it is in C, i.e. in main but not in embedded clauses, the asymmetric pro-drop system emerges. Null subjects are only possible in those embedded clauses with root properties.<sup>7</sup>

This syntactic approach to pro-drop makes two predictions. The first is that null subjects should be favoured in main V2 clauses and be rarer in OV clauses, given that *pro* can only be licensed when the finite verb has raised to a C head (typically in main clauses) – a claim which is supported by the data (Axel 2007; Schlachter 2010, 2012; Walkden 2014).<sup>8</sup> The second, which is not borne out, is that interrogative clauses constitute a syntactic environment favouring null subjects, since they are the prototypical environment for V-to-C movement (see Rizzi 1991 and Kiparsky 1995 on residual V2).

### 2.3.2 *The Topic-matching analysis*

The syntactic analysis for OHG has been challenged by Schlachter (2010, 2012), who focuses on the texts of the Isidor group, and by Walkden (2012, 2014). They point out that the purely syntactic account does not make sense of the fact that (i) null subjects are also found in main clauses with OV word order (in which the finite verb is assumed to remain in its base position); (ii) there are cases of null subjects in embedded clauses; (iii) there are asymmetries in the distribution of null subjects across the different persons, i.e. null subjects are mostly found in the third person (Axel 2007: 315, based on data from Eggenberger 1961).

Schlachter (2010, 2012) and Walkden (2012, 2014) propose an alternative account based on Frascarelli's (2007) analysis of null subjects in present-day Italian. They claim that null subjects are a discourse phenomenon in OHG, in which null subjects

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7. The analysis of *pro* licensing in asymmetric pro-drop languages can be restated in current linguistic terms (see Holmberg 2005, 2010; Cognola & Walkden (2019)).

8. As correctly pointed out by an anonymous reviewer, it is fair to say that cases of pro-drop and OV are in principle attested in embedded clauses in OHG, even though data are scarce and fragmentary. There are, in fact, few embedded clauses with verb-final position and pro-drop and the embedded clauses involved are typologically quite heterogeneous, as discussed in detail by Weiß & Volodina (2018: sect. 11.4, 11.6.2).

are licensed by a null Topic in CP, licensed by an Aboutness Topic in the preceding sentence, which establishes an Agree relation with *pro* in Spec,TP. According to them, first, and second person null subjects are not available because the A-Topic chain can only involve third persons. Null subjects in embedded clauses are only possible in embedded clauses with root properties (cf. those selected by bridge verbs, cf. Schlachter 2012: 204).

Cognola (2015) and Cognola & Walkden (2019) examine the distribution of null and overt subjects in OHG and OI reconsidering the issue of null subjects in asymmetric null subject languages both empirically and theoretically arriving at a novel analysis which refines the approach advocated in Schlachter's (2012) and Walkden's (2012, 2014) studies. What remains unclear in the latter papers is the person asymmetry: although third person null subjects are the most frequent cases of pro-drop, null subjects are also attested with all other persons and these cases are not accounted for by the null-Topic account. Moreover, second-person null subjects are a pervasive context for null-subjects, since they have been possible for the whole history of German (Volodina & Weiß 2016; Weiß & Volodina 2018) and are still possible (along with the first person plural) in Southern German dialects (cf. Bayer 1984; Weiß 2005; Weiß & Volodina 2018; Rosenkvist 2018).

Cognola (2015) and Cognola & Walkden (2019) analyse the distribution of null and overt subjects in an OI-OHG parallel corpus. The text they focus on is Tatian's Diatessaron, which was translated from Latin in OHG around 850 (Codex Sangallensis 56, Stiftsbibliothek Sankt Gallen) and in OI around 1300 (see Petersen 1994 for the text's history, and Ranke 1868, Sievers 1892 and Vaccari & Vattasso 1938 for the history of the OHG and OI manuscripts).

Cognola & Walkden (2019) show that both languages exhibit a very close distribution of null and overt subjects in both sentences featuring a null subject in the Latin and in those featuring a null subject in the original text. In Table 1 (from Cognola & Walkden 2019: 107) we see that in all cases in which an overt subject is present in the Latin, also the translations will feature an overt subject with virtually no exception.

**Table 1.** Translations of all sentences with a DP subject in the Latin

Latin	Main declaratives		Main interrogatives		Embedded clauses	
	Overt	Null	Overt	Null	Overt	Null
	101		56		35	
OHG	101/101 (100%)	0/101 (0%)	56/56 (100%)	0/56 (0%)	35/35 (100%)	0/35 (0%)
OI	99/101 (98%)	2/101 (2%)	51/56 (91%)	5/56 (9%)	35/35 (100%)	0/35 (0%)
Total	200/202	2/202	107/112	5/112	70/70	0/70

Null subjects in the OHG and OI texts are only possible when there is a null subject in the Latin (see Eggenberger 1961 for a similar observation), as shown in Table 2 (from Cognola & Walkden 2019: 108). Note, however, that the percentages of null subjects in the translations differ according to clause type. As expected based on the hypothesis that OHG and OI are asymmetric pro-drop languages, referential null subjects are much more frequent in main clauses and very rare in embedded clauses (4/46<sup>9</sup> in OHG and 15/46 in OI). Unexpectedly, main clauses do not pattern together: null subjects are much rarer in main interrogative clauses (OHG: 30% and OI: 40%) and more frequent (OHG/OI: 90%) in main declarative clauses.

**Table 2.** Translations of all sentences with a null subject in the Latin

Latin	Main declaratives		Main interrogatives		Embedded clauses	
	Overt	Null	Overt	Null	Overt	Null
	60		183		46	
OHG	5/60 (8%)	55/60 (92%)	125/183 (69%)	58/183 (30%)	41/46 (90%)	4/46 (10%)
OI	6/60 (10%)	54/60 (90%)	102/183 (56%)	81/183 (44%)	31/46 (68%)	15/46 (32%)
Total	11/120	109/120	227/366	139/336	72/92	19/92

The data discussed in Tables 1 and 2 should not be taken as evidence in favour of the loan-syntax hypothesis, as in Eggenberger (1961). As already pointed out by Axel (2007) for OHG (and the very same argument can be made for Old Italian), the translators did not, in fact, slavishly follow the Latin model, but rather showed a high degree of autonomy, as the distribution of null/overt subjects in interrogative and embedded clauses shows.

Cognola & Walkden (2019) proposed that the distribution of overt and null subjects in the OHG and OI Diatessaron follows from the fact that null subjects are licensed in these languages via a mechanism close to that of present-day Italian (Frascarelli 2007, 2018, Section 2.2 above). Key to Frascarelli's analysis is the assumption of the presence of an overt or a silent Aboutness-Shift topic licensed by either a topicalised or focused subject appearing in the previous sentence. Cognola & Walkden (2019) have shown that the presence of overt subjects in the Latin and in the two translations is fully expected within this approach: these subjects cannot be dropped because they are functional to the narration, since they are either topicalised or focused and, therefore, either head the Topic chain needed to license *pro* or bear a focus reading which obviously can only be realised by an overt subject.

9. There are 5 examples of null subjects in the corpus, but in one case the null subject is not referential has been excluded.

Therefore, the data in Table 1 are fully predicted and fully expected from the licensing mechanism of null subjects proposed by Frascarelli (2007, 2018).

Let us now consider the data in Table 2. Cognola & Walkden (2019) have proposed that null subjects are licensed in OHG through two different mechanisms found in different syntactic contexts. The first context is coordination (10a), which involves the presence of a null subject in a coordinated sentence introduced by *inti*. In the example in (10) (from Cognola & Walkden 2019: 118) it is evident that the subject *Ioseph* remains null in the two coordinated sentences introduced by *inti*.

- (10) *Arstantanti thô Ioseph fon slafe teta só imo gibot truhtines*  
 emerging thô Joseph from sleep did.3SG how him commanded God.GEN  
*engil inti \_\_\_ inphieng sina gimahhun inti \_\_\_ ni uuard ira uuis*  
 angel and took.3SG his wife and NEG became her know  
 ‘Once Joseph got up, he did as commanded by the angel and accepted his wife  
 and did not get to know her.’ (Tatian 5,10 p. 23)

The second context is the sentence-beginning context. Finite embedded adverbial clauses and participial clauses are often found at the beginning of a new paragraph and their syntactic position has the function of creating text coherence. What can be observed from the data is that when a (new or given) DP subject appears in the fronted embedded adverbial clause, it can license a silent coreferential subject in the main clause. In (11) from Cognola & Walkden 2019: 118, it is clear that the subjects of the fronted adverbial clauses are *Herod*, *Elisabeth* and *Ioseph* and that a null subject, coreferential with the DP subject appearing in the embedded clauses, can be found.<sup>10</sup>

10. An anonymous reviewer has wondered whether the distribution of null subjects in the examples in (11) might be an effect of the fact that in Tatian the German lines have to match the material of the Latin lines (see Dittmer & Dittmer 1998). Therefore, the difference to present-day German might not be that there must be an overt subject in the matrix clause, although it is already introduced in the embedded clause, but that the subject is only expressed in the matrix clause. According to the reviewer’s hypothesis, the sentences would, therefore, involve a null subject in the embedded clause and the DP subject should be interpreted in the main clause, a fact which is not transparent due to the matching requirements between the Latin and German lines of the text. If this were the case, the logical line breaks should be: *Uuard thô gifullit heilages geistes // Helisabeth arriof; Thô thaz gihorta // Herodes ther cunig uuard gitruobit*. In the case of the example *Arstantanti thô Ioseph fon slafe teta só imo gibot truhtines engil* one should assume that the subject *Ioseph* appears before the PP *fon slafe* due to a slavish translation of the Latin. I have checked the sentences in the original manuscript (<https://www.e-codices.unifr.ch/it/csg/0056/35/0/>, 26/11/2020) and have found that there is definitely an effect of alignment with the Latin (which I indicate with the symbol “//” in the text). More specifically, all sentences in (11) involve a configuration in which the fronted embedded clause featuring the DP subject appears in a line, and the finite verb appears as the first word of the following line. Therefore, it

- (11) a. *Thô thaz gihorta Herodes ther cunig, // uuard \_\_\_ gitruobit inti*  
 once that heard Herod the king became.3SG upset and  
*al Hierusalem mit imo*  
 all Jerusalem with him  
 Lat. *Audiens autem Herodes rex // turbatus est et omnis Hierusolima cum illo*  
 ‘Once the king Herod heard that, he became upset and all Jerusalem with him.’  
 (*Tatian* 8,3 p. 27)
- b. *Uuard thô gifullit heilages geistes Helisabeth, // arriof \_\_\_*  
 became thô filled holy.GEN spirit.GEN Elisabeth cried  
*mihhilerostemnu inti quad:*  
 strong voice.DAT and said  
 Lat. *Et repleta est spiritu sancto Elisabeth, // et exclamavit voce magna et dixit:*  
 ‘Elisabeth was filled in by the Holy Spirit and cried with a loud voice and said ...’  
 (*Tatian* 4,3, p. 17)
- c. *Arstantanti thô Ioseph fon slafe // teta \_\_\_ só imo*  
 emerging thô Joseph from sleep did.3SG how him  
*gibot truhtines engil*  
 commanded God.GEN angel  
 Lat. *Exsurgens autem Ioseph a somno // fecit sicut precepit ei angelus domini*  
 ‘Once Joseph got up, he did as commanded by the angel.’  
 (*Tatian* 5,10 p. 23)

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is possible that the null subject can be interpreted in the fronted embedded clause (as proposed by the anonymous reviewer) or in the main clause (as I have proposed here, and as it is indirectly suggested by Sievers 1892 through the insertion of a comma between the embedded clause and the finite verb in his critical edition of the text). The idea that the null subject is licensed in the embedded clause is not unproblematic, since this fact is not found in present-day German and must be accounted for. To provide an answer, a topic-matching analysis would have to investigate more closely the internal structure of the fronted embedded clauses (typically adverbial clauses, with a reduced, though not absent, left periphery, see Haegeman 2006) in order to verify whether they exhibit the Functional Projections needed for the licensing of a null subject. If the subject is interpreted in the main clause, as I have assumed in this paper, its presence follows naturally from the availability of a TopicP in the left periphery of the main clause. Having said this, the hypothesis that the null subject appears in the main clause is more convincing, since as shown by example (11b), the translators do not always strictly adhere to the Latin (the Latin has two coordinated clauses, which become a single clause in the OHG version) but rather exhibit some autonomy (a fact which is confirmed by others, cf. Axel 2007). Therefore, it can be assumed that they can be relied on and can be thought to produce grammatical sentences in OHG. Unfortunately, the data considered for this paper are too scarce to provide a clear-cut answer, and I leave this issue open for further research.



As shown in (12), the possibility that a null subject in a main clause is coreferential with a DP subject in a fronted embedded clause is ruled out in present-day German.

- (12) a. *Als Mario; sie sah, erkannte er<sub>j</sub> sie sofort.*  
 as Mario her saw recognised he her immediately  
 b. \**Als Mario; sie sah, erkannte \_\_\_ sie sofort.*  
 as Mario her saw recognised her immediately  
 ‘When Mario saw her, he recognised her immediately.’

Cognola & Walkden (2019) proposed that null subjects are licensed in different ways in the two contexts. Cases involving a null subject in coordination, like in (10), are analysed as shown in (13), as examples of Topic drop (i.e. deletion of the subject in the sentence-initial position, Ross 1982; Haider 2010; Trutkowski 2011, 2016) of the type familiar in present-day German (see also Weiß & Volodina 2018: 264f).<sup>11</sup>

- (13) *inti \_\_\_ inphieng sina gimahhun*  
 and accepted his wife  
 [<sub>ForceP</sub> *Joseph<sub>k</sub>* [<sub>Force°</sub> *inphieng<sub>j</sub>*] [<sub>TP</sub> *t<sub>k</sub> t<sub>j</sub>*] [... [<sub>VP</sub> *t<sub>k</sub> t<sub>j</sub> sina gimahhun*]]]  
 Lat. *et accepit conjugem suam*  
 ‘and (he) accepted his wife’ (Tatian 5,10, p. 23)

Null subjects in the *sentence-beginning context* (11), on the contrary, cannot be subsumed as examples of Topic drop, since the sentence left periphery is occupied by an adverbial clause, and the precondition for topics to drop is that nothing is hosted in the left periphery (as in coordinated clauses). Cognola & Walkden (2019) proposed, therefore, that these cases are true examples of pro-drop and should receive the same analysis as Italian null-subject sentences. More specifically, they argued that, as in present-day Italian, they involve the presence of a null referential pronoun *pro* in Spec,TP which is licensed by an Aboutness Topic in CP.<sup>12</sup>

11. Weiß & Volodina (2018: 264) distinguished between two types of antecedent-linked subject drop in the literature: Coordination ellipsis, in which the subject in the first clause precedes the finite verb, and subject gap constructions (see also Heycock & Kroch 1994), in which the subject of the first clause appears in the inversion construction after the finite verb. Cognola & Walkden (2019) analysed cases of subject gap constructions as examples of conjunction reduction.

12. Weiß (2015, 2018) argued that it is essential for German that reduced, enclitic or null-pronouns are generally in the Wackernagel position, i.e. in the enclitic position. The approach adopted here does not differ from Weiß (2015, 2018) in assuming that *pro* appears enclitically (following standard assumptions, I take V-to-C movement to also be present in OHG). The only difference is that V-to-C movement is not taken to be the condition for *pro* licensing, but instead a phenomenon interacting with the null subject (which is actually licensed by the matching relation with a null Topic in the left periphery).

Let us focus on OHG (the reader is referred to Cognola & Walkden 2019 for the analysis of null subjects in OI). Cases of null subjects in the sentence-initial context are analysed as involving the presence of an adverbial clause in FrameP (Broekhuis & Corver 2016). Following Poletto (2002); Labelle (2007); Mathieu (2013), Wolfe (2015, 2018) and Haegeman & Greco (2018); Cognola & Walkden (2019) proposed that this is a FrameP specialised for scene-setting elements, above ForceP.

- (14) [<sub>FrameP</sub> [*Arstantanti thô Ioseph fon slafe*] [<sub>ForceP</sub> [<sub>Force°</sub> [<sub>TP</sub> [... ]]]]]

In the configuration in (14), the new or given DP subject appearing in the fronted embedded clause is able to license a silent Aboutness Topic (as in Italian, see Example (6) in Section 2.2 above) in the following sentence which builds a chain with *pro* in Spec,TP. The idea that *pro* is licensed via a matching relation with a Topic in the left periphery is supported by the behaviour of interrogative clauses, in which null subjects are possible irrespective of the presence of a *wh*-element in the left periphery. Cognola & Walkden (2019) have shown that in OHG the licensing of null subjects in interrogative clauses is not sensitive to *wh*-type, unlike in OI, but instead is sensitive primarily to person (see also Weiß & Volodina 2018). Cognola & Walkden propose that in this context the licensing of *pro* in Spec,TP takes place via a Topic chain with a Topic in the left periphery and that this takes place because: (i) there is a TopicP in the left periphery, and (ii) there is rich morphology on the finite verb, as shown in (15).

- (15) [<sub>FP</sub> WH [<sub>FP</sub> <Topic><sub>P[αPn]</sub> [<sub>FP</sub> finite verb [<sub>AgSP</sub> *pro*<sub>[αPn]</sub> [<sub>Agro</sub> finite verb [<sub>vP</sub> *pro*<sub>[αPn]</sub> [<sub>VP</sub> ]]]]]]]]]

The derivation proposed for main interrogative clauses is applicable to null subjects appearing in the context of the beginning of a paragraph (16), as shown in the structure in (17).

- (16) *Arstantanti thô Ioseph fon slafe teta*    \_\_\_    *sô imo gibot*  
 emerging *thô* Joseph from sleep did.3SG    how him commanded  
*truhtines engel*  
 God.GEN angel  
 Lat. *Exsurgens autem Ioseph a somno fecit sicut precepit ei angelus domini*  
 ‘Once Joseph got up, he did as commanded by the angel.’ (Tatian 5,10 p. 23)

- (17) [<sub>FrameP</sub> [*Arstantanti thô Ioseph fon slafe*] [<sub>ForceP</sub> *teta*<sub>k</sub> [<sub>TopicP</sub> [<IOSEPH>] [<sub>Topic°</sub> *t<sub>k</sub>* [<sub>TP</sub> *pro* *t<sub>k</sub>* ]]]]]]]

Therefore, the two key conditions for *pro* licensing in OHG are: (a) the availability of a TopicP in the left periphery (cf. Tomaselli 1995; Axel 2007; Walkden 2014, 2015 for V3 word orders in OHG supporting this structure), and (b) the identification between the null topic and *pro* enabled by the strong *phi*-features on verb morphology.

These allow an Agree chain, probing for person, to be established between *pro*, the verb, and the logophoric operator within the left periphery even in the presence of an “intervening” *wh*-element: Relativized Minimality is sensitive only to elements of the same featural specification (see e.g. Rizzi 2004).

(18) [<sub>ForceP</sub> *wh*- [<sub>TopicP</sub> Null Topic [<sub>Topic°</sub> [TP]]]]

### 3. The present investigation

The present study focuses on the distribution of null and overt subjects in main clauses introduced by *inti*. This paper’s aim is to verify whether Weiß & Volodina’s (2018) and Cognola & Walkden’s (2019) claims that in this syntactic configuration null subjects should be assimilated to Topic drop of the present-day German type are accurate, or whether the topic-matching mechanism is also operative in coordinated sentences.

#### 3.1 Data collection and overview

In order to address the research question, I considered the first 100 coordinated sentences introduced by *inti* in the OHG Diatessaron. Elliptical sentences and sentences not involving a finite verb form were excluded. All relevant sentences were extracted from the TITUS Database, transcribed in an Excel file and then classified according to: (i) the position of the finite verb in the coordinated sentence, (ii) the presence of an overt subject, its position (pre- or postverbal) and its discourse function (given/new; topic/focus); (iii) the presence of a null subject. All sentences were transcribed according to the orthographic conventions in TITUS and an indication has been given of the chapter, sentence and page numbers according to Sievers’ (1892) critical edition.

The distribution of null/overt subjects must be investigated together with the syntax of the finite verb for two reasons. First, as discussed in Section 2, the licensing of null subjects in V2 asymmetric *pro*-drop languages like OHG takes place through the presence of a TopicP/Functional Projection hosting a null Topic or a logophoric operator in the left periphery. Therefore, in a V2 language, the position of the finite verb interacts in a crucial way with the licensing of the null subject. Second, as discussed by Coniglio & Schlachter (2013), the syntax of OHG clauses introduced by *inti* is subject to variation in the position of the finite verb.

*Inti* can in fact introduce a V2 main declarative clause (19a), like in present-day German, or a V1 main declarative clause (19b,c), in the so-called *Inversion nach und*

construction (see Behaghel 1932) – a construction that is ruled out in present-day German (19d).<sup>13</sup>

- (19) a. *Wir haben uns getroffen und er hat mir gesagt, dass er nicht*  
 we have us met and he has me.DAT said that he NEG  
*mehr in Trento arbeitet.*  
 more in Trento works  
 ‘We met and he told me that he does not work in Trento anymore.’
- b. [...] *endi israhel auh ardot baltliihho, endi ist siin namo so sie*  
 and Israel also remains fearless and is his name so they  
*inan nemnant*  
 him call  
 ‘and Israel too remains fearless and its name remains as they report it.’  
 (Isidor 39,10, in Coniglio & Schlachter 2013: 203)
- c. *Thô quad Maria: mihhiloso mîn sela truhtin, inti gifah*  
 thô said Maria praise.SUBJ.3SG my soul Lord and rejoiced  
*mîn geist*  
 my spirit  
 Lat. *Et ait Maria: magnificat anima mea dominum, et exultavit Spiritus*  
*meus*  
 ‘And Maria said: my soul, praise the Lord, and my spirit rejoiced.’  
 (Tatian 5,5 p. 18)
- d. \**Wir haben uns getroffen und hat er mir gesagt, dass er nicht*  
 we have us met and has he me.DAT said that he NEG  
*mehr in Trento arbeitet*  
 more in Trento works  
 ‘We met and he told me that he does not work in Trento anymore.’

Note, that the V1 construction illustrated in (19b,c) involves the presence of two non-identical subjects between the coordinated clauses. This implies that this V1 construction differs from the V1 sentences found in present-day German coordination ellipsis and subject gap constructions (Volodina & Weiß 2016; Weiß & Volodina 2018; Reich 2009). These constructions involve a V1 coordinated sentence featuring a silent subject identical to the preverbal (coordination ellipsis) or postverbal (subject-gap construction) subject of the first sentence (examples from Weiß & Volodina 2018: 265).

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13. The OHG examples from the Diatessaron are cited based on Sievers’ (1892) text edition and transcribed according to the version available in the TITUS database. The first number refers to the chapter, the second to the paragraph, and the third to the page number of the critical edition.

(20) a. Coordination ellipsis

*Peter kommt früh heim und sieht den Nachbarn vor der Tür.*  
 Peter comes early home and sees the neighbour outside the door  
 ‘Peter comes home early and sees the neighbour at the door.’

b. Subject gap construction

*Früh kommt Peter heim und sieht den Nachbarn vor der Tür.*  
 early comes Peter home and sees the neighbour outside the door  
 ‘Peter comes home early and sees the neighbour at the door.’

The type of variation in the position of the finite verb in clauses introduced by the conjunction *inti* discussed by Coniglio & Schlachter (2013) is also found in the OHG Diatessaron. As summarised in Table 3, there are three attested patterns. The first is the pattern also found in present-day German, in which *inti* functions as a coordinating conjunction (which does not “count” for V2 since it does not trigger subject-finite verb inversion and appears in the *Vorvorfeld* according to the topological analysis, see Wöllstein 2014 a.o.) introducing a main declarative clause with linear V2 word order. The second attested pattern is the *Inversion nach und* construction, in which the conjunction introduces a V1 main clause. The last pattern attested (also absent in present-day German) is OV word order, i.e. the finite verb appears in the last position in the clause – an option that is ruled out for main clauses in present-day German and is restricted to embedded clauses.

**Table 3.** Syntax of the finite verb in *inti* clauses in the corpus

Word order	Classification	Number
<i>inti</i> + XP + finite verb	<i>inti</i> + V2 clause	35/100
<i>inti</i> + finite verb	<i>inti</i> + V1 clause	59/100
<i>inti</i> + XP(s) + finite verb	<i>inti</i> + OV clause	6/100

In what follows I illustrate the three orders in Table 3 and investigate the distribution of null subjects in these three patterns.

### 3.3.1 *Inti* + V2 clauses

The first word order attested in *inti* coordinated sentences in the OHG Diatessaron involves a configuration identical to that found in present-day German. In this syntactic configuration, *inti* introduces a V2 main declarative clause.

- (21) a. *inti thaz uuort uuas mit gote*  
and the word was with God  
*Lat. et verbum erat apud deum*  
'And the word was with God.' (Tatian 1,1, p. 13)
- b. *inti thin quena Elysabeth gibirit thir sun*  
and your wife Elisabeth bear to.you son  
*Lat. et uxor tua Elysabeth pariet tibi filium*  
'And your wife Elisabeth will bear you a son.' (Tatian 2,5, p. 15)
- c. *inti thu ginemnis sinan namon Heilant*  
and you call his name Saviour  
*Lat. et vocabis nomen eius Iohannem*  
'And you will call him Saviour.' (Tatian 3,4, p. 16)
- d. *inti ira namo uuas Elisabeth*  
and her name was Elisabeth  
*Lat. et nomen eius Elisabeth*  
'And her name was Elisabeth.' (Tatian 2,1 p. 14)

As in present-day German, the V2 main clause introduced by *inti* can also involve a non-subject constituent preceding the finite verb. In this configuration, the finite verb follows the fronted XP and is followed by the finite verb (subject-finite verb inversion).

- (22) a. *inti in erdu sí so sibba mannun guotes uuillen.*  
and on earth be.SUBJ so peace men.DAT good.GEN will.GEN  
*Lat. et in terra pax hominibus bonae voluntatis.*  
'And peace on earth among men of good will.' (Tatian 6,3, p. 25)
- b. *inti [ubar allu gibirgu Iudeno] vvurdun gimarit allu*  
and on all mountains Jews.GEN AUX.PASS spread.out all  
*thisu uuort*  
these words  
*Lat. et super omnia montana Iudeę divulgabantur omnia verba hec,*  
'And on all mountains of Judea all these words are spread out.'  
(Tatian 4,3, p. 19)
- c. *inti gifulte uurdun thō taga sines ambahtes,*  
and completed AUX.PASS.3PL thō days his.GEN service.GEN  
*Lat. Et factum est ut inpleti sunt dies officii eius*  
'And the days of his service were then completed.' (Tatian 2,11, p. 15)

The data discussed in this section indicate that in the OHG Diatessaron, *inti* can introduce a V2 main declarative clause just as it can in present-day German.

### 3.3.2 Inti + V1 clauses

The second word order attested in the data involves linear V2. in the *Inversion nach und* construction.

I suggest that there exist at least three subtypes of this construction. The first subtype involves the presence of an unaccusative verb and a new-information post-verbal DP subject.

- (23) a. *inti ni uuard in sun,*  
and NEG became them.DAT son  
Lat. *non erat illis filius,*  
'And they had no children.' (Tatian 2,2 p. 14)
- b. *Inti arfuor thô fon iru thie engil*  
and went.away thô on her this angel  
Lat. *Et discessit ab illa angelus.*  
'And the angel went away from her.' (Tatian 3,9, p. 17)

The second context involves *inti* followed by the finite verb and a DP/pronominal subject. The subject is either a shift topic (24) or a contrast/new-information focus (25).

- (24) <shift topic> (Zacharias is returned to after a long passage)  
*Inti quad Zacharias zi themo engile: uuanan uueiz ih bim alt, inti min*  
and said Zacharias to this angel what know I am old and my  
*quena fram ist gigangan in ira tagun*  
wife very is gone in her days  
Lat. *Et dixit Zacharias ad angelum: Unde hoc sciam? ego enim sum senex, et uxor mea processit in diebus suis*  
'And Zacharias told that angel: I do not know, I am old and my wife is advanced in age.' (Tatian 2,8 p. 15)
- (25) <new-information focus: *thaz folc*>  
*Inti uuas thaz folc beitonti Zachariam*  
and was the people waiting Zacharias  
Lat. *Et erat plebs expectans Zachariam*  
'And the people were waiting for Zacharias.' (Tatian 2,10 p. 15)

The last subtype of the *Inversion nach inti* construction primarily involves the presence of a pronoun in OHG and typically expresses an order or a forecast. In this configuration, the subject is a pronoun with the pragmatic interpretation of a contrastive topic/contrastive focus and can also be inserted against the Latin.

- (26) a. *inti nemnis thû sinan namon Iohannem*  
and call.2SG you his name John  
Lat. *et vocabis nomen eius Iohannem*  
'And you will call him John.' (Tatian 2,5 p. 14)

- b. *inti nu uuirdist thû suigenti*  
 and nu become.2SG you mute  
 Lat. *Et ecce eris tacens*  
 ‘And you will become mute.’ (Tatian 2,9 p. 15)

*Inti* + V1 clauses can also involve the presence of a null subject, as the examples in (27) show:

- (27) a. *inti quad*  
 and said  
 Lat. *et dixit*  
 ‘And (he) said’ (Tatian 2,8 p. 15)
- b. *inti ni maht sprehan unzan then tag*  
 and NEG can.2SG speak until the day  
 Lat. *et non poteris loqui usque in diem*  
 ‘and you cannot speak until the day.’ (Tatian 2,9 p. 15)

### 3.3.3 *Inti* + OV clauses

The last word order found in coordinated sentences in the OHG Tatian is OV syntax, which, unlike present-day German, can also be found in main clauses in the older stages of the language.

As shown in (28), in the majority of cases appearing in the corpus this word order (which represents a minority pattern, see Table 3 in Section 3.1 above) involves the presence of an overt subject. In a single case (28e), however, a null subject is attested (see Schlachter 2010, 2012 and Weiß & Volodina 2018).<sup>14</sup>

- (28) a. *inti thaz lioht in finstarnessin liuhta*  
 and that light in darkness lighted  
 Lat. *Et lux in tenebris lucet*  
 ‘And that light lighted in the darkness.’ (Tatian 1,4 p. 13)

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14. As correctly pointed out by an anonymous reviewer, establishing the exact underlying position (C° or v°) of the finite verb in the examples in (28) is not a straightforward undertaking. Note, however, that the issue of the exact position of the finite verb is not crucial for the theoretical account to be proposed in this paper (unlike in approaches adopting the syntactic analysis; see Section 2.3.1 above), since the possibility of licensing a null subject within the topic-matching approach is not fed by the position of the finite verb but rather by the availability of a TopicP in the left periphery. Within the topic-matching analysis, the fact that null subjects are less frequent in *inti* coordinated main clauses with OV word order might be due to the fact that the TopicP available below *inti* most naturally hosts a DP subject, which is the prototypical given/topicalised constituent (see also Rizzi 2005). Since the numbers of main clauses with OV order are so reduced, this hypothesis must remain at the level of a speculation.



- b. *inti manage in sinero giburti mendent*  
and many in his birth rejoice.3PL  
Lat. *et multi in nativitate eius gaudebunt*  
'And many will rejoice of his birth.'  
(*Tatian* 2,6 p. 14)
- c. *Inti ingangenti thie engil zi iru quad*  
and in.going the angel to her said  
Lat. *Et ingressus angelus ad eam dixit*  
'And the angel came in and told her ...'  
(*Tatian* 3,2 p. 16)
- d. *inti sines rihhes nist enti*  
and his.GEN reign.GEN NEG-is end  
'And his reign will never end.'  
Lat. *et regni eius non erit finis*  
(*Tatian* 3,5 p. 16)
- e. *inti uuin noh lid ni trinkit*  
and wine nor schnapps NEG drinks  
Lat. *et vinum et siceram non bibit*  
'And (he/she) does not drink wine nor other alcoholic beverage.'  
(*Tatian* 2,6 p. 14)

### 3.3.4 Partial conclusions

The data discussed so far allow us to reach the following descriptive generalisations.

- (29) a. *inti* introduces a V2 main clause:  
*inti* + XP + V + XP
- b. *inti* can be followed by a V1 main clause. In this configuration, the subject can be absent or it can follow the finite verb:  
*inti* + V + SUBJ  
*inti* + V + XP  
(*Inversion nach inti* construction)
- c. *inti* can be followed by several constituents leading to OV word order. In this configuration, the subject can be null:  
*inti* + SUBJ + XP + XP + V  
*inti* + XP + XP + XP + V
- (30) a. Null subjects are not found in *inti*+V2 main clauses;  
b. Null subjects are found in *inti*+V1 and in *inti*+OV sentences.

## 3.4 The distribution of null subjects in sentences introduced by *inti*

Pro-drop is consistently found in *inti*+V1 clauses, apart from a single case of a null subject in a main clause introduced by *inti* and featuring OV word order. The aim of this section is to focus on sentences featuring a null subject in order to provide a theoretical account of their derivation.

Let us consider first the derivation of non-coordinated V2 main clauses in OHG. As discussed in Section 2, this syntactic configuration can involve two possible derivations. The first, repeated in (31a), involves the presence of a null Aboutness Topic licensed by a topicalised or focused XP appearing in the previous sentence, which establishes a matching relation with *pro* in Spec,TP. The second, repeated in (31b), is the Topic-drop analysis, according to which there is no null category in Spec,TP and the null subject is an instance of a dropped Topic which can be dropped because no other XP appears in the left periphery.

- (31) a. [<sub>ForceP</sub> finite verb]<sub>j</sub> [<sub>FP</sub> <Null Topic/Logophoric Operator> P<sub>[αPn]</sub> [<sub>TP</sub> *pro* P<sub>[αPn]</sub> t<sub>j</sub> [... [<sub>VP</sub> t<sub>j</sub> ]]]]]  
 b. [<sub>ForceP</sub> Subject<sub>t<sub>k</sub></sub> [<sub>Force°</sub> finite verb]<sub>j</sub> [<sub>TP</sub> t<sub>k</sub> t<sub>j</sub> [... [<sub>VP</sub> t<sub>k</sub> t<sub>j</sub> ]]]]]

The key factor allowing us to distinguish between the two possible derivations in (31) is person. As discussed in Section 2.3 above, Topic drop will necessarily involve a third person null subject, whereas cases of null subjects in the first and second persons will involve the presence of a logophoric operator (Frascarelli 2007, 2018; Sigurðsson 2004, 2011).

Most of the sentences featuring V2 in the absence of an overt subject involve a null third person subject. As shown in (32), the null topic is licensed by the presence of a third person XP either after or before the finite verb in the first clause or before it (see Weiß & Volodina 2018).

- (32) a. *Uuard thô gifullit heilages geistes Helisabeth arriof mihhilero*  
 became thô filled holy.GEN spirit.GEN Elisabeth cried great  
*stemnu inti <HELISABETH> quad: gisegenot sís thû untar uuibun*  
 voice and said blessed be you among women  
 Lat. *Et repleta est spiritu sancto Elisabeth, et exclamavit voce magna et dixit: benedicta tu inter mulieres,*  
 ‘And Elisabeth was filled with the Holy Spirit, cried with a loud voice and said: you are blessed among all women.’ (Tatian 4,3 p. 17)
- b. *Inti uuas thaz folc beitonti Zachariam, inti <THAZ FOLC>*  
 and was the people waiting Zacharias and  
*vvuntrotun thaz her lazzeta in templo*  
 were.surprised that he lingered in temple  
 Lat. *Et erat plebs expectans Zachariam, et mirabantur quod tardaret ipse in templo*  
 ‘And people were waiting for Zacharias, and they were surprised that he was lingering in the temple.’ (Tatian 2,10 p. 15)

- c. *Elisabeth uuârlihho uuard gifullit zît zi beranne, inti*  
 Elisabeth really became filled time to give.birth and  
 <ELISABETH> gibar ira sun.  
 gave.birth.to her son

Lat. *Elisabeth autem impletum est tempus pariendi, et peperit filium suum*  
 ‘Once the pregnancy was over, Elisabeth gave birth to her son.’

(*Tatian* 4,9 p. 18)

- d. *Inti Zacharias sin fater uuard gifullit heilages geistes inti*  
 and Zacharias his father became filled holy.GEN spirit.GEN and  
 <ZACHARIAS> uuizagota sus quedanti:  
 forecasted like.this saying

Lat. *Et Zacharias pater eius impletus est spiritu sancto et prophetavit dicens:*  
 ‘And Zacharias his father was filled with Holy Spirit and said forecasting  
 the following.’

(*Tatian* 4,14 p. 19)

As shown in (33) the dropped topic is typically the closest possible antecedent in terms of linearisation. In the example in (33), the first XP to remain null in the coordinated sentence is *Zacharias*, whereas in the following ones it is *truhtin got Israhelo* which is introduced later in the narration and can then be silent in the following coordinated sentences.

- (33) *Inti Zacharias sîn fater uuard gifullit heilages geistes inti*  
 and Zacharias his father became filled holy.GEN spirit.GEN and  
 <ZACHARIAS> uuizagota sus quedanti: giuuihit sí truhtin got  
 forecasted so saying blessed be Lord God

*Israhelo, bithiu uuanta <TRUHTIN GOT ISRAHELO> uuísota inti*  
 Israel.GEN since visited and

<TRUHTIN GOT ISRAHELO> teta lôsunga sinemo folke, inti  
 did.3SG freedom his.DAT people and

<TRUHTIN GOT ISRAHELO> arrihta horn heili uns in húse  
 created horn health.GEN us in house.DAT

*Dauides sînes knehtes.*

David.GEN his.GEN servant.GEN

Lat. *Et Zacharias pater eius impletus est spiritu sancto et prophetavit dicens:*  
*benedictus dominus deus Israhel, visitavit et fecit redemptionem plebi suae, et*  
*erexit cornu salutis nobis in domo David pueri sui*

‘Zacharias, his father, was filled by the Holy Spirit and said forecasting: the God  
 of Israel be blessed because he visited and freed his people, and has created for  
 us salvation in the house of David, his servant.’

(*Tatian* 4,14 p. 19)

The only example in the corpus of a null subject appearing in a sentence with OV word order involves a third person singular subject, as shown in (34):

- (34) *Her ist uuârlihho mihhil fora truhtine inti \_\_\_ uuîn noh lid*  
 he is really powerful before God and wine nor schnapps  
*ni trinkit*  
 NEG drinks  
 Lat. *Erit enim magnus coram domino et vinum et siceram non bibit*  
 ‘He was really powerful before God and (he) does not drink wine nor other  
 alcoholic beverage.’ (Tatian 2,6 p. 14)

The cases of null subjects under coordination are not limited to third person subjects, but are also found with first and second persons. In (35) I give an example of a null second person subject under coordination.

- (35) *Quad iru ther engil: ni forhti thir, Maria, thu fundi huldi*  
 said her this angel NEG be.afraid REFL.PRON Maria you found salvation  
*mit gote; seno nu <THU> inphahis in reue inti <THU>*  
 with god.DAT see now conceive.2SG in womb and  
*gibiris sun inti <THU> ginemnis sinan namon Heilant.*  
 give.birth.to.2SG son and name.2SG his name Saviour  
 Lat. *Et ait angelus ei: ne timeas, Maria, invenisti enim gratiam apud deum; ecce concipies in utero et paries filium et vocabis nomen eius Ihesum*  
 ‘The angel told her: do not be afraid Maria, you found salvation with God; see,  
 you will conceive a son, will give birth to him and will call him Saviour.’  
 (Tatian 3,4 p. 16)

In (36), we see a passage in which the first-person pronoun *ih* and the second person pronoun *thu* remain silent in the coordinated sentence.

- (36) *Thô antlingonti thie engil quad imo: ih bim Gabriel, thie azstantu*  
*thô* answering the angel told him I am Gabriel who stay  
*fora gote, inti <IH> bim gisentit zi thir thisu thir sagen.*  
 in.front.of God.DAT and am sent to you this to.you tell  
*Inti nu uuirdist thû suigenti inti <THU> ni maht sprehhan [...]*  
 and nu become.2SG you silent and NEG can speak  
 Lat. *Et respondens angelus dixit ei: Ego sum Gabriel, qui adsto ante deum, et missus sum ad te haec tibi evangelizare. Et ecce eris tacens et non poteris loqui*  
 ‘Answering, the angel told him: I am Gabriel and I stay next to God and I have  
 been set to you to tell you this. You will remain silent and you will not be able  
 to speak.’ (Tatian 2,9 p. 15)

Finally, in (37) we see a passage in which the second person plural can remain unpronounced under coordination. In this case the indicative present of the OHG translates a Latin subjective with exhortative function.

- (37) *Uuard thô thaz arfuorun fon in thie engila in himil; thô*  
 became *thô* that went.away from them the angels in heaven *thô*  
*sprachun thie hirta untar in zuisgen: <WIR> farames zi*  
 spoke.3PL those shepherds among them to.each.other go.1PL to  
*Bethleem inti <WIR> gisehemes thaz uuort thaz thar gitân ist*  
 Bethlehem and see.1PL the word that there done is  
 Lat. *Et factum ut discesserunt ab eis angeli in caelum, pastores loquebantur ad*  
*invicem: transeamus usque in Bethleem et videamus hoc verbum quod factum*  
*est, quod dominus ostendit nobis.*  
 ‘After the heaven’s angels departed from them, the shepherds spoke to each  
 other: let us go to Bethlehem and let’s see the word that is made there.’  
 (Tatian 6,4 p. 14)

The data discussed in this section have shown that null subjects in *inti* coordinated V2 main clauses can involve both third person subjects and first/second person subjects, as summarised in Table 4.

**Table 4.** Syntax of the finite verb in *inti* clauses and distribution of null subjects in the corpus

Word order	Classification	Number	Presence of a null subject	Person
<i>inti</i> + XP + finite verb	<i>inti</i> + V2 main clause	35/100	no	–
<i>inti</i> + finite verb + XP	<i>inti</i> + V1 main clause	59/100	yes	all (1-2-3 sg/pl)
<i>inti</i> + XP(s) + finite verb	<i>inti</i> + OV main clause	6/100	yes (one example)	3rd singular

#### 4. Proposed analysis

The data discussed in Section 3 above allow for the following descriptive generalisations, which constitute the basis of the analysis.<sup>15</sup>

- (38) a. *inti* introduces a V2 main clause like in present-day German;  
 b. *inti* introduces a V1 main clause in which the subject can remain silent in all persons;  
 c. *inti* introduces a V1 main clause in which the subject is overt and appears in free-inversion.  
 (Inversion nach *inti*)

Properties (38b,c) are absent in present-day German and their presence in OHG calls for an explanation.

15. I do not consider *inti* + OV main clauses in (38) due to the scarcity of data.

Following Cognola & Walkden (2019), I propose that property (38b), i.e. the presence of null subjects in V1 clauses, is not to be analysed as an example of Topic drop, but instead follows from a Topic-matching mechanism similar to that instantiated by present-day Italian, given the availability of null subjects in all persons.

The vital condition for the availability of the Topic-matching mechanism is that the OHG CP is built of two FPs. I propose for OHG the following structure of the left periphery (which is reduced in comparison to the Romance left periphery, see Benincà 2001, 2006; Frascarelli & Hinterhölzl 2007; cf. Frascarelli 2018: 213). The highest FP of the OHG left periphery is assumed to be ForceP, as in present-day German (Truckenbrodt 2006) and the lower position hosting the C/edge linkers (CLn), i.e. the logophoric agent ( $\Lambda_A$ ) and the logophoric patient ( $\Lambda_P$ ), and the null Aboutness Topic.

(39) [<sub>Force</sub> [<sub>FP</sub> [<sub>TP</sub> ... ]]]

The “speaker” and “hearer” features appearing in FP are silent but probing (i.e., syntactically active) and ones in the C-domain are silent but probing (i.e., syntactically active). As stated in the C/Edge-Linking Generalisation (see 8 above), any definite argument, overt or silent, positively matches at least one CLn in its local C-domain, CLn {  $\{\Lambda_A, \Lambda_P, \text{Top} \dots\} \dots$  }. I do not commit myself to the exact identification of this FP; however, it is possible, along the lines of Coniglio & Zegrean (2012), that this FP is part of ForceP and contains elements “facing the outside” (Rizzi 1997) and connecting the clause with the context (see below).

I further assume, following Coniglio & Schlachter (2013), that *inti* is a coordinating conjunction as in present-day German and that it is hosted in a clause-external FP found above ForceP.<sup>16</sup>

(40) [<sub>FP</sub> *inti* [<sub>Force</sub> [<sub>FP</sub> [<sub>TP</sub> ... ]]]]

The structure of the periphery given in (40) is a vital precondition for the licensing of null subjects in OHG. The reason why this is the case can be determined by giving the derivation of sentences involving a null subject in the first and second person.

I analyse these cases as instances of true pro-drop (and not as examples of Topic-drop) in which *pro* is licensed in TP via a matching relation with the logophoric operator hosted in the left periphery. The logophoric operator sits in the FP below ForceP (indicated with <THU>). This logophoric Operator is licensed by the focus in the previous sentence (*thu*), as shown in (41) and (42).

16. An alternative would be that *inti* exhibits two homophonous forms: one with the function of a coordinating conjunction and one with the function of a subordinating conjunction (Ferraresi & Weiß 2011 discuss cases of subordinating “and” along with Reich 2009). However, I think that it is not necessarily to distinguish between two homophonous forms since all the orders can be derived through the assumption that *inti* is a coordinating conjunction like in present-day German.

- (41) *Quad iru ther engil: ni forhti thir, Maria, thu fundi huldi*  
 said her this angel NEG be.afraid REFL.PRON Maria you found salvation  
*mit gote; seno nu <THU> inphahis in reue inti <THU>*  
 with god.DAT see now conceive.2SG in womb and  
*gibiris sun inti <THU> ginemnis sinan namon Heilant.*  
 give.birth.to.2SG son and name.to.2SG his name Saviour  
 Lat. *Et ait angelus ei: ne timeas, Maria, invenisti enim gratiam apud deum; ecce concipies in utero et paries filium et vocabis nomen eius Ihesum.*  
 ‘The angel told her: do not be afraid Maria, you found salvation with God; see, you will conceive a son, will give birth to him and will call him Saviour.’

(Tatian 3,4 p. 16)

- (42) *Maria thu fundi huldi mit gode.* [FP inti [<sub>Force</sub> [<sub>FP</sub>  $\Lambda_p$  gibiris]<sub>j</sub> [<sub>TP</sub> pro t<sub>j</sub> [<sub>VP</sub> t<sub>j</sub> ]]]]

I suggest that the derivation in (42) must be applied to sentences involving a third person subject as well, i.e. that these cases are to be analysed as pro-drop sentences and not as cases of Topic drop, as shown in (43) and (44).

I propose, following Frascarelli (2018), that any argument (focused or topicalised) is able to license a null Aboutness topic in the following coordinated clause (see Example (6) in Section 2.2 above). Therefore a sentence like (43) should be analysed as in (44).

- (43) *Uuard thô gifullit heilages geistes Helisabeth inti <HELISABETH> quad:*  
*gisegenot sís thû untar uuibun*  
 Lat. *Et repleta est spiritu sancto Elisabeth, et exclamavit voce magna et dixit: benedicta tu inter mulieres,*  
 (Tatian 4,3 p. 17)

- (44) *Uuard thô gifullit heilages geistes Helisabeth inti quad*  
 [FP inti [<sub>Force</sub> quad<sub>j</sub> [<sub>FP</sub> <HELISABETH<sub>[αPn]</sub>> [<sub>TP</sub> pro<sub>[αPn]</sub> t<sub>j</sub> [<sub>VP</sub> t<sub>j</sub> ]]]]

Since the *pro*-licensing mechanism assumed here for OHG does not depend on the position of the finite verb (unlike the syntactic analysis and, crucially, the Topic-drop analysis) it can also be applied to sentences with OV word order featuring a null subject. In my corpus there is a single example of this configuration (indicating that OV in main clauses is residual) that involves a third person singular, as repeated in (45).

- (45) *Her ist uuârlihho mihhil fora truhtine inti \_\_\_ uuîn noh lîd*  
 he is really powerful before God and wine nor schnapps  
*ni trinkit*  
 NEG drinks  
 Lat. *Erit enim magnus coram domino et vinum et siceram non bibit*  
 ‘He was really powerful before God and (he) does not drink wine nor other alcoholic beverage.’  
 (Tatian 2,6 p. 14)

I propose that (45) should receive the same analysis as in (44). The third person singular pronoun *her* appearing in the previous sentence is an Aboutness Topic and functions as the head of the chain required for the licensing of *pro* in TP via a silent Topic in FP. The finite verb does not move out of the VP. Since V-to-C movement is not a precondition for null-subject licensing within the proposed account, *pro* can be licensed. Note, that in this configuration Spec,ForceP is still available for hosting topicalised / focused constituents, in this specific case *uuîn noh lîd*.

- (46) *Her ist uuârlihho mihhil fora truhvinum inti uuîn noh lîd ni trinkit*  
 [FP inti [<sub>Force</sub> *uuîn noh lîd*<sub>k</sub> [<sub>FP</sub> <HER<sub>[αPn]</sub>> [<sub>TP</sub> *pro*<sub>[αPn]</sub> [<sub>VP</sub> *t<sub>k</sub> trinkit* ]]]]]

The fact that the analysis proposed here should be preferred over the topic-drop analysis is proven by two arguments: (i) the syntax of the *Inversion nach inti* construction in OHG, and (ii) the diachronic development of null subjects in coordinated sentences.

Let us consider the first argument. When we look at sentences featuring an overt subject, we see that OHG behaves differently from present-day German in allowing for the *Inversion nach und* construction (see Section 3.3.2.). This construction is close to free inversion, which is a typical property of null-subject languages, as discussed in Section 2.1, see also the properties in (3). In OHG the subject appearing in the *Inversion nach und* construction can either be given (and it is typically a shift topic), or it can be a new-information /contrast focus.

I propose that the *Inversion nach inti* construction should be analysed as Romance free inversion. Tortora (1997, 2001), building on Benincà (1988) (see also Pinto 1997 and Sheehan 2006, 2010) proposed that free-inversion is fed by a silent locative (“locative goal argument” “*pro*<sub>LOC</sub>” in her account) selected by the lexical verbs, which raises to Spec,TP, thus blocking the movement of the DP subject out of VP, as shown in the (47).

- (47) a. *Ha telefonato Maria*  
 has phoned Maria  
 ‘Maria phoned.’  
 b. [<sub>IP</sub> <*pro*<sub>LOC</sub>> *ha* ... [<sub>FP</sub> *telefonato* [<sub>VP</sub> *Maria telefonato* ]]]

I propose that a very close analysis can be applied to the OHG data, i.e. that sentences featuring *Inversion nach inti* involve a null expletive with a distribution connected to the asymmetric *pro*-drop system of OHG. I propose that the expletive (*thô*, *da* in present-day German) represents the overt counterpart of *pro*<sub>LOC</sub> which, building on Bentley & Cruschina (2018: 3), who suggest that *pro*<sub>LOC</sub> appears in the left periphery (SubjP in their analysis, cf. Cardinaletti 2004), is merged in the left periphery, more specifically in the FP hosting the Aboutness Topic and then licenses *pro* in Spec,TP like any element appearing in this position, as shown in (48).



(48) [<sub>FP</sub> *inti* [<sub>Force</sub> [<sub>FP</sub> *thô* [<sub>TP</sub> *pro* ... ]]]]

I assume that the finite verb raises to Force<sup>o</sup> as it does in ordinary main clauses of present-day German, as shown in (49). This implies that *thô* appears in the inversion position in the *Inversion nach inti* construction.

(49) [<sub>FP</sub> *inti* [<sub>Force</sub> finite verb<sub>k</sub> [<sub>FP</sub> *thô* t<sub>k</sub> [<sub>TP</sub> *pro* t<sub>k</sub> [<sub>VP</sub> subject t<sub>k</sub> ]]]]]]

The analysis in (49), and in particular the claim that null *thô* follows the finite verb, is supported by the fact that the expletive *thô* can also be overt in sentences with free inversion in the Diatessaron.

Crucially, the overt *thô* expletive can also be found in main declarative clauses at the beginning of a new paragraph in which the DP subject is in the free-inversion construction, as the examples in (50a,b) illustrate – a context in which null subjects are also found.

- (50) a. *Quad thô zi imo thie engil*  
 said *thô* to him that angel  
 ‘The angel told him’  
 Lat. *Dixit autem Maria ad angelum:* (Tatian 2,5 p. 15)
- b. *Quad thô Maria zi themo engile:*  
 said *thô* Maria to this angel  
 Lat. *Et dixit Zacharias ad angelum:*  
 ‘Maria said to the angel’ (Tatian 3,6 p. 16)

I take the data in (50) to indicate that free inversion in OHG is always connected with the presence of an overt or silent *thô* expletive appearing in TopicP in the left periphery which licenses *pro* in Spec,TP, as it does in the Romance free-inversion construction.

Note that the approach proposed here treats *thô* as an expletive with both a formal function, i.e. licensing *pro* in Spec,TP, and a discourse function since it sits in a FP of the left periphery whose function is to connect the clause with the previous sentence in the text. Following Fuß & Hinterhölzl (2019), I propose that the pragmatic function of *thô* in OHG has to do with text cohesion. More specifically, *thô* is a “discourse-continuative marker” whose function is to indicate that the sentence in which it appears follows and is connected to the previous one (Fuß & Hinterhölzl 2019). Therefore, the status of *thô* differs from *pro*<sub>LOC</sub> assumed for Romance free inversion sentences, not only because *thô* can optionally be null, but also because *thô* also has a pragmatical and not only a formal function (unlike *pro*<sub>LOC</sub> whose function is to satisfy only the EPP feature on I’).

The difference between the Romance null locative expletive and OHG *thô* also emerges from the fact that *thô* can appear as the sentence-initial constituent at the beginning of paragraphs, as shown in (51).

- (51) *Thô quad Maria*  
*thô* said Maria  
 Lat. *Dixit autem Maria*  
 ‘Maria said’ (*Tatian* 3,9 p. 17)

I propose that sentences like (51) indicate that *thô* is a maximal category since it can appear sentence-initially, which is restricted to maximal categories in V2 languages (in the sense of Cardinaletti & Starke 1999) as OHG is taken to be (Axel 2007). This can be captured by assuming that *thô* moves to Spec,ForceP where it satisfies the EPP feature responsible for V2 (52).

- (52) [<sub>FP</sub> *inti* [<sub>Force</sub> *thô*<sub>j</sub> finite verb<sub>k</sub> [<sub>TopicP</sub> *t<sub>j</sub>* [<sub>TP</sub> *pro t<sub>k</sub>* ... ]]]]

According to the proposed analysis, null subjects and subject free inversion in the OHG Diatessaron are two sides of the same coin and are possible in the language due to the presence of FP in the left periphery. This FP is able to host (i) a null Aboutness Topic with which *pro* in TP establishes an agree relation (Frascarelli 2007, 2018), or (ii) the expletive *thô* in the free inversion construction. The expletive *thô* can also remain silent.

Both null subjects and free inversion have disappeared from present-day German – a development which is fully predicted within the proposed account. German developed, in fact, a strict V2 syntax during the Middle High German (MHG) period (Fuß & Hinterhölzl 2019 and references therein), and strict V2 means for German the absence of an articulated left periphery composed of both ForceP and FP. The reduction of the left periphery, which implied the loss of FP, led to the loss of null subjects and of the free-inversion construction.

This development implies that the Topic-matching mechanism available in OHG for the licensing of null subjects was no more available, and was substituted by the Topic-drop construction familiar from present-day German.

## 5. Conclusions

In this paper I have reconsidered the derivation of null subjects in *inti* coordinated sentences in a small corpus from the OHG Diatessaron, and I have proposed that the Topic-matching analysis called for for *wh*-interrogative clauses and the sentence-beginning context (Schlachter 2010, 2012; Cognola & Walkden 2019) should also be applied to this syntactic environment, which was analysed as involving Topic drop (cf. Weiß & Volodina 2018; Cognola & Walkden 2019).

The proposed analysis has been reached by relying on the distribution of both null and overt subjects in *inti* coordinated sentences. When considered in isolation, null subjects can be safely analysed as examples of Topic drop; however, when they

are considered within the OHG grammar, which allows for the free-inversion inversion construction (*Inversion nach inti*), the Topic-drop approach becomes untenable. I have proposed that the free-inversion construction in OHG should receive the same analysis as Romance free-inversion, and is thus an instance of locative inversion (Benincà 1988; Tortora 1997, 2001; Pinto 1997; Sheehan 2010). In the Romance languages, the locative has the formal function of satisfying the EPP feature associated with I°. It appears in Spec,IP and remains null. For OHG, on the other hand, I have claimed that the locative expletive *thô* has both a formal and a discourse function (see Cognola & Casalicchio 2018 for an overview of expletive types). The formal function is to fill Spec,FP in the left periphery and to license *pro* in Spec,TP. The discourse function is to connect the sentence in which it appears to the discourse, functioning as a “discourse continuative marker” (Fuß & Hinterhölzl 2019).

Due to its double function, *thô* is only optionally null, and it can appear overtly after the finite verb or before it in the sentence-initial position (Spec,ForceP). I have suggested that the possibility of having *thô* in the sentence-initial position indicates that it is a maximal category which is able to satisfy the EPP feature connected to V2 (Holmberg 2015).

As for null subjects, I have proposed that they are licensed through a Topic-matching mechanism, as they are in present-day Italian (Frascarelli 2007, 2018). The licensing of *pro* in Spec,TP exploits the presence of FP in the OHG left periphery which is a position able to host a logophoric operator or a null Topic licensed by a constituent in the previous sentence.

The analysis offered in this paper shows that the licensing of null subjects in OHG involves two operations: one that “faces the outside” (intrasentential) and one that “faces the inside” (intersentential). The former operation, which takes place through the mediation of FP in the left periphery, has the function of establishing an external referent for the null category. The latter operation, which involves TP, implies an Agree relation between the null Topic or the logophoric operator in the left periphery and *pro*.

Over the course of the history and development of the German language, the asymmetric *pro*-drop system exhibited by OHG has been lost. Within the proposed account this development is a direct effect of the establishing (in the MHG phase) of the V2 word order in the language, the consequence of which was reducing the structure of the left periphery with the loss of FP. The reduction of the structure of the left periphery implies the loss of V3 word orders in the language, and, I suggest, the loss of the FP whose presence is a vital precondition for the licensing of null subjects.

Since FP is no longer available in present-day German, null subjects in *und*-sentences can only be produced through the Topic-drop construction in which a given constituent appearing in the left periphery is deleted. According to the proposed analysis, the presence of Topic drop is a new strategy to realise the null subject and has

substituted the OHG mechanism. Therefore, an identical superficial syntax featuring a null subject involves two different underlying structures in different periods of the German language. Whether this analysis is correct, I leave open for further research.

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PART II

# Interface phenomena at the intersentential level



# Gehen as a new auxiliary in German

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This paper aims to investigate the so-called *gehen*+infinitive construction in German, in which an inflected form of the (movement) verb *gehen* ‘go’ is combined with the infinitive of another main verb and, thus, seems to behave like an auxiliary syntactically. Supported by two questionnaire studies, we will argue that (i) this construction undergoes a currently observable grammaticalization process, and that (ii) it is generally used to encode an aspectual reading, namely ingressivity. Finally, we provide a proposal for the diachronic development of the *gehen*+infinitive construction, arguing for a transition from a biclausal structure to a monoclausal one, and discuss the consequence of this shift at the syntax-semantics-interface.

## 1. Introduction

As opposed to Slavic languages, German does not have a grammaticalized morphological aspect system that marks aspect by verbal inflection. However, aspectuality can be encoded by means of different strategies such as, for instance, adverbials and periphrastic constructions. One prominent example of a periphrastic construction is the *am*-progressive (or *Rheinische Verlaufsform*), which has been extensively investigated in the last decades (see Gárgyán 2010; Flick & Kuhmichel 2013; Ramelli 2015 among others).<sup>1</sup> Beside these well-known strategies, a further construction which consists of a combination of the movement verb *gehen* ‘go’ with another verb as illustrated in (1) has recently developed and is hardly discussed in terms of

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1. The *am*-progressive is a periphrastic construction encoding a progressive aspectual reading. It consists of an inflected form of German *sein* ‘be’ combined with *am* – which is based on a contraction of the preposition *an* ‘on’ and the definite article – and the infinitive of a main verb:

- (i) *Ich bin am arbeiten*  
I am on.the work  
‘I am working.’

aspectuality yet.<sup>2</sup> In the following, we call this new progressive form *gehen*+infinitive construction.

- (1) a. *Peter geht schlafen.*  
 Peter goes sleep  
 ‘Peter goes to sleep.’  
 b. *Maria geht einkaufen (arbeiten/schwimmen/singen/studieren...)*  
 Maria goes shop (work/swim/sing/study...)  
 ‘Maria goes shopping.’

In the two examples in (1), the inflected form of German *gehen* ‘go’ is combined with the infinitive of another main verb. Interestingly, *zu* ‘to’, which is a part of many similar infinitive constructions in German as well as in other (Germanic) languages, is missing here.<sup>3</sup> Thus, in (1ab), *gehen* seems to behave syntactically like an auxiliary or a modal verb that is combined with the bare infinitive form of a main verb.

From a semantic point of view, this assumption is corroborated by the observation that sentences like (1ab) are not always ungrammatical or unacceptable in contexts in which no movement is involved, for instance when Peter is already lying in his bed in the case of (1a) or when Maria is already in the supermarket in the case of (1b). The situation described in (1a) is based on a comic<sup>4</sup> in which the *gehen*+infinitive

2. The only exception is the recent corpus study by Demske (2020), which investigates the same phenomenon from a different empirical perspective. Though the methodologies differ, both of our studies come to comparable conclusions with respect to the following properties: the ingressive reading of the *gehen*+infinitive construction and the analysis as a grammaticalization process. We differ, however, regarding the analysis of this construction in present German, especially concerning the mandatory motion component. Moreover, based on our results, we cannot address the question of the telicity requirement associated with the infinitive.

3. In German, other types of infinitive constructions illustrated in (i) and (ii) exist:

- (i) *Maria geht zum Einkaufen.*  
 Maria goes to.the shopping  
 ‘Maria goes shopping.’  
 (ii) *Maria ist gerade dabei(,) einzukaufen.*  
 Maria is just there-by to.shop  
 ‘Maria is just shopping.’

However, both periphrases do not correspond to the reading of the *gehen*+infinitive construction described above (1ab): in Example (i), the construction encodes a final reading while, in Example (ii), a progressive reading is encoded. Since the aim of our paper is to investigate the grammaticalization process of the *gehen*+infinitive construction, other German infinitive constructions such as (i) and (ii) will not feature here.

4. URL: <https://me.me/i/sei-nicht-dumm-da-ist-bestimmt-kein-monster-unter-deinem-2020555> [08/03/2021].

construction is used in exactly that way, namely to command somebody to “go to sleep” who is already lying in his bed.<sup>5</sup> Although further investigations are necessary to prove this assumption, we suggest that, under certain circumstances, *gehen* can lose part of its original semantic content, in particular its movement component.

Another example that illustrates this (possible) semantic loss of the movement component for the German verb *gehen* in this very specific construction is given in (2a):

- (2) [The speaker is driving to the supermarket in his/her car and says:]
- a. *Ich gehe einkaufen.*  
     I go shop  
     ‘I go shopping.’
  - b. *Ich fahre einkaufen.*  
     I drive shop  
     ‘I go shopping.’

In Example (2a), the movement verb *gehen* can be used even if the manner of movement specified in the context, i.e., “by driving a car”, does not correspond to the basic meaning of *gehen*. Note that German has another movement verb, *fahren* ‘drive’, in Example (2b), which explicitly describes the movement of a person by car (or another means of transport) and is lexically much more suitable in this context than the verb *gehen*. Thus, the usage of *gehen* is – or at least should be – quite unusual in this situation.

On the other hand, the sentence in (2b) cannot be used in situations in which the manner of movement is specified by the concept of walking (and not driving). This shows that, even if German *gehen* ‘go’ and *fahren* ‘drive’ behave syntactically similarly in this infinitive construction, only *gehen* seems to undergo semantic extension. This is in line with the observation that the lexical source of a grammaticalization process is usually a so-called “fundamental element” (cf. Heine, Claudi & Hünemeyer 1991 among others). Since *gehen* is a conceptually simple and frequently used movement verb, it is more suitable for this grammaticalization process than other movement verbs which might also appear in some infinitive constructions (cf. Chapter 2).

These simple as well as widespread examples in (1ab) and (2ab) indicate the possibility that *gehen* might lose the manner of movement specification as well as the obligatory movement reading in the infinitive construction. Since movement is a crucial part of the lexical semantics of *gehen*, we suggest that *gehen* is currently

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5. In this comic, we find the *gehen*+infinitive construction in an imperative sentence. Since imperatives are used to command/order somebody to do something in the (mostly immediate) future, we expect that imperatives are particularly suitable for a construction that indicates in-gressive aspect.



undergoing a grammaticalization process from a movement verb to an aspectual marker. The result of this change is a (desemanticized) auxiliary, whose type and function are the topic of this paper.

The aim of our paper is to provide new empirical evidence for this current and ongoing grammatical change and to discuss its consequences at the interface between syntax and semantics. To test the degree of grammaticalization of the *gehen*+infinitive construction in contemporary German, we conducted two experimental studies with native speakers of German. In Section 2, we briefly discuss some general observations about the origin of new auxiliaries. In addition, we turn to the cognitive processes involved in the process of grammaticalization. In Section 3, we will present the results of two questionnaire studies that investigate the grammaticalization process from a synchronic point of view. In the first experiment, we tested both younger and older speakers of German to find out whether the younger group is more likely to accept the *gehen*+infinitive construction than the second one. Moreover, we investigate whether the animacy of the subject has an effect on the acceptability of these sentences, given that in auxiliary-type constructions, animacy, and ultimately intentionality, is a prerequisite, at least at the early stages of the grammaticalization process. Both factors, i.e., the manipulation of age and animacy, provide new insight into the current status of grammaticalization of this construction (Section 3.1). Our second questionnaire study explores the preferred aspectual reading of the *gehen*+infinitive construction. The results show that *gehen*+infinitive is generally used to encode ingressivity (Section 3.2). Finally, Section 4 will discuss a proposal for the diachronic development of this current change at the syntax-semantics interface. We argue that sentences like the ones in (1) and (2) originally consisted of a biclausal structure encoding two different events (e.g., (1a): [Peter goes] and [Peter sleeps]), which can be reanalyzed as a monoclausal construction in specific contexts. Section 5 concludes this paper with a brief summary of the main findings.

## 2. Background: The grammaticalization of *gehen* in German

### 2.1 Comparative observations about the origin and grammaticalization processes of new auxiliaries

In grammaticalization theory, it is generally assumed that lexical verbs provide the main source for auxiliaries (see Heine 1993, Krug 2011 among others). However, not all lexical verbs are equally qualified as sources for this grammaticalization process. In his event schemas, Heine (1993: 27 ff.) points out that “invariably, linguistic expressions for these [complex] concepts are derived from concrete entities” which describe general notions such as, for example, location, motion, activity and

desire. These notions are expressed linguistically by several lexical verbs, e. g. “stay at” in case of location.<sup>6</sup> Since the movement verb *go* obviously corresponds to the motion schema mentioned above, it is ideal input for a grammaticalization process yielding an auxiliary as its grammatical output.

This assumption is cross-linguistically confirmed by the amount of languages worldwide in which the verb *go* itself or *go* combined with a preposition (such as English *to*) serves as the donor lexeme for auxiliaries used to express tense, aspect or modality functions (for an overview see Heine & Kuteva 2002; for English see Perez 1990; Bybee & Pagliuca 1988 among others; for Bantu languages see Botne 2006; for Romance languages see Kaye 2009).

As illustrated by Heine, Claudi & Hünemeyer (1991) with the example of English *going to*, the motion verb *go* carries some language-independent features which make it a perfect source for the grammaticalization of specific auxiliaries: (i) It is conceptually simple, i.e., it refers to a basic and simple activity, namely movement. (ii) Because of this simplicity, it is a highly frequent lexical item (cf. Bybee & Pagliuca 1985). (iii) Because *go* is the least specific among the movement verbs, there are very few semantic constraints on its applicability. In turn, this general unmarkedness coupled with its lack of a natural endpoint for the action denoted by *go* is the incipient factor that allows for its extension to further contexts, which provides the basis for the grammaticalization of auxiliaries. Therefore, (iv) *go* can be “used as a metaphorical vehicle to refer to the domain of deictic time: the verb *go to* denoting a physical action serves as a structural template for conceptualizing [its spatiotemporal] grammatical notion” (Heine, Claudi & Hünemeyer 1991: 47; see also Bybee & Pagliuca 1988; Claudi & Heine 1986; Sweetser 1987).

In the case of English *going to*, Heine, Claudi & Hünemeyer (1991) show that this metaphorical shift led to a semantic ambiguity of the *to* + infinitive constituent denoting either the goal of movement or an infinitive verb, which arose from reanalysis. Due to this syntactic reanalysis, the semantic features, especially the component of movement, of English *going to* have been reduced and, hence, have become more abstract, i.e., more grammatical, in terms of a temporal interpretation. As a consequence of this abstraction process, the obligatoriness of an animate agent, which is entailed by the lexical semantics of the movement verb *go*, also got lost in the *going to* construction. This change in the syntactic and semantic features of *going to* enables a further context widening of the transferred (temporal) meaning and, thus, constitutes a crucial step in the grammaticalization process of the corresponding auxiliary.

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6. Note that the terms “[complex] concepts” and “concrete entities” are used as relative terms here: Complex concepts are always understood with reference to simpler (lexical) concepts, just as a concrete entity is understood with reference to another abstract entity (cf. Heine, Claudi & Hünemeyer 1991).

## 2.2 The case of German *gehen*

Unlike the English *going to* construction, German *gehen*+infinitive in its grammaticalized use is not well investigated yet. Based on the comparative and cognitive observations briefly discussed in the previous section, the most plausible conclusion regarding *gehen*+infinitive in German is that this construction is not to be understood as a synchronic compositional phenomenon but rather as showing properties of a presently occurring process of grammaticalization, unlike other aspectual periphrases such as *dabei sein, etwas zu tun* ('to be about to do something', cf. Gárgyán 2010). That is, *dabei sein, etwas zu tun*, while being aspectual in nature, arrives at this interpretation through semantic means and without reanalysis, while for *gehen*+infinitive a compositional strategy is not available.

However, since language change is a gradual phenomenon, we also expect to see semantic reduction in the early stages of these developments, even if only in incipient form.<sup>7</sup> On this view, a discrepancy should be found between the unchanged lexico-semantic properties of the main verb and the polysemous form that engages in the *gehen*+infinitive construction. More concretely and in parallel with the effects of language change observed in motion verbs in other languages, especially in English *going to* (cf. Section 2.1 above), the following developments are plausible: in terms of semantic erosion, both motion and directionality features as well as the facultative properties [ $\pm$  goal] and [ $\pm$  origin] are good candidates to lose relevance, while agentive/intentional components will rise to prominence. The different senses of *gehen*, brought about by grammaticalization-induced polysemy, are illustrated in Figure 1.

<i>Main Verb</i>	<i>Infinitive Construction</i>	<i>Auxiliary</i>
<div style="display: inline-block; vertical-align: middle;"> <math>\left[ \begin{array}{l} + \text{ Agentivity} \\ + \text{ Intentionality} \\ + \text{ Motion} \\ + \text{ Directionality} \\ \pm \text{ Goal} \\ \pm \text{ Origin} \end{array} \right]</math> </div>	<div style="display: inline-block; vertical-align: middle;"> <math>\left[ \begin{array}{l} + \text{ Agentivity} \\ + \text{ Intentionality} \\ \pm \text{ Motion} \\ \pm \text{ Directionality} \\ \pm \text{ Goal} \\ \pm \text{ Origin} \end{array} \right]</math> </div>	<div style="display: inline-block; vertical-align: middle;"> <math>\left[ \begin{array}{l} \text{mostly desemantized} \end{array} \right]</math> </div>

**Figure 1.** Feature make-up of polysemous *gehen*

This hypothesized change of the semantic features associated with *gehen* in the construction in question generates a couple of testable predictions, a subset of which we will address with two experiments. The first experiment focuses on animacy and intentionality, while the second one probes the presumed aspectual interpretation.

7. We ignore here the fact that *gehen*+infinitive is not a recently available construction but has been in use for several centuries (cf. Demske 2020). However, the mere availability of this construction does not tell us anything about its semantics. Our main aim in this paper is to investigate which changes are occurring presently.

### 3. Experiments

Our empirical investigation of the *gehen*+infinitive construction takes place in two distinct but related questionnaires, both with the overarching aim of adding new empirical data to the currently sparse body of research on this phenomenon. The first experiment investigates whether the *gehen*+infinitive construction in German is indeed a construction whose semantics has emerged as a result of language change process, meaning that its interpretation is not the result of a synchronic compositional interpretation (cf. Section 2.2).

For the first experiment, we use a traditional Likert-scale questionnaire. We asked speakers of two different generations to participate in the experiment to check whether, as the language change hypothesis and the ensuing state of polysemy predicts, these two generations consistently assign to this construction different interpretations (cf. Heine & Kuteva 2002). In a second step, we used the results of the first experiment to uncover to what extent the crucial parameters of grammaticalization, such as semantic restrictions and structural ambiguities that are necessarily brought about for constructions undergoing grammaticalization, hold for *gehen*+infinitive (cf. Lehmann 2015). To this end, a Forced Choice experiment was used to test the aspectual properties of the construction and to ultimately allow for a (starting point for the) classification within the aspectual paradigm of German.

#### 3.1 Experiment 1

##### 3.1.1 *Design and materials*

The first experiment was conducted using the open-source online experimental platform *OnExp* (version 1.3.1).<sup>8</sup> The aim of this experiment was to establish whether *gehen* is in fact undergoing a process of grammaticalization in German. To test this, we employed a Likert-style questionnaire and tasked participants to gauge the grammaticality of the experimental items on a 7-point scale.

Our study was designed as a 2×2 factorial experiment: the first manipulation, a within-subjects and between-items factor, was termed ANIMACY and encoded whether the individual referred to by the subject constituent of the critical item was inanimate or animate. The second manipulation, AGE, was a between-subjects and within-items factor, encoding generation, i.e., whether the participants belonged to either the group of younger or older speakers. The inclusion of the second factor was motivated by Labov's (2001) change-in-apparent-time hypothesis, according to which language change may be detectable as inter-speaker, and in this case inter-generation, variation. In effect, younger speakers are assumed to be more inclined

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8. <http://onexp.textstrukturen.uni-goettingen.de>

towards using or accepting emerging phenomena than older members of the speech community.

The experiment comprised a total of 72 items, of which 24 were critical (12 per condition of the ANIMACY factor) and 48 were fillers. The latter consisted of two likewise controversial constructions that have been argued to be in the process of grammaticalization (periphrastic *tun* ‘do’ as in Gärtner & Steinbach 1994; Erb 2001; Fischer 2001; Weber 2018 and regular preterite forms of strong ablaut verbs, which are standardly realized with irregular inflectional suffixes), each represented by 24 items.

The critical items featured monoclausal sentences pairing either agentive or non-agentive grammatical subjects in the third person – depending on the condition – with an inflected form of *gehen* (3rd person singular present tense) and the infinitival form of a full verb, where the infinitival forms were exclusively instantiated by unaccusative verbs (cf. Perlmutter 1978). While the decision to use unaccusative infinitives would necessarily cause the acceptability of the experimental items to be low overall, it ensured that any potentially intentional component in the meaning of the verbal complex is driven by *gehen* as opposed to the verbal semantics of the infinitival verb.

Let us make this connection a bit clearer: first, in all items the action denoted by the verbal constituent does not include motion due to the chosen infinitival verbs. To see this, compare the sentences in (3). (3a), which contains an unergative verb, at least allows for an interpretation such that Peter goes to the grocery store and, once arrived, does his shopping there – the interpretation forced by the verb *gehen*. (3b) includes no such motion or directionality component as it cannot mean that Peter goes to some place and, once arrived, recovers there.

- (3) a. *Peter geht einkaufen.*  
       Peter  $go_{3rd.Sg.Pres}$  shop  
       b.  $?Peter$  geht genesen.  
       Peter  $go_{3rd.Sg.Pres}$  recover

This difference is induced by the choice of verbs entering the *gehen*+infinitive construction: (3a) contains the unergative verb *einkaufen* ‘shop’ and thus comes with an external proto-agent argument, i.e., with the prototypical subject role. On the other hand, the grammatical subject of the unaccusative verb *genesen* ‘recover’ in (3b) is a non-agentive argument that receives the proto-patient role.

Because an intentional motion-involving interpretation is blocked by non-agentive unaccusative infinitives, the example in (3b) is only semantically felicitous if the whole construction is interpreted on basis of the new feature makeup of the *gehen*+infinitive construction (see Figure 1 above) and, crucially, not that of the main verb. When combined with the inherent semantic difference between inanimate and animate subjects as illustrated by the two critical items in (4), this intentional reading

is expected to be available (or preferred) only with the animate subject in the first Example (4a). This is because only the first provides an anchor for the attribution of intentionality or the proto-agent properties of “volitional involvement in the event or state” in the sense of Dowty (1991: 572).

- (4) a. <sup>?</sup>*Der Patient geht genesen.*  
           the patient *g*<sub>3rd.Sg.Pres</sub> recover  
       b. <sup>??</sup>*Das Eis geht schmelzen.*  
           The ice *g*<sub>3rd.Sg.Pres</sub> melt

### 3.1.2 Participants

In total, 24 German native speakers participated in this study, divided into two distinct groups: The first, the younger generation, consisted of 18-to-26 year old students from the University of Göttingen ( $\bar{x}$  = 22.36, 9 female), while the second group comprised senior attendees of the *Universität des dritten Lebensalters* (‘University of the Third Age’) at the University of Göttingen, ranging between 60 and 78 years of age ( $\bar{x}$  = 67.92, 8 female). None of participants reported to be enrolled in classes to do with linguistics. For their participation, members of both groups received 5 euros.

### 3.1.3 Predictions

On the basis of our previous discussion and under the assumption that *gehen*+infinitive is currently involved in a process of grammaticalization, we hypothesize the following: (i) Due to the intentional component associated with the construction at hand as well as the potential semantic erosion of motion features, critical items in the animate subject condition will be rated more favorably by the participants than critical items in the inanimate subject condition, yielding a main effect for ANIMACY. (ii) Younger participants will view the items more favorably overall, generating a main effect for the second factor, AGE. (iii) Younger participants will be more inclined to accept the construction in the animate subject condition than older participants (the second group) in accordance with Labov (2001). We expect this effect to be less strong in the inanimate subject condition, resulting in a significant interaction between ANIMACY and AGE.

### 3.1.4 Procedure

The experiment was created using *OnExp*. All participants were tested in a quiet room, supervised by an experimenter. Participants viewed a computer screen displaying all experimental materials. After the general instruction, which provided details about the experimental task, the items were presented in a random order and the participants were asked to rate each item along a Likert scale ranging from 1 (not at all grammatical) to 7 (fully grammatical). This procedure was repeated for all 72 trials, resulting in a total duration of approximately 30 minutes.

### 3.1.5 Data analysis

The experimental results were analyzed in R (version: 4.04, R Core Team 2021) using the *afex* package (Singmann et al. 2021) to compute a linear mixed model with the *mixed* function.

### 3.1.6 Results

The results are summarized in Table 1 as well as graphically in Figure 2. To test our hypotheses, we fit a linear mixed model to predict judgment with ANIMACY and AGE (formula =  $Y \sim \text{ANIMACY} * \text{AGE}$ ). The model included by-item and by-participant random intercepts, as well as by-participant random slopes for the ANIMACY factor (formula =  $\sim \text{ANIMACY} | \text{participant} + \sim 1 | \text{item}$ ). The fully maximal random effects structure did not converge. In order to obtain *p*-values from the model, we made use of the Kenward-Roger approximation to the degrees of freedom, as recommended in Luke (2017). In accordance with our predictions, the effect of ANIMACY is significant, showing that, indeed, animate subjects are judged to be more compatible with the *gehen*+infinite construction. Note, however, that this effect is likely driven by the interaction we report below. Further, while the effect of AGE is not significant, meaning that group differences alone do not mediate the rating behavior, the interaction of AGE and ANIMACY is significant. This shows that younger participants vastly prefer the animate over the inanimate condition, whereas the older age group only makes an overall small differentiation between the two variants.

Table 1. Results of the linear mixed model

AGE	<i>df</i>	F	<i>p</i> -value
ANIMACY	1,25.55	9.70	< 0.01
AGE	1,22	3.89	0.061
AGE :ANIMACY	1,22	6.49	< 0.05

Following Labov's (2001) change-in-apparent-time hypothesis, we interpret the interaction between both factors as evidence for a process of grammaticalization of the nascent *gehen*+infinitive construction. The alternative treatment of *gehen*+infinitive as a synchronic phenomenon would leave the inter-group variation unexplained. This incumbent change in the grammatical system, in turn, induces the upsurge of the intentional component – borne out in the main effect for ANIMACY – as compared to the main verb (recall that both versions are assumed to exist in a state of polysemy, in concert with most of the literature on grammatical change). Note that the alternative explanation that older participants simply judge non-conventional constructions more harshly, is not applicable here: neither of our filler sets, which are undoubtedly

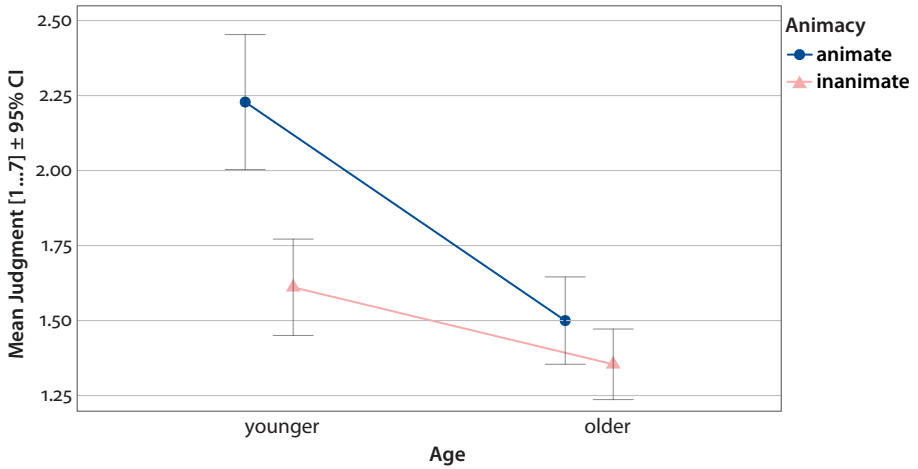


Figure 2. Grammaticality judgments in Experiment 1

unacceptable in standard German and the regional variety in Göttingen, showed a significant difference between groups.<sup>9</sup>

### 3.2 Experiment 2

Having established the presence of ongoing grammatical change as the basis for a new *gehen*+infinitive construction in German empirically, a natural next step is to try and uncover its semantic import. Since former lexical elements transitioning into (more) grammatical ones acquire distinct functions in the grammatical paradigm of a language (cf. Lehmann 2015 among others), it seems plausible to assume the same for *gehen*+infinitive. Specifically, these considerations predict a separate and, at least ultimately, unique semantics for all constructions within the paradigm, leading to the postulation in (5). Being one of the first empirical investigations into this phenomenon, we can only argue from introspection, rather than drawing on concrete empirical results. Therefore, the study is of an exploratory rather than a confirmatory nature.

- (5) *gehen*+infinitive has a well-defined aspectual reading.

9. Here, we again fitted linear mixed models in the manner described for the critical items. Neither model reveals an effect between groups. *Preterite*:  $F(1, 22) = 1.55$ ,  $p = .226$ ; *Tun*:  $F(1, 22) = 1.89$ ,  $p = .183$ .



### 3.2.1 *Design and materials*

This experiment is designed as a Force Choice study where the response options for each reading instantiate the 4-level factor ASPECTUAL READING, see (6). For each item, participants were tasked to choose a circumscription of its meaning that best fits the action undertaken by the male subject in each of the items. Each category, instead of showing the name of the corresponding aspect, was given as a paraphrase. This was decided upon for two reasons: first, we did not want any grammatical knowledge to influence participants' choice; second, using the actual terms of the aspectual readings would require a significant amount of training and thus interfere with the objective of keeping participants naïve.

- (6) a. Iterative  
He performs the action again and again.
- b. Ingressive  
He begins the action now.
- c. Prospective  
He prepares for the action.
- d. Progressive  
He is currently in the process of performing the action.

The item set consisted of 24 critical items like the ones in (7ab) and an additional 48 unrelated filler items. Critical items featured simple sentences with *gehen*+infinitive, where the unergative infinitive verb, different from the previous experiment where unaccusatives were employed, was selected only if an occurrence with *gehen* was attested in the German Reference Corpus (DeReKo).<sup>10</sup> Items were constructed with the main verb's valency in mind; see (7a), which features transitive *spielen* 'play' and (7b) with intransitive *schlafen* 'sleep'. Based on the results of the first experiment, we only constructed items with animate subjects to ensure that the intentional component associated with the construction finds a suitable anchor.

- (7) a. *Robert geht mit seiner Eisenbahn spielen.*  
Robert *go*<sub>3rd.Sg.Pres</sub> with his railroad play
- b. *Max geht schlafen.*  
Max *go*<sub>3rd.Sg.Pres</sub> sleep

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10. Das Deutsche Referenzkorpus DeReKo, Leibniz-Institut für Deutsche Sprache, Mannheim, <http://www.ids-mannheim.de/kl/projekte/korpora/>.

### 3.2.2 Participants

24 people participated in this study. All of them were German native speakers enrolled at the University of Göttingen in fields without classes in linguistics. Additionally, in compliance with the outcome described for the preceding investigation, we recruited only younger students ( $\bar{x} = 23.58$ , 17 female), who are more likely to be both familiar with and uncritical of the construction. For their participation, the subjects received 5 Euros.

### 3.2.3 Predictions

Our only prediction for this pilot study was that among the four aspectual categories, one category would be preferred to the others. Of course, ingressive and prospective readings seem to be more compatible with the semantics of *gehen*, while the iterative seems to be the least likely option. Note, however, that despite this lexical affinity, *going to* in English was grammaticalized into a progressive marker. Insofar, the semantics of the lexical verb is of limited use for making predictions for the grammaticalized variant.

### 3.2.4 Procedure

The questionnaire was again created using *OnExp* and carried out in a quiet room at a computer with an experimenter's supervision. At the beginning, participants were familiarized with the four response options using both instructions and warm-up items, one per category. The latter did not feature *gehen*+infinitive but – still employing the four options – verbal Aktionsart (using for example *beginnen* 'begin') or adverbial constituents like *jeden Sonntag* 'every Sunday'. The average duration was about 25 minutes per participant.

### 3.2.5 Results

The distribution of aspectual response options is summarized in Figure 3. From this representation alone, the participants' preference seems to be clear-cut and in favor of an ingressive reading for *gehen*+infinitive (option chosen 370 times) over the iterative (74), prospective (72) and progressive ones (55).

To confirm the interpretation suggested by the figure, we fit a mixed multinomial regression using *mlogit* function from the eponymous package (Croissant 2020) to predict the choices the participants made (formula =  $Y \sim 1$ ). The random effects included both by-participant and by-item random intercepts (formula =  $\sim 1$  | participant +  $\sim 1$  | item). Within this model, all other choices were significantly less preferred compared to the ingressive (the reference category). The statistical details are highlighted in Table 2.

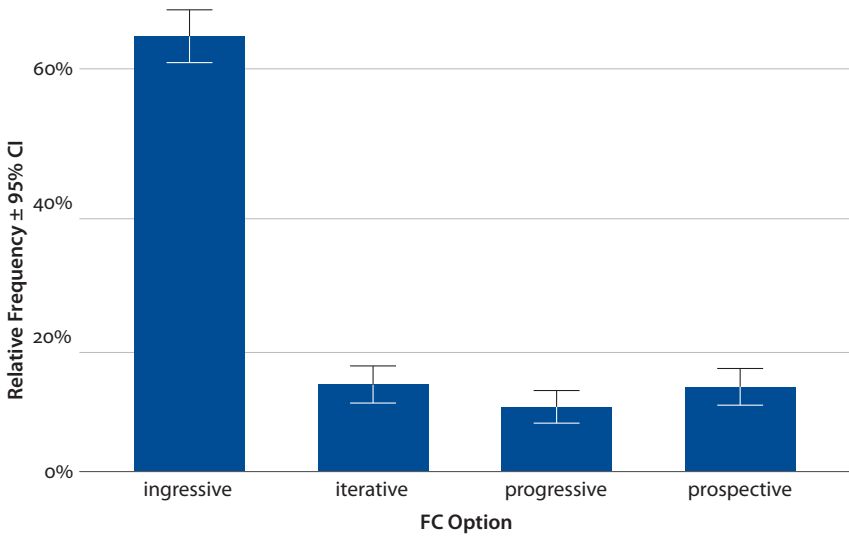


Figure 3. Relative frequencies of response options in Experiment 2

Table 2. Summary of the mixed multinomial logistic regression in Experiment 2

	Coef.	SE	z	p
Intercept:iterative	-2.69	0.39	-6.77	< 0.001
Intercept:progressive	-1.03	0.36	-2.82	< 0.01
Intercept:prospective	-1.99	0.37	-5.44	< 0.001

We conclude that the preference for one particular reading, ingressive, over all others, is pervasive. We take this result to indicate that, at least at the current stage of the grammaticalization process, the ingressive reading represents the construction's semantic contribution most accurately.

### 3.3 General discussion

With these results in hand, we conclude that the *gehen*+infinitive construction is currently involved in a process of grammaticalization. Mainly, this entails that younger speakers associate the construction with an intentionality component more so than older speakers, who do not have access to the polysemous variant (see experiment 1). Because of the nature of grammaticalization processes, we expect further erosion of the semantic features – in particular with respect to the motion component which is assumed to get lost over time (as observed with English *going to*). Further, we note that the newly acquired semantics point towards a developing aspectual reading (see experiment 2), namely the beginning of the action denoted by the infinitive.

While our current results point towards ingressivity, we cannot be certain that the *gehen*+infinitive construction is not subject to further change.

To sum up the results so far, the findings indicate a classical grammaticalization process for the *gehen*+infinitive construction and that the ingressive reading most accurately describes the semantic contribution of this emerging construction. Thus, both experiments confirm the general cross-linguistic trend for several motion verbs and the verb *go*, specifically. However, while we have shown that the semantic features are currently shifting, our experiments do not inform the syntactic analysis. Because of this, in the following, we will try to sketch a likely syntactic reanalysis path for the *gehen*+infinitive construction in Modern German.

#### 4. Theoretical interpretation

Let us now consider the semantic and syntactic consequences of this specific grammaticalization process. If the motion verb *gehen* is on the verge of becoming an auxiliary verb, we expect that (i) the effects of the changing feature composition of the verb will also be visible in syntax, since – in contrast to full verbs – auxiliary verbs do not assign thematic roles to their arguments. In addition, we expect that, (ii) starting from a biclausal structure, the complex structure hosting the *gehen*+infinitive construction becomes monoclausal since *gehen* and the infinitival verb are reanalyzed as coherent parts of a complex predicate (cf. Cardinaletti & Giusti 2001).

It is well-known that the verb *gehen* was a special verb already at early stages of German. Even in its purely lexical function as a verb of motion, it can be used in constructions showing a high degree of (both semantic and syntactic) integration. What we are claiming here, however, is that this grammaticalization process is still going on and that the verb is acquiring new aspectual functions. This should result in an even higher degree of integration.

The following example illustrates the biclausal construction from which the grammaticalization presumably took its start.<sup>11</sup> For ease of description, we will assume that control underlies this construction.

- (8) [ *Peter<sub>i</sub> geht* ] [ *PRO<sub>i</sub> einkaufen* ]  
       Peter goes                   shop  
       ‘Peter goes shopping.’

11. Note that infinitival constructions with certain classes of verbs, such as verbs of motion, perception, etc., are assumed to build coherent constructions, i.e. monoclausal structures, which would put all of them in a special group of grammaticalized verbs (as testified by the absence of the otherwise obligatory infinitival marker *zu* ‘to’). However, we will see in a moment that especially *gehen* does not always tolerate coherent constructions.

The construction above consists (i) of a main clause containing the verb *gehen*, which assigns a thematic role to *Peter* and (ii) of an infinitival clause selected by the verb *gehen*, in which PRO – while being coreferent with *Peter* – receives a  $\theta$ -role from the embedded verb *einkaufen* ‘shop’. Hence, *gehen* appears to behave like a subject control verb, despite the apparent adverbial nature of the infinitival clause. Note that *gehen* typically selects adverbial complements expressing the source, path and/or goal of the movement (Jackendoff 1990). In Example (8), the embedded infinitival clause expresses the goal of the movement.

If the full verb *gehen* is grammaticalizing into an aspectual auxiliary verb, a syntactic representation parallel to that of other auxiliary verbs is expected to emerge, namely the reanalysis of the infinitival clause as part of the matrix clause, with the infinitival verb building a unique coherent complex predicate with *gehen*. We assume that, in the course of grammaticalization, the *gehen*+infinitive construction is reinterpreted as a construction in which the two clauses conflate into one:<sup>12</sup>

- (9) [ *Peter*<sub>i</sub> *geht* *t*<sub>i</sub> *einkaufen* ]  
 Peter goes shop  
 ‘Peter goes shopping.’

In (9), the infinitival complement is integrated into the matrix clause. Consequently, the construction in (9), unlike the corresponding construction in (8), has been reinterpreted as monoclausal. Hence, the subject *Peter* receives its  $\theta$ -role from the infinite main verb *einkaufen*, then moves to a subject position, and ends up agreeing with the auxiliary verb *gehen*. Being now an auxiliary verb, *gehen* has lost its property of assigning a  $\theta$ -role to what was previously its external argument. However, this does not mean that *gehen* immediately loses all its selectional restrictions. Following the proto-role account developed in Dowty (1991), the grammatical change may first affect only some proto-agent properties while others remain stable. The most obvious contributing property of the proto-agent role that gets lost in the grammaticalization process is the property of “movement (relative to the position of another participant)” (Dowty 1991: 572). Likewise, the property described as “causing an event or change of state in another participant” has already been lost since the combination with unaccusative verbs is not completely prohibited at least for the younger generation as shown by the results of the first experiment. The remaining properties (i.e., “volitional involvement in the event or state” and “sentience regarding the verbal event or state”) seem to be still active. Animate

12. Note that, given the centuries-long grammaticalization process affecting the verb *gehen*, a similar reanalysis may have taken place also for other uses of this verb and of other verbs of motion. Nonetheless, we argue that such a step is necessary for the emergence of the auxiliary function of the verb *gehen*.

subjects are compatible with the proto-agent properties of volitional involvement in the event or state. This is confirmed by the difference between the older and the younger generation in Experiment 1. In effect, the loss of some proto-agent features allows for a wider application of *gehen* such that even unaccusative verbs may be marginally acceptable.

- (10) a. <sup>?</sup>*Der Patient geht genesen.*  
           the patient *gO*<sub>3rd.Sg.Pres</sub> recover  
       b. <sup>??</sup>*Das Eis geht schmelzen.*  
           The ice *gO*<sub>3rd.Sg.Pres</sub> melt

Thus, we claim that those who accept the sentence in (10a) as grammatical already assign the representation in (11a) below, and not the one in (11b), given that *gehen* has lost parts of its original semantics and does not seem to impose typical proto-agent restrictions on its subject:

- (11) a. [ *Peter<sub>i</sub> geht t<sub>i</sub> genesen* ]  
       b. \*[ *Peter<sub>i</sub> geht* ] [ *PRO<sub>i</sub> genesen* ]

In such cases, it is clear that a change in the semantic feature specification (especially in the selectional properties) of *gehen* is taking place and, thus, we expect such a reinterpretation also to be visible in syntax. The analysis of the examples so far hinges on theory-internal arguments; however, some reflexes of the undergoing grammaticalization process of *gehen* from a full verb to an aspectual auxiliary verb can also be observed empirically.

In order to show the syntactic import of the grammaticalization process of the verb *gehen*, we will refer to the notion of “(in)coherent constructions”, which have received much attention in the syntactic analysis of German – starting from Bech’s (1955) work (see, for instance, the discussion in Evers 1975; Haider 1993; Haegeman & Riemsdijk 1986; Stechow & Sternefeld 1988; Fanselow 1989; Wurmbrand 2001).<sup>13</sup> If we have a look at the following example, the verb *gehen* seems to license a coherent construction:

- (12) *Peter wird es<sub>i</sub> morgen [ t<sub>i</sub> kaufen ] gehen.*  
       Peter will it tomorrow buy go  
       ‘Peter will go and buy it tomorrow.’

13. The literature on (in)coherent constructions concentrated on special classes of verbs, but verbs of motion never received sufficient attention (but see for example Cardinaletti & Giusti 2001 for an exception). Again, for the ease of illustration and following Cardinaletti & Giusti (2001), we represent the infinitival construction as a control construction with PRO as a subject.

The possibility for the weak pronoun to raise to a position preceding a temporal adverb in the main clause is a clear piece of evidence that we are dealing with a coherent construction since main and infinitival clause can ‘fuse’ with one another and thus share their middle field (or at least this indicates that the infinitival clause in the middle field of the superordinate clause is transparent for extraction).<sup>14</sup>

Building a coherent structure is thus the first necessary step for the reanalysis from a biclausal structure to a monoclausal one. Note, however, that this coherent structure is not always available for the verb *gehen*. Let us first consider the use of the verb *gehen* as a motion verb. If we use *gehen* in combination with a directional PP such as *zur Buchhandlung* ‘to the bookstore’ in (13a), which we use to force an interpretation of *gehen* as a motion verb, it can also combine with an infinitival clause with final interpretation (or at least, the combination is marginally acceptable). The situation is different if we try to combine the two clauses without forcing the interpretation of *gehen* as a motion verb (i.e., in its use without a directional PP). In this case, the sentence is ungrammatical (13b):

- (13) a. <sup>?</sup>*Peter ist gestern zur Buchhandlung gegangen,*  
 Peter is yesterday to.the book-store gone  
 [ *ein Buch kaufen* ].  
 a book buy
- b. \**Peter ist gestern gegangen, [ ein Buch kaufen ]*.  
 Peter is yesterday gone a book buy  
 ‘Yesterday, Peter went (to the book store) to buy a book.’

(13b) results in ungrammaticality probably because the verb *gehen* is naturally interpreted as an auxiliary verb in the absence of a directional PP (or of a ‘directional’ verb particle, such as *hin* ‘towards’). This indicates that the verb *gehen* behaves differently in cases in which it realizes its full argument structure. Moreover, this shows that *gehen* can combine with a postponed final infinitival construction only in these cases.

Let us now consider a construction in which the infinitival clause is realized in the middle field and not in the postfield of the clause containing *gehen*. In this case, the omission of the directional PP does not lead to ungrammaticality:

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14. This is analogous to the much-discussed cases of *clitic climbing* in Romance restructuring constructions (cf. Cinque 2006).

- (i) *Pietro<sub>j</sub> lo<sub>i</sub> va [ a PRO<sub>j</sub> comprare t<sub>i</sub> ] domani.* (Italian)  
 Pietro it goes to buy tomorrow  
 ‘Pietro will go and buy it tomorrow.’

The object *lo* ‘it’ is base-generated as the internal argument of *comprare* ‘buy’, but cliticizes to the syntactically higher verb *va* ‘goes’.

- (14) *Peter ist gestern ( zur Buchhandlung ) [ ein Buch kaufen ] gegangen.*  
 Peter is yesterday to.the book-store a book buy gone  
 ‘Yesterday, Peter went (to the book store) to buy a book.’

The situation is different if we extract a pronominal object out the infinitival clause. A weak pronoun is typically realized in a position immediately following the finite verb in German, i.e., in the left periphery of the middle field. As exemplified in (15), the extraction is possible only in the absence of the directional PP (or of the verb particle *hin*):

- (15) *Peter ist es<sub>i</sub> gestern (\* zur Buchhandlung ) [ t<sub>i</sub> kaufen ] gegangen.*  
 Peter is it yesterday to.the book-store buy gone  
 ‘Yesterday, Peter went (to the book store) to buy it.’

This shows that, if a directional PP functions as an argument of the verb *gehen*, the infinitival construction behaves as a so-called “incoherent” construction and does not tolerate extraction out of it. The pronominalization of the object *ein Buch* ‘a book’ and its movement out of the infinitival clause to a position higher than *gestern* ‘yesterday’ is crucially grammatical only in the absence of the directional PP. That amounts to saying that a “coherent” construction (or at least extraction) is only possible if the directional argument of the verb *gehen* is not realized.

The examples thus provide evidence that the full verb *gehen* only licenses an incoherent construction. By contrast, in the aspectual interpretation, *gehen* is already able to license a coherent construction. We do not exclude that other grammaticalized uses of *gehen* also allow for coherent constructions, but for the verb to become an auxiliary the use in coherent constructions is considered as necessary.

We interpret this fact by arguing that the verb *gehen*, while still continuing to preserve its full verb function as a verb of motion, is developing a parallel grammaticalized counterpart functioning as an aspectual auxiliary verb.<sup>15</sup>

These observations<sup>16</sup> and the corresponding analysis are in line with the general assumptions about grammaticalization of auxiliaries pointed out at the outset and

15. This is in line with what observed by Cinque (2006: 61 fn. 57), who observes that Italian *andare* ‘go’ is ambiguous between the lexical and the restructuring use only in the absence of a directional PP. This means that this and similar verbs only function as restructuring verbs if they do not select any arguments.

16. Other arguments could be adduced which show that *gehen* patterns with – for example – modal verbs (and thus with non-lexical verbs) rather than with lexical verbs. One important argument is provided by the prefield test, which shows that, in German, lexical verbs in verbal clusters can be fronted (i), but modal verbs and *gehen* for example cannot (ii) (thanks to Andreas Blümel for suggesting and discussing these and several other potential arguments with us):



with the empirical results in Section 2 about the ongoing change in the semantic feature specification of *gehen*. By acquiring an ingressive reading, the verb necessarily loses its [+motion] and [+directionality] component, which cannot therefore be realized by means of prepositional PPs or verb particles. Hence, the syntactic change described in this section goes hand in hand with the semantic changes found in the two experimental studies: While the verb is losing part of its semantic content and acquiring auxiliary functions – thus probably becoming a functional head in the sense of Cardinaletti & Giusti (2001) –, the (originally) biclausal structure is developing into a monoclausal structure (typical of periphrastic constructions). To conclude, the grammaticalization of *gehen*+infinitive is a perfect example of language change operating at the interface between syntax and semantics at the intersentential level.

## 5. Summary

Based on Labov's (2001) change-in-apparent-time hypothesis, we have shown that there exist two polysemous variants of German *gehen*. Most notably, we leveraged the differences between older and younger speakers to highlight the inter-generational variants associated with the *gehen*+infinitive construction. The current developments provide evidence that *gehen* is likely to become an aspectual auxiliary which, if the current status is any indication, encodes ingressivity. The semantic change we found is mirrored in syntax by a reanalysis from an incoherent biclausal to a coherent monoclausal structure, underscoring the fact that this change is an interface phenomenon and that its investigation warrants a multi-perspective consideration.

- 
- (i) a. *Lesen habe ich das Buch müssen.*  
 read have I the book have.to  
 'I have had to read the book.'
- b. *Lesen bin ich das Buch gegangen.*  
 read am I the book gone  
 'I have gone to read the book.'
- (ii) a. *??\*Müssen habe ich das Buch lesen.*  
 must have I the book read  
 'I must have read the book.'
- b. *??\*Gegangen bin ich das Buch lesen.*  
 gone am I the book read  
 (lit.) 'Gone am I the book read.'

Since this paper has a mainly empirical focus, we only reported a few arguments and we leave the discussion of the syntactic properties of this construction interpreted as the consequences of the underlying grammaticalization process for future work.

Since the construction at hand is part of an ongoing grammaticalization process, the application of further psycholinguistic methods, e.g., questionnaire studies or eye-tracking experiments, is advisable in order to provide new insights into the nature and cognitive basis of language change as well as its remaining contextual restrictions.

This is just a first step in understanding the grammaticalization process of the verb *gehen* in German. Obviously, more in-depth diachronic investigations are needed in order to fully reconstruct the developments that led to the situation we observe today. Not only qualitative, but also quantitative corpus studies that compare the various steps in the history of *gehen* up to modern-day German are necessary.

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# Discourse-driven asymmetries between embedded interrogatives and relative clauses in West Germanic

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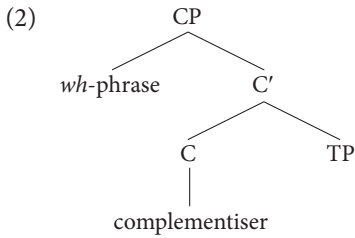
The article examines embedded constituent questions and relative clauses in West Germanic, arguing that asymmetries regarding doubly filled COMP patterns are due to information-structural differences. While both clause types involve operator movement, they differ crucially regarding the information-structural status of the operator: in interrogatives, the operator can be associated with discourse-new information, while in relative clauses the operator is discourse-old and can be potentially left out. This asymmetry regarding information-structural properties has further important consequences. First, doubling patterns involving an overt operator and an overt complementiser emerge across West Germanic languages in embedded questions but not in relative clauses. Second, the reanalysis of the operator into a complementiser is attested in relative clauses but not in embedded interrogatives.

## 1. Introduction

Finite embedded clauses are often introduced by complementisers: the term complementiser originally refers to the fact that such elements turn a clause into a complement clause. This is illustrated for *that* in (1) below:

- (1) a. *The turtle is swimming.*  
b. *I know **that** the turtle is swimming.*

In addition to complementisers, the left periphery of the clause may also host clause-typing operators, such as *wh*-phrases in English interrogative and relative clauses. In standard generative approaches, conforming to the general X-bar schema, operators are located in the specifier and complementisers in the head of a CP projection, as represented in (2):



This configuration accounts for the syntactic differences known to exist between them. On the other hand, it predicts that the two elements can co-occur in the indicated order:<sup>1</sup> this is indeed the case in West Germanic languages historically and dialectally, while the standard varieties impose a ban on such combinations, schematised in (3):

(3) \*<sub>[CP wh-phrase complementiser]</sub>

Such a constraint (traditionally referred to as the Doubly Filled COMP Filter)<sup>2</sup> rules out the co-presence of two overt elements, indicating that there is more to the relation between the two elements than the rather categorical separation suggested by (2). A further point of interaction is shown by non-standard varieties of West Germanic that allow the co-occurrence of the two elements, contrary to (3). This is illustrated below:

- (4) a. %*I wonder which book that you bought.*  
 b. %*This is the book which that you bought.*

The example in (4a) illustrates an embedded interrogative and the example in (4b) illustrates a relative clause. As (2) and (3) suggest, the two constructions are similar in that both involve the combination of a *wh*-phrase (here: *which book* and *which*) and a complementiser (here: *that*); one might therefore expect them to show similar behaviour. This is, however, not entirely the case: while doubling patterns in

1. As pointed out by Gisborne & Truswell (2017: 27–28), the analysis in (2) correctly predicts that the reverse order (e.g. *\*that who*) is not attested. This ordering restriction follows from the specifier and head status of the respective elements in any analysis adopting a single CP rather than multiple CPs (see Bacskai-Atkari 2018, 2020c).

2. The original formulation of the filter goes back to (Chomsky & Lasnik 1977: 435, cf. Keyser 1975) and is formulated as follows:

(i) \*<sub>[COMP wh-phrase complementiser]</sub>

The position of complementisers was identified in earlier versions of generative grammar as COMP. In this vein, Chomsky & Lasnik (1977: 426) assume that all complementisers are base-generated in COMP. In addition, *wh*-elements are supposed to target the COMP position when moving to the left (Chomsky & Lasnik 1977: 434).

embedded interrogatives are common across West Germanic dialects, doubling in relative clauses is comparatively rare. This suggests that the interaction between the two elements is not only regulated by the syntactic template, as given in (2), but there are other relevant properties that regulate surface patterns.

The similarity between (4a) and (4b) regarding their surface patterns may at first suggest that the same kinds of elements are involved in both constructions, that is: (i) there is no distinction between interrogative and relative operators, and (ii) the complementiser in relative clauses is identical to the regular finite complementiser used in embedded interrogatives. Languages like German, however, that make a morphological distinction between the relevant elements in both (i) and (ii), refute this, as will be discussed in Section 3.

In addition to the asymmetry mentioned above, the separation between complementisers and operators is not as rigid as may seem. Van Gelderen (2004, 2009) describes various cases of reanalysis that involve former operators used as complementisers: this process is an instance of grammaticalisation as it involves the loss of features. For example, English *that*, which was originally a relative pronoun, lost its case, gender and person/number features and could be reinterpreted as a complementiser: the aforementioned features (in particular gender and case) would have been incompatible with its status as C.<sup>3</sup> The change is thought to be motivated by economy: the configuration involving a complementiser involves fewer features.

In this article, I will critically evaluate this claim, concentrating on whether feature economy truly drives this change. I will argue that the information-structural properties of the specifier element are of key importance, resulting in an asymmetry between doubling effects in embedded interrogatives and doubling effects in relative clauses in West Germanic languages. In this way, the observed asymmetries are also discourse-driven; these factors may be more decisive than clause-typing features. In addition, I will argue that some changes in relative clauses may be driven by analogy from other operator patterns.

The paper is organised as follows. Section 2 discusses the relative cycle underlying many changes in the left periphery of relative clauses. Section 3 examines the connection between doubling effects and information structure. Section 4 discusses the changes attested in English. Section 5 is dedicated to the examination of potential interactions between information structure and the Noun Phrase Accessibility Hierarchy.

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3. Apart from these morphosyntactic properties, relative specifiers differ from complementisers in terms of preposition stranding: relative operators may pied-pipe the preposition to [Spec,CP], while complementisers always strand the preposition (see Gisborne & Truswell 2017: 29–31).



## 2. Reanalysis

As mentioned in the introduction, relative pronouns can be reanalysed as complementisers (van Gelderen 2004, 2009). Similar changes are not characteristic for embedded interrogatives: while certain original interrogative pronouns may end up as finite subordinators, this involves a change in the clause type as well (as in the case of English *how* used as a mere subordinator ‘that’, see van Gelderen 2009: 144–145). The reasons for this asymmetry will be dealt with in the next section.

Such a reanalysis process can be observed in the history of the English relative marker *that*,<sup>4</sup> which started as a relative pronoun and came to be reanalysed as a complementiser. The pronoun stage is illustrated by the following example from Old English, where *that* (*þa*) precedes the original relative complementiser *þe*:

- (5) *ac gif we asmeagaþ þa eadmodlican dæda þa þe he worhte, þonne*  
 but if we consider those humble deeds that that he wrought, then  
*ne þincþ us þæt nan wundor*  
 not seems us that no wonder  
 ‘But if we consider the humble deeds that he wrought, then that will not appear  
 marvellous to us.’  
 (*Blickling Homilies*, example and translation from Morris 1880: 33)

In Middle English, *that* (*þat*) was used as a grammaticalised complementiser; the original complementiser was lost:

- (6) *and suggeð feole þinges... þat næuere nes i-wurðen*  
 and say many things that never not.was happened  
 ‘and say many things that never happened’ (Layamon, *Brut*, Caligula version  
 11472–3; example from van Gelderen 2009: 162)

The reanalysis of *that* into a complementiser left the specifier of the CP free in the sense that the relative operator could be renewed; this resulted in doubling patterns with the new *wh*-based relative operators (van Gelderen 2004, 2009):

- (7) *the est orisonte, which that is clepid comounly the ascendent*  
 ‘the East horizon, which is commonly known as the ascendent’  
 (Chaucer *Astrolabe* 669.17–8, from 1391; example from van Gelderen 2004: 87)

Note that (7), unlike (5) and (6), is a non-restrictive (appositive) relative clause. As pointed out by Zimmermann (2012: 318), while the stage illustrated by (6) involved *that* as a relative complementiser for both restrictive and non-restrictive relative clauses, *wh*-relatives (including doubling patterns) were predominantly (80% for *which*-relatives) used in non-restrictive relative clauses (see also Romaine

4. See also Romaine (1982: 63–64) for an earlier analysis of the same stages.

1982: 60–61). This was also the starting point for the decline of *that* in non-restrictive relative clauses (Zimmermann 2012: 318, citing Romaine 1984: 102; see also Romaine 1980: 222, Romaine 1982: 69; the same tendency can be observed in Middle Scots as well, see Romaine 1982: 140, citing also Caldwell 1974). A similar asymmetry concerns Old English relative clauses: the pattern involving the complementiser *þe* is characteristic of restrictive relative clauses, while the more innovative pattern involving the relative pronoun *se* is more likely to appear in non-restrictive relative clauses (Zimmermann 2012: 323–325). It appears that appositive relative clauses are more innovative in terms of the change. Such asymmetries are found beyond the domain of relative clauses: as shown by Jäger (2018), non-degree equatives (similatives) are also more innovative than degree equatives throughout the history of German, which may well have to do with the fact that non-degree equatives have more freedom in their syntactic attachment (Bacsikai-Atkari 2020b).

One of the factors relevant for deciding whether a given element is an operator or a complementiser is its relative position in the CP. In addition, West Germanic relative complementisers are not sensitive to the referent,<sup>5</sup> while relative operators are, and they can be inflected for case, number and gender as well. Precisely these features must be lost during reanalysis: this was facilitated in English by the general loss of overt inflection on nominal elements. This kind of restriction also explains why German relative pronouns (inflected for case, number and gender) and Dutch relative pronouns (inflected for gender) have not been reanalysed as complementisers.

The question may still arise why the operator is renewed in the first place: the complementiser is apparently preferred due to reasons of economy and the operator merely corresponds to a gap in the relative clause that is recoverable anyway in headed relative clauses. This issue will be discussed in the next section.

At this point, what is worth highlighting is that the complementiser strategy is altogether more dominant in English than the relative pronoun strategy: as noted by van Gelderen (2009), *wh*-pronouns are promoted by prescriptive rules but as far as spoken language is concerned, speakers prefer *that* over a *wh*-pronoun (see also the observation of Romaine 1982: 129, citing Sweet 1900; see also Montgomery &

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5. This leads to the conclusion that relative complementisers are invariable in these languages and this seems to be the earliest relativisation strategy across Germanic (see also Romaine 1982: 64–65 and Gisborne & Truswell 2017: 25). Note, however, that this does not presuppose the incompatibility of the above features with complementiser status per se. Gender and case are incompatible with complementiser status, while person and number are not, as evidenced by the fact that certain varieties, including Bavarian, show complementiser agreement in other constructions (see Fuß 2004). It must be stressed that the conclusions given here do not necessarily carry over to other languages. In many Bantu languages, for instance, complementiser agreement is common with a matrix element. This is true for Lubukusu, where agreement can also be observed in relative clauses, whereby the complementiser shows agreement (in noun class) with the head noun (see Diercks & Sikuku 2013).

Bailey 1991; van Gelderen 2004; Tagliamonte et al. 2005). In regional dialects of Britain, the complementiser strategy (involving either the traditional *that* or the more innovative *what*) is preferred (see Herrmann 2005). South German dialects also predominantly use the complementiser *wo*, in Bavarian also *was* (see Fleischer 2004a, 2016 on Hessian; Brandner & Bräuning 2013 on Bodensee Alemannic; Weiß 2013 on Bavarian; Salzmann 2017 on Zurich German). The same is attested, for instance, in Mennonite Low German (Kaufmann 2018).<sup>6</sup> Other dialects of German and most dialects of Dutch (Boef 2013), however, do not use relative complementisers at all. It follows that these dialects do not have doubling patterns either.

### 3. Doubling and information structure

As mentioned in Section 1, doubling effects occur both in embedded interrogatives and in relative clauses, yet not to the same extent: while doubling is common in embedded interrogatives across West Germanic dialects, it is comparatively rare in relative clauses. In this section, I show that this can be drawn back (i) to differences in information structure<sup>7</sup> and (ii) to the fact that finiteness on C is preferably lexicalised overtly in these dialects.

Chomsky & Lasnik (1977) suggest that the operator and the complementiser have similar functions in the clause. Indeed, as the interchangeability of the two in English demonstrate,<sup>8</sup> both elements may type the clause as relative on their own:

- (8) a. *This is the book which was published last week.*  
 b. *This is the book that was published last week.*

This interchangeability is also crucial in terms of the relative cycle: similar to the Jespersen-cycle affecting negative markers, the doubling stage, as exemplified in (7), is a potential intermediate change in the process during which the older (single-element) pattern is overtaken by the newer (likewise single-element) pattern. Regarding the Jespersen-cycle in Middle English, Wallage (2013) argues that information structure played a role in that the older pattern involving single *ne* was favoured in discourse-old propositions, while the newer stage involving the combination

6. Similar preferences are also suggested by language acquisition data, see Adani, Sehm & Zukowski (2013).

7. In terms of the basic notions of information structure, this paper follows Krifka (2008), in the tradition of Chafe (1976).

8. This interchangeability does not always hold, though. In particular, there is a ban on *that*-relatives in non-restrictive relative clauses in Standard English, and the same option is not attested in the function “object of preposition” unless the preposition is stranded; see Section 5.

*ne... not* was favoured in discourse-new propositions. Similar claims were made by Schwenter (2006); Hansen (2009) and Hansen & Visconti (2009) for Romance languages. Wallage (2013) also shows that the spread of the new pattern was independent of these discourse constraints, though. Still, the fact that discourse constraints have an effect on whether a doubling pattern is preferred is clearly not restricted to the issue of embedded interrogatives and relative clauses examined here.

Doubling patterns are attested in embedded interrogatives as well, as illustrated by the following non-standard example:

- (9) *She wondered in which city that I lived.*

In this case, a complex *wh*-phrase (*in which city*, containing both a lexical noun and a preposition)<sup>9</sup> is located in [Spec,CP], and the complementiser *that* is also overt. The pattern in (9) is only synonymous with the pattern involving a single operator, not with the one involving a single complementiser. Observe:

- (10) a. *She wondered in which city / where I lived.*  
 b. *She knew that I lived in London.*

The example in (10a) illustrates an embedded interrogative clause, just like (9), whereas the example in (10b) shows an embedded declarative clause. The complementiser *that* does not type the clause as interrogative and in Standard English, it is a declarative complementiser incompatible with an interrogative clause: this feature specification prevents doubling patterns like (9) in this variety, without having to resort to an additional surface filter (as proposed by Chomsky & Lasnik 1977) similar to (3). Non-standard dialects allowing (9) differ inasmuch as *that* is available as a mere finite complementiser which is compatible with an interrogative clause.

The same conclusion holds for other West Germanic languages as well. Doubling patterns are common in West Germanic interrogatives: as noted by Schallert et al. (2016: 6), only Yiddish seems to be an exception in this respect. An example is given from Alemannic in (11) below:

- (11) *I woass it wieviel dass er fir des Auto zahlt hät.*  
 I know not how.much that he for the car paid has  
 ‘I don’t know how much he paid for the car.’ (Bayer & Brandner 2008: 87)

The same can be observed in Dutch:

- (12) *Ik vraag me af wie dat er morgen komt.*  
 I ask myself PRT who that there tomorrow comes  
 ‘I wonder who is coming tomorrow.’ (Koopman 1997: 16)

9. As shown by Bayer & Brandner (2008) for South German varieties, doubling patterns are especially likely to appear with complex *wh*-phrases.

Just like in the English example in (9), both (11) and (12) contain a *wh*-element that makes the clause interrogative and a finite subordinator (*dass* and *dat*) that is in these cases not specified for marking declarative clause type. In both languages, the standard varieties do not use the complementiser in these cases.

The obligatoriness of the *wh*-operator in interrogatives but not in relative clauses is indicative of a difference in the information-structural status of the operator in the two constructions. The relevant distinction can best be formulated as discourse-new vs. discourse-old. In interrogatives, the operator is associated with discourse-new information; in the classical scenario, the *wh*-part of a constituent question corresponds to a focused element in the answer (see Krifka 2008: 250, citing Paul 1880). The *wh*-phrase is associated with the presence of alternatives and it regularly bears main stress.<sup>10</sup> Consider the following examples:

- (13) a. *What did you do yesterday?*  
 b. *I wonder what Mary did yesterday.*

The sentences in (13) can be uttered out of the blue: the *wh*-elements do not necessarily point to any antecedent in the discourse.<sup>11</sup> Some *wh*-elements slightly differ, though; consider the following counterparts of (13):

- (14) a. *Which book did you read on the train?*  
 b. *I wonder which book Mary read on the train.*

In these cases, the *wh*-element is D-linked: a certain set of books is understood as GIVEN in the discourse: *which* asks for a value that is part of this set. As formulated by Bošković (2002: 360), “the range of felicitous answers is limited by a set of objects

10. There is a strong correlation between discourse-new and stress, yet no one-to-one correspondence, as discussed by Büring (2013: 874–876). One reason behind this is that the relevant properties represent non-prosodic information that is mapped onto the prosodic component from syntax rather than being prosodic properties (see Büring 2013: 860–861). Krifka (2008: 248) suggests that a focus property indicates the presence of alternatives (this idea in turn goes back to von Stechow 1981 and to Rooth 1985, and it was adopted by later analyses, see Büring 2013).

11. Note that discourse-new does not equal new information. In (13a), for instance, the information asked for is not new for the hearer; this is a possible scenario in (13b) as well, where the hearer may or may not know what Mary did the previous day. Using a different predicate for (13b), we can also have a configuration in which what Mary did is not new for the speaker:

(i) *I know what Mary did yesterday.*

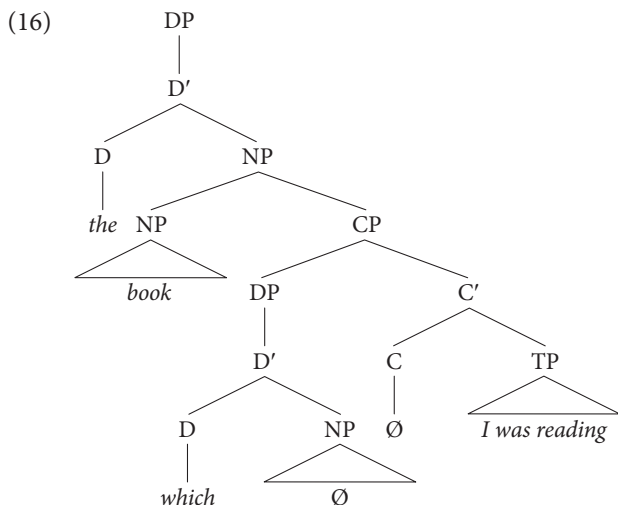
While it is evidently possible that *wh*-phrases represent old information (both in terms of the speaker and in terms of the hearer), it is not necessarily the case that the relevant information is present in the preceding discourse. In addition, newness cannot be equalled with focusing either, as discussed by Krifka (2008: 255–257), so that focus-like properties are not even necessarily expected to be related to newness (contrary to the “information focus” proposed by Halliday 1967).

familiar to the speaker and the hearer as a result of it already being referred to in the discourse or being salient in the context". This evidently differs from (13), where no such discourse-linked set is available for *what*. In other words, the referent is not (necessarily) discourse-old in either case, while the range of possible referents is GIVEN in (14) but not in (13).<sup>12</sup>

Ordinary (headed) relative clauses differ in that the relative operator expresses discourse-old information: it is co-referent with the head noun. I adopt a matching analysis rather than a head-raising analysis for relative clauses (see Salzmann 2017: 55–179 on arguments in favour of the matching analysis, and see also Lees 1960, 1961; Chomsky 1965, and Sauerland 1998, 2003 for similar views, as well as Bhatt 2005 for a comparative summary). Let us take the following example:

- (15) *The book which I was reading is boring.*

Assuming that the relative clause is adjoined to the head noun (adjoined to NP), the relevant part of the syntactic structure is given in (16):



12. Headless (or free) relative clauses are similar to (13) in this respect. Consider:

- (i) *I liked what I saw.*

The referent of *what* is typically discourse-new and there is no head noun in the matrix clause either. I assume that free relatives are essentially a subtype of *wh*-clauses (see Groos & Riemsdijk 1981) and will not discuss them separately in the remainder of this paper. According to Van Riemsdijk (2006), among others, the matrix clause contains an empty DP in these cases. Free relatives show the same doubling effects in South German dialects that are attested in embedded interrogatives (see Weiß 2013: 781). The same is true for Flemish (Zwart 2000: 358, citing Vanacker 1948: 143).

The NP in the relative clause has no overt phonological content (here represented simply as zero, but one may in principle assume deletion as well) and it has the same reference as the head noun (here: *book*). The relative pronoun thus carries discourse-old information: the referent is not simply recoverable from the discourse but is in fact bound to be the head noun. In addition, the relative pronoun moves to the [Spec,CP] position from within the relative clause and it bears a syntactic function, in this case that of the direct object. The specific syntactic function is, however, recoverable from the rest of the clause: the gap is identifiable in argument relative clauses. This is illustrated by the following examples from German:<sup>13</sup>

- (17) a. *Das ist der Mann, der/\*den mich gesehen hat.*  
 that is the.M.NOM man that.M.NOM/that.M.ACC I.ACC seen has  
 ‘That is the man who saw me.’
- b. *Das ist der Mann, \*der/den ich gesehen habe.*  
 that is the.M.NOM man that.M.NOM/that.M.ACC I.NOM  
 gesehen habe.  
 seen have.1SG  
 ‘That is the man who I saw.’

As indicated, the relative pronouns are not exchangeable: German inflects relative pronouns for case. The syntactic function of the relative pronoun is recoverable from the rest of the relative clause and its referent is recoverable from the head noun.

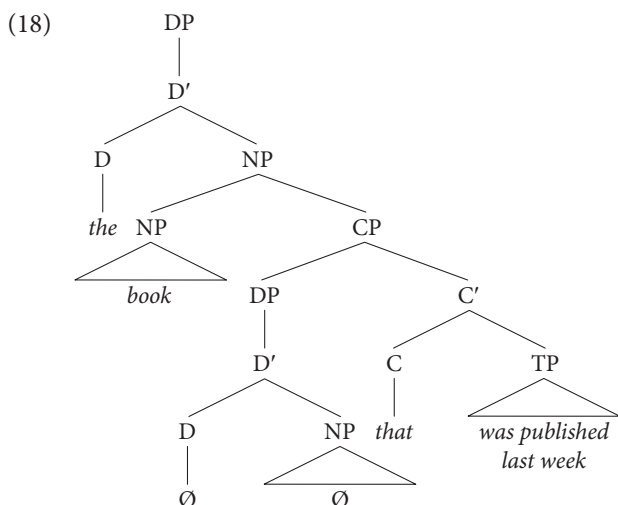
This predicts that patterns in which the relative pronoun is not overt should in principle be possible. Indeed, patterns like (8b) show that an overt complementiser is also sufficient.<sup>14</sup> The corresponding structure is shown in (18) below.

13. As can be seen, relative pronouns in German are usually demonstrative-based pronouns (*der/die/das*); this is the most common pattern and it can be observed already in Old High German and in Old Saxon (Fleischer 2004a: 232). However, it is also possible to use *wh*-pronouns (*welcher/welche/welches*) for the same functions: this option is less common and more formal. In addition, adverbial relative clauses also show *wh*-pronouns, such as the locative adverbial *wo* ‘where’ and prepositional adverbials (e.g. *wonach* ‘after what’). With certain matrix elements such as *etwas* ‘something’, not only the regular neuter relative pronoun *das* but also its *wh*-counterpart *was* can be used (Brandt & Fuß 2014). These elements, however, do not show the doubling effects discussed in this paper (presumably due to the constraints on the exact relative features, see Bacskai-Atkari 2020c) and will therefore be not discussed any further here.

14. In English, it is also possible to have so-called zero relatives, where neither the pronoun nor the complementiser is overt:

- (i) *The book I was reading is boring.*

This option is limited in English as well (for instance, it is not available in subject relative clauses in the standard language) and it is impossible in German.



The zero operator is licensed due to its information-structural status. The structures in (16) and (8) are in fact identical as the basic template is concerned: the difference lies in the relative pronoun and the relative complementiser occupying different positions, in line with the distinction made in Section 1.<sup>15</sup>

While in English the complementiser *that* in relative clauses is phonologically identical to the finite complementiser *that* in embedded interrogatives, it is worth mentioning that relative complementisers are actually distinct in their function, and they type the clause as relative instead of being mere finiteness markers (Bacskai-Atkari 2018, 2020c). In South German dialects, for instance, the relative complementiser is *wo* and not the regular finite complementiser *dass*:

- (19) *Ich suech ebber wo mer helfe künnt.*  
 I search someone REL I.DAT help.INF could  
 ‘I am looking for someone who could help me.’

(Brandner & Bräuning 2013: 140)

Such complementisers may also co-occur with overt relative operators:

- (20) *Des Geld, des wo ich verdiene, des geheert mir.*  
 the.N money that.N REL I earn.ISG that.N belongs I.DAT  
 ‘The money that I earn belongs to me.’

(Fleischer 2016)

15. The differentiation also captures yet another difference, which is that the relative pronoun is licensed in non-finite clauses, while *that* as a complementiser imposes selectional restrictions on the subclause.



Such doubling patterns are attested in South German dialects (see Brandner & Bräuning 2013; Weiß 2013; Fleischer 2016) and also in English both historically and synchronically, as discussed in Sections 1 and 2. Van Gelderen (2013: 59) notes that such examples are attested “in some varieties of English”, yet they do not seem to be as common as Doubly Filled COMP patterns in embedded interrogatives.<sup>16</sup> Similarly, while doubling patterns in embedded interrogatives are indeed very common across West Germanic and may even be obligatory in certain dialects (see Bayer & Brandner 2008), doubling patterns in relative clauses are at most optional (see Brandner & Bräuning 2013)<sup>17</sup> and not attested in all dialects (cf. Boef 2013 on Dutch dialects).

As shown in connection with (8) and (10) above, the operator and the complementiser in relative clauses have similar functions (in terms of clause typing), whereas this is clearly not the case in embedded interrogatives. This is also related to the different information-structural properties of interrogative and relative operators: unlike interrogative operators, relative operators always express maximally recoverable information and as such they can be left out altogether or they can be reduced to expressing clause-typing information. On the other hand, when considering diverse syntactic patterns, it appears that West Germanic languages preferably lexicalise the C position as this is attested as the only option in most patterns. This is ultimately responsible for the insertion of the finite complementiser in embedded interrogatives and for the preference towards the relative complementiser strategy (over the relative pronoun strategy) in relative clauses. Apart from these dialect data, the lexicalisation of finiteness on C can also be observed in the general V2 property of West Germanic languages (which still holds in German and Dutch, but historically English was also a V2 language) and to T-to-C movement

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16. The difference is difficult to measure precisely as the relevant constructions are non-standard and stigmatised, so that both grammaticality judgements and corpora are problematic as sources: the acceptance may be influenced by prescriptive considerations, and doubling hardly occurs in written language. Some grammaticality judgements from speakers of relevant varieties reveal that speakers accepting doubling in relative clauses also accept doubling in embedded interrogatives, but the implication does not hold vice versa. This issue, however, should be investigated more systematically. Regarding English, a good collection of relevant data is the one by Beatrice Santorini (<https://www.ling.upenn.edu/~beatrice/examples/doublyFilledCompExamples.html>): interestingly, all of the examples given here (as of 2 May 2020) are from embedded interrogatives and free relatives, but none from headed relative clauses.

17. Similar results are reported for Hessian in the SyHD-Atlas: the overall majority (100 out of 119) speakers who accept the complementiser in embedded interrogatives also prefer this option all over others (Weiß 2016), while doubling in relative clauses is altogether a minority pattern even in the South (Fleischer 2016).

in Present-Day English<sup>18</sup> (for a detailed discussion, see Bacskai-Atkari 2020c, following Pittner 1995).

It follows that in embedded interrogatives, doubling effects are expected to be the preferred option: the operator is necessary due to information structure and the complementiser is inserted to mark finiteness. On the other hand, the relative complementiser strategy is expected to be the preferred option in relative clauses: this types the clause as relative and lexicalises finiteness on C, and no overt operator is actually necessary in addition, as the operator in relative clauses is recoverable. Note that the relative complementiser strategy is possible only if the given variety has a relative complementiser at all: if this is not the case, there is no choice between the strategies. These expectations are borne out from present-day West Germanic dialect data. In the standard varieties, the situation is different as doubling is prohibited.

#### 4. Historical changes in English

At this point, one might wonder why relative pronouns are used at all if they are not necessary and if the complementiser strategy is generally preferred anyway. This question obviously arises in connection with dialects that have relative complementisers, of course, as the zero relative strategy is altogether not very common and hence at least a single relative marker is expected to be possible. Specifically, English has both relative pronouns and complementisers in all dialects, including Standard English, and while the preferences indeed differ (see Section 2), the choice is undoubtedly there.

As discussed in Section 2, doubling patterns are attested already in Old English relative clauses, as a way of reinforcement. Interestingly, doubling patterns are not reported from Old English embedded interrogatives (Nawata 1999: 123; see also Schallert et al. 2016: 11). Assuming that doubly filled COMP patterns are related to the V2 property of the language in some way, this is not even surprising inasmuch as Old English was not a strict V2 language, allowing also for V-last main clauses (Walkden 2014: 94–106). Nawata (1999) also proposes that there might be a link between V2 and DFC patterns. However, he advocates a cartographic approach in

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18. This is illustrated in (i) below:

(i) *Where should we go?*

In this case, the *wh*-element *where* moves to [Spec,CP], while *should* moves from T to C: as the subject remains in [Spec,TP], this results in a reversed order of the subject and the auxiliary. The movement of an overt auxiliary is always required in main clause interrogatives (not only in constituent questions but also in polar and alternative questions): if there is no overt auxiliary, the dummy auxiliary *do* is inserted.

which two distinct projections host the operator or the fronted XP on the one hand and the complementiser or the verb on the other hand. The idea is that the loss of V2 in English involved the loss of DFC patterns automatically as the projection in question was lost. This approach is highly problematic: for one reason, while genuine V2 patterns are lost until the end of the Middle English period, DFC patterns are well-attested in present-day non-standard varieties as well, especially in the case of embedded interrogatives, which should not be possible if the position had been lost.

Doubly filled COMP patterns with *that* in the C position are attested in Middle English. According to Allen (1977), such doubling patterns first appeared in embedded interrogatives (end of 13th century) and later in relative clauses (beginning of 14th century). Note that the co-occurrence of *that* with a *wh*-operator was not restricted to constituent questions but it is in fact attested with *whether* in polar questions as well (Bacskai-Atkari 2020c).

The appearance of *that* in interrogatives is essentially unproblematic: it involves feature loss in the sense that this element does not type the clause as declarative anymore and as such it is not specified as [-wh]. The process is in line with the principle underlying grammaticalisation that a given element is lexically impoverished rather than enriched.

I suggest that the availability of doubling patterns in embedded interrogatives was an incentive for the emergence of doubling patterns in relative clauses as well. Van Gelderen (2004, 2009) treats the new *wh*-based relative pronouns as innovations that were licensed because the specifier position was now available. Watanabe (2009) argues that *wh*-elements were bare indefinites in Old English, and they were used together with visible or invisible quantifiers; once this property was lost, *wh*-elements could also be used as relative pronouns in Middle English, as they were no longer associated with complete propositions. Still, it is not clear from either of these facts why *wh*-pronouns were actually introduced into relative clauses: neither the availability of the position nor the feature changes affecting the pronouns account for their appearance. On the other hand, once the pronouns became less specific, it is very probable that the availability of doubling patterns of the form *wh+that* in embedded interrogatives analogically fostered the appearance of doubling patterns of the form *wh+that* in relative clauses. In embedded interrogatives, the operator was naturally overt (see above), yet, as the general distribution of *wh*-elements in Early Middle English was different from that in Present-Day English, their appearance in relative clauses was very plausible on the basis of analogy. The pattern *wh+that* was ultimately available for embedded polar questions, embedded constituent questions,<sup>19</sup> free relatives and headed relatives.

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19. Romaine (1982: 62–63) also notes the possibility that interrogatives had an effect on the development of relative clauses, yet this merely concerns the introduction of the pronoun and

The underlying differences in information structure necessarily led to different outcomes, though, overwriting the surface similarity of the analogical patterns. In embedded questions, the *wh*-element is necessarily overt due to its information-structural status: for the same reason, it cannot lose its phi-features and undergo reanalysis either. Embedded interrogatives thus constitute a relatively conservative environment where the syntactic status of the operator remains stable over time. By contrast, the relative operator does not have to be overt even after its introduction, as the relative complementiser can sufficiently type the clause and the operator is recoverable. This weakens doubling patterns: the new *wh*-pronouns, unlike Old English *that*, have not become fully uninflected and/or they show sensitivity to the referent and thus none of them can be reinterpreted as a general relative marker.

## 5. Information structure and the Accessibility Hierarchy

One might wonder whether there is any additional reason to think that analogy proceeded from embedded interrogatives to relative clauses and not vice versa. After all, the two doubling patterns appeared right after each other; in principle, there could be a confound in the available data.

There are two factors to consider here. One is that the complementiser in embedded interrogatives is unlikely to have been triggered from relative clauses, whereas the development from declarative clauses is straightforward: this merely involves the loss of the clause-typing feature, which makes *that* a general complementiser that can still appear in its original environments (that is, declarative clauses). Van Gelderen (2009: 157–161) shows that declaratives in Old English involved a correlate in the matrix clause: this correlate is the origin of *that*, which was later reanalysed as part of the subordinate clause. Consider:

- (21) *forðam wearð ylða bearnum undyrne cuð.... þæt þe*  
 therefore became to.elders to.children not.hidden known... that that  
*Grendel wan hwile wið Hroþgar*  
 Grendel fought while against Hrothgar  
 ‘Therefore, all mankind found out in sad tidings that Grendel fought against Hrothgar.’  
 (*Beowulf* 149–151, Klaeber edition; example taken from van Gelderen 2009: 158)

does not specify the role of features. She makes a crucial point, though, in refuting the idea (as proposed by Curme 1912) that mere form similarity between the pronouns would make sound predictions in this respect.

In this case, the element *that* is in the [Spec,CP] position of the embedded declarative clause and the complementiser *þe* is located in C, resulting in a doubling pattern familiar from relative clauses. The same scenario can be observed in German: as shown by Axel (2009) and Axel-Tober (2017), the element *das/dass* was initially a demonstrative element in the matrix clause, which came to be reanalysed as a relative pronoun introducing a correlative clause. Subsequently, such adjunct clauses were reanalysed as complement clauses, making the subclause the sister of the matrix lexical verb (Axel 2009: 23, Axel-Tober 2017: 55). In this scenario, the original correlative element is weakened in its referential function: this is especially true in declarative clauses, where neither English nor German preserved matrix correlates, whereas the head noun was preserved in both languages in relative clauses. The further development of a more impoverished complementiser marking merely finite embedding is hence more likely to have taken place from declaratives than from relative clauses: the declarative clause type is also the least marked.

The other factor to be mentioned here concerns the status of the operator. As mentioned before, the operator is obligatorily overt in (embedded) constituent questions, irrespective of its syntactic function in the clause. By contrast, the *wh*-based relative operator was at the beginning not possible in any of these functions. Essentially, the role of the operator in relative clauses is to mark the given function explicitly, and the most likely candidate for this function could be found in a similar fronting construction in Middle English. Unlike the demonstrative-based relative operator, which was reanalysed from the matrix correlative element, the *wh*-element was not part of the relative clause originally: its introduction does not involve reanalysis but borrowing.

It is worth mentioning here that German shows similar developments in the history of its relative clauses. As described by Coniglio (2019), Old High German originally used a relative complementiser *þe*, which is the same West Germanic complementiser as the Old English one. The demonstrative-based relative pronoun (*der/die/das*) was introduced as an innovation, just like in the case of English *that*. However, these pronouns were not reanalysed in German: they are inflected for case, number and gender and cannot be interpreted as complementisers. This is in line with the preservation of case-marking in German, contrary to English, where case/gender marking was lost on the relative pronoun *that* (and more generally on nominal elements). The introduction of the new relative pronouns in German thus led to doubling effects on the one hand, just as in English, yet it did not trigger a further reanalysis step, contrary to English.

Regarding the differences between functions, it has been suggested in the literature that the development of relative markers may be influenced by the Noun Phrase Accessibility Hierarchy of Keenan & Comrie (1977). According to this scheme (see also Keenan 1975), nominal expressions are accessible to different degrees; subjects

are the most accessible, followed by other roles: subject > direct object > indirect object > oblique object (complement of preposition) > genitive (possessor phrase) > object of comparison. It is possible for a language not to relativise certain functions at all: if so, it does not relativise functions lower in the hierarchy either. West Germanic languages do not relativise objects of comparison. Hawkins (1995), Keenan & Hawkins (1987) and Kirby (1996) ground the Hierarchy in processing factors (subject relative clauses are the easiest to process).

Coniglio (2019: 163) suggests that the introduction of the relative pronoun in German first affected subject relative clauses and proceeded to other functions along the Noun Phrase Accessibility Hierarchy. He suggests that one possible reason for this may be that the element which is most likely to be fronted anyway is the subject. This is further supported by the fact that subject relative clauses are more easily processed than any other relative clause type (see, for instance, Wanner & Maratsos 1978).

Romaine (1982: 61) and Gisborne & Truswell (2017: 31–32) suggest exactly the opposite process for Middle English: they observe that the *wh*-strategy first appeared very low on the scale, namely with genitives and with objects of prepositions. Gisborne & Truswell (2017: 31–32) consider the *wh*-strategy to be a secondary option in this period (as Romaine 1982: 152 puts it, this option appears to have entered the system through the “back door”). In this respect, *wh*-based relative pronouns show similar behaviour to resumptive pronouns in other languages (Kirby 1996; but see the critical evaluation of Gisborne & Truswell 2017: 32–35).

This direction does not follow from the higher frequency of subject relatives, as suggested for Old High German, but rather from the fact that pronouns may ease processing, especially in the lower functions. However, as Gisborne & Truswell (2017: 35) point out, this observation does not imply any sort of necessity on diachronic change: relative clauses in these functions were possible even before *wh*-pronouns appeared (for instance with demonstrative-based pronouns, see Gisborne & Truswell 2017: 35–37), so that there was no pressure for the emergence of these forms. Moreover, this would not explain why the same strategy spreads to the higher functions.

The spread of the *wh*-strategy to higher functions is attested relatively early. To provide an example: I searched for the combination “which that” in a parallel-text print of Chaucer’s *Troilus and Criseyde* (from the 1380s), which is available as part of the Corpus of Middle English Prose and Verse and which comprises three manuscripts (the Campsall, the Harleian and the Cambridge University library manuscripts). There are altogether six hits for the sequence in relative clauses: four of these are subject relative clauses, there is one direct object relative and one oblique (where *which* is part of a PP). This indicates that doubling as an option was not restricted to any of the functions, especially not to the ones lower on the scale. The

higher proportion with subjects is possibly affected by the higher frequency of subject relative clauses in general<sup>20</sup> and by the fact that the pronoun was introduced into subject relatives first. As doubling patterns are attested from the beginning of the 14th century in relative clauses (see Section 4), the patterns in Chaucer's text may indeed reflect a later stage (when the pattern had already spread).

For Middle Scots, Romaine (1980: 228–229) and Romaine (1982: 144–157) show that the proportion of *wh*-relatives was altogether higher in the lower functions. This correlates with the later data (see Bacskai-Atkari 2020a regarding the King James Bible) but as the proportion of *wh*-relatives reaches 14% in restrictive relative clauses, this data set can hardly be considered as representative of the initial stage. The proportion of *wh*-relatives is very high in non-restrictive relative clauses and does not show significant differences according to syntactic function. Again, just as with Middle English, it is perfectly possible that *wh*-relatives spread from the higher functions but were more likely to be used in the lower functions. What all these findings suggest is that while the Accessibility Hierarchy makes reasonable predictions about asymmetries, there is no uniform pattern regarding the spread of the individual elements or the point of the hierarchy at which they are introduced first. Still, what undoubtedly matters for us here is that asymmetries between the individual strategies are also influenced by syntactic function and this aspect complements discourse factors (which predict an asymmetry between relative clauses and embedded interrogatives but not between syntactic functions).

Relative clauses again differ in terms of doubling patterns from embedded interrogatives due to discourse-related differences: the operator cannot be left out from embedded interrogatives for any function and the marking of finiteness is not tied to a particular syntactic function either. By contrast, relative clauses contain at most discourse-old visible operators or no visible operator at all, and the realisation of this operator may show correlations with the syntactic function it is associated with. New strategies spread from the highest function (subject) to the ones lower on the scale: this is shown by Coniglio (2019) for Old High German and Herrmann (2005) for present-day English dialects.

The question is interesting especially when compared to subsequent periods. In certain dialects of West Germanic, there is no choice between the pronoun strategy and the complementiser strategy: this is the case in Standard German and Dutch (just as in most Dutch dialects, see Boef 2013). In South German dialects, the preference is generally towards the complementiser strategy (see Section 3), yet this preference is significantly stronger in relative clauses that are higher in the hierarchy than in ones that are lower (Fleischer 2004a, 2004b). A similar observation is made by Herrmann

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20. As pointed out by Romaine (1980: 227–228) and Romaine (1982: 144–149), this prediction is borne out also for Modern English and for Middle Scots.

(2005) and Kortmann & Wagner (2007) for present-day English dialects. As shown by Bacskai-Atkari (2020a: 104), this is the case in the King James Bible as well: both the original version (1611/1769) and the modernised version (1989) show differences in the distribution of *wh*-relatives and *that*-relatives (doubling patterns are not attested): *wh*-relatives are preferred in non-subject relatives (72.44% for direct objects and 71.43% for PPs in the sample in both versions), while subject relatives are predominantly (74.78%) *that*-relatives in the original version and predominantly (69.91%) *wh*-relatives in the modernised version.<sup>21</sup> The difference between the two versions can be attributed to prescriptive pressure in the modern version.<sup>22</sup> It is evident that dialects may also differ in their preferences along the lines of the Accessibility Hierarchy. For instance, *that* may well be used in present-day non-standard varieties instead of a PP containing a *wh*-pronoun, as in the example below:

- (22) *I haven't been to a party yet that I haven't got home the same night.*  
(van Gelderen 2009: 161, citing Miller 1993: 112)

In this case, the complementiser *that* is used; the standard dialect would use *from which* (optionally stranding the preposition).

Nevertheless, the other asymmetry, namely the one between subject and non-subject relative clauses, is the consequence of the optionality of relative pronouns in general. Keenan & Comrie (1977) show that resumptive pronouns are more likely to occur lower on the scale;<sup>23</sup> resumptive pronouns, just like relative pronouns, indicate the function of the gap. This is more likely to happen in non-subject relative clauses as they are less easy to process and occur less frequently than subject relative clauses.

In this way, the optionality of relative pronouns and the potential functional equivalence between the pronoun strategy and the complementiser strategy point to another consequence besides doubling effects being more likely to arise in embedded interrogatives than in relative clauses (and besides the obvious fact that

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21. As pointed out by Romaine (1982: 71), both strategies have been part of the English grammar from Middle English onwards, and the differences we can observe between the individual periods are quantitative rather than qualitative.

22. As described by Austin (1985: 21, 24), this was already the case with 18th-century grammarians (including, for instance, Addison). Ball (1996: 247) points out that this trend was present in the 17th century as well, with writers like Dryden explicitly preferring *who* over *that* (see also Söderlind 1964: 123), but the sharp decline of *that* can be observed in the 18th century. Romaine (1982: 133–134) also shows that the prescriptive trends were slightly divergent for a while but essentially pointed to the same major direction. Interestingly, as the original version preceded these prescriptive considerations, some relative constructions from the King James Bible were cited as incorrect by later grammarians like Lowth (see Romaine 1982: 134).

23. This also holds for English-based creoles, as pointed out by Dreyfuss (1977: 170).



relative clauses may lack overt operators). Namely, while interrogative operators are primarily tied to a certain information-structural status and available in all functions, relative operators may have the primary role of marking certain syntactic functions (provided that other strategies are available), typically ones lower on the hierarchy. This property ultimately stems from their being GIVEN.

This has a further consequence for the relative cycle, discussed in Section 2. We saw that relative operators can be reanalysed as relative complementisers once they lose their case features and phi-features, precisely because they express discourse-GIVEN information. In the case of English *who* and *whom*, case distinction is relevant in Early Modern English and both operators were primarily used with human referents. The operator *which*, however, was possible both with human and with non-human referents (Bacskai-Atkari 2020a) and as it does not show case distinction, it is in principle a perfect candidate for a reanalysed complementiser. This reanalysis step, however, has not taken place (see Herrmann 2005 on the distribution of *which* in present-day dialects), unlike in the case of *that* previously. In other words, the cyclic change seems to have stopped.

This indicates that, apart from inflection, there is yet another factor to be considered, namely whether the operator is more or less evenly distributed among syntactic functions. This is clearly not the case for *which*: the data from Early Modern English strongly suggest that it predominantly occurred in relative clauses lower on the scale. As these relative clauses are altogether less frequent than subject relatives, it is evident that *which*-relatives (and *wh*-relatives in general) had altogether comparatively little prominence to induce reanalysis.

## 6. Conclusion

The aim of this paper was to examine the relative cycle attested in relative clauses and to evaluate its possible predictions. The relative cycle involves the reanalysis of a relative operator into a relative complementiser, which in turns makes it possible for new relative operators to appear in the specifier position. The middle stage involving two relative markers is a doubling pattern leading to a classical doubly filled COMP effect. Just as in the case of negative doubling, the two relative markers are largely synonymous. This crucially differs from doubling effects in embedded questions. I argued that the difference between the two clause types goes back to discourse-related differences, as the relative operator expresses discourse-old information that is fully recoverable on the basis of the matrix head noun, while *wh*-elements in interrogatives are essentially focussed and must be realised overtly. However, as the two clause types are related, patterns attested in embedded interrogatives may be analogically extended to relative clauses, leading to the introduction of *wh*-elements in relative clauses in Middle English.

While doubling effects are all-present in West Germanic dialects in embedded interrogatives, they are comparatively rare in relative clauses. I argued that this is again related to the different information-structural status of the respective operators. In dialects that lack relative complementisers, the complementiser position is regularly empty. In many other dialects, however, the complementiser strategy is preferred and the operator is not realised overtly. On the other hand, it seems that while subject relative clauses were crucial concerning the introduction of innovative relative pronouns (and concerning the introduction of novel relative markers generally), the pronoun strategy, at least in English, is primarily associated with non-subject relatives, further restricting the distribution of the relative pronouns in question. This indicates that the relative pronoun is primarily tied to marking syntactic functions overtly.

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# Discourse relations and the German prefield

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The prefield in German declarative main clauses (i.e. the area left of the tensed verb) usually contains exactly one phrase. As I showed in earlier work, the phrase-selection is guided by information-structural factors, scene-setting elements being preferred over contrastive elements, which in turn are preferred over aboutness topics. This paper investigates the role of discourse relations on the ranking of possible prefield phrases. It turns out that discourse relations have a direct impact on the ranking (e.g. with Explanation, topics are preferred over contrastive elements) and that phrasal discourse relation markers enter the ranking, being the most preferred prefield fillers. In Early New High German texts, this tendency is even stronger.

## 1. Introduction

The German clause is often described in terms of the so-called topological field model (e.g. Wöllstein 2010). The main tenet of this model is that it acknowledges the fact that the only fixed points in the German clause are the positions of the verb forms (left / right sentence bracket, respectively, abbrev. LSB / RSB). The remainder of the clause is subdivided into a set of 'fields' that are defined dependent of their linear position relative to the sentence brackets. The material in-between the sentence brackets constitutes the middle field, material following the right sentence bracket constitutes the postfield, and material preceding the left sentence bracket constitutes the prefield. In (1) the model is represented in a schematic way together with some sample clauses. The fields are indicated in the first line, the material in the clause is printed in such a way that each portion is aligned with the field it belongs to.



(1) prefield	LSB	middle field	RSB	postfield
<i>Gestern</i>	<i>ist</i>	<i>Philipp mit Julia nach Ulm</i>	<i>gefahren,</i>	<i>weil....</i>
yesterday	is	Philipp with Julia to Ulm	gone	because...
<i>Philipp</i>	<i>ist</i>	<i>gestern mit Julia nach Ulm</i>	<i>gefahren</i>	
Philipp	is	yesterday with J. to Ulm	gone	
<i>Mit Julia</i>	<i>ist</i>	<i>Philipp gestern nach Ulm</i>	<i>gefahren,</i>	<i>weil...</i>
with Julia	is	Philipp yesterday to Ulm	gone	because...

We want to concentrate in this paper on the prefield (SpecCP in a generative model, see e.g. Dürscheid 1989). This is a position which is sensitive to sentence mood (s. e.g. Bacsikai-Atkari, this volume). The presence or absence of the prefield defines the different German sentence types (e.g. Brandt et al. 1992). In a declarative clause, the prefield is filled with one constituent.<sup>1</sup> Which constituent this is, is not determined by syntax, but follows mainly from information structural considerations.<sup>2</sup> Based on the model of the prefield-ranking (see e.g. Speyer 2008a), several types of elements with certain information structural properties are possible as prefield fillers. We will refer to such elements as “preferred prefield fillers” (PPF) in the following. In the classical form of the model, three classes of elements were identified that are ranked as given in (2).

- (2) scene-setting elements (S)  
 >> contrastive elements (C)  
 >> aboutness-topics (meeting certain additional criteria) (T)

The preference of elements with these information structural properties for the prefield has been acknowledged repeatedly in the literature (e.g. Frey 2006; Hinterhölzl & Petrova 2010, 2011; Molnár 2012). Scene-setting elements are expressions that delimit the situation within which the proposition is evaluated with respect to its truth value ((3a), see Jacobs 2001). Contrastive elements are expressions whose referents stand in a partially-ordered set relation to other, salient elements in the discourse ((3b), e.g. Birner & Ward 1998; Prince 1999). Topics, finally, are defined as aboutness-topics in the sense of Reinhart (1982). An additional condition that turns a topic into a PPF is that it must either represent given information or must be relevant for the macro-structure, i.e. remains the sentence topic of a number of subsequent sentences (3c). This definition of topic might demand further elaboration (see Bader et al. 2017 and Bader & Portele 2019), but it suffices for the present purposes.

1. There are exceptions such as e.g. multiple prefield filling (on which see e.g. Müller 2005; Speyer 2008b). This is however not relevant for the purpose of the present paper.

2. The impact of information structure or informational content on the filling of the fields in German is not confined to the prefield. For a study on the German postfield see Voigtmann (this volume).

- (3) a. [<sub>S</sub> *Schon heute*] *leben allein in China und Indien* [...] *mehr*  
 already today live alone in China and India more  
*Menschen*  
 human.beings  
 ‘Even today, more human beings live in China and India alone.’  
 (Schmidt 1998: 18f.)
- b. [<sub>C</sub> *All diese Studien...*] *brachte* [<sub>T</sub> *ich*] *ein in den Prozess für*  
 all these studies brought I in into the process for  
*ein Manifest*  
 a manifesto  
 ‘I incorporated all these studies into the process for a manifesto.’  
 (Küing 2010: 13)
- c. [<sub>T</sub> *Dieses Buch*] *ist kein publizistischer „Schnellschuss“.* [<sub>T</sub> *Es*] *war*  
 this book is no journalistic snapshot it was  
*seit langem in Arbeit.*  
 since long in work  
 ‘This book is no journalistic snapshot. It was worked on for a long time.’  
 (Küing 2010: 13)

Already in Speyer (2010), a study on prefield filling in spoken conversations, it was suggested that phrasal markers of discourse relations, such as e.g. *dann* (‘then’, marking Narration; discourse relations following Asher & Lascarides 2003) need to be included.<sup>3</sup> Further work on the overt realisation of discourse relations (e.g. Speyer & Fetzer 2014) confirmed that the sentence-initial position in general is a preferred place for overt markers of discourse relations (in the following DR-marker).<sup>4</sup> If the DR-marker is not phrasal, a position left of the clause proper, such as e.g. the KOORD-position, is utilized.<sup>5</sup> If the DR-marker is phrasal, however, the obvious position should be the prefield. In Speyer (2010) it was concluded that *dann* and

3. As the prefield filling is confined to constituents, i.e. phrases, expressions that have no phrasal status are disallowed in the prefield. Most discourse relation markers are element like conjunctions (*aber* ‘but’, *und* ‘and’, *weil* ‘because’ etc.) and therefore not possible in the prefield. Phrasal DR-markers are comparably few, besides *dann* ‘then’ e.g. *zudem* ‘in addition’, *trotzdem* ‘nevertheless’, and discourse anaphora.

4. The property of a lexical item to mark discourse relations is probably not an inherent property of these elements. It seems to be rather the case that certain elements are compatible with certain functions, e.g. marking discourse relations. This has been shown e.g. for Old High German *tho* ‘there’ by Donhauser & Petrova (2009), whose functions differ to some extent dependent on which position it occupies.

5. The KOORD-position is the leftmost position in the topological field model that hosts conjunctions such as *und* ‘and’ (see Höhle 2019 [1983]: 83), e.g. in [<sub>KOORD</sub> *Und*] [<sub>prefield</sub> *im Herbst 2019*] *ist dieser Aufsatz entstanden.* ‘and in the fall of 2019, this paper was written’.

possibly other phrasal discourse markers receive a high position in the ranking, being on a par with scene-setting elements. The ranking arrived at in Speyer (2010) looks as in (4), in a slightly generalized version.

- (4) scene-setting elements (S), phrasal discourse relation markers (D)  
 >> origo markers (O), contrastive elements (C)  
 >> aboutness-topics (T)

Origo markers are mainly subject personal pronouns, which have a higher tendency to appear in the prefield than “normal” topics, at least in spoken, dialogic discourse, and therefore should be treated differently from “normal” topics.<sup>6</sup> We are however more interested in the high ranking of phrasal DR-markers. If phrasal DR-markers are relevant for the filling of the prefield, in the sense that they receive a high ranking (which more or less means: if a phrasal marker of discourse relations is present in the clause, it is put into the prefield), it could be the case that discourse relations as such influence the prefield ranking in the sense that some discourse relations favor one kind of ranking, while others favor another ranking. As the prefield ranking could be subject to change over time (see Speyer 2015), an effect could be observed if modern data is compared with historical data.

Looking at earlier language periods (see e.g. Speyer 2015), we see that the same kinds of elements were eligible as PPFs. The examples in (5) are taken from the Early New High German corpus underlying the present study.

- (5) scene setting element >> topic
- a. *vn* [<sub>S</sub> *vorbaf*] *hat* [<sub>T</sub> *er*] *sich entgossen an die creaturen*  
 and further has he himself outpoured to the creatures  
 ‘and it went on regorging over the creatures.’ (Tauler sheet 1 recto col.A)<sup>7</sup>  
 contrastive elements >> topics
- b. *Vnd* [<sub>C</sub> *die Am*] *macht* [<sub>T</sub> *in*] *auch nicht gestillen.*  
 and the nurse might him also not soothe  
 ‘neither the nurse could soothe him’  
 phrasal discourse relation marker >> contrastive element, topic
- c. [<sub>D</sub> *Da*] *nam* [<sub>C</sub> *ich*] [<sub>T</sub> *in*] *an den arm*  
 then took I him at the arm  
 ‘then I took him on my arm’ (Kottanerin 31; two subsequent clauses)

The change from Old High German to more recent periods can roughly be characterized in descriptive terms as follows: In Old High German (henceforth OHG),

6. Bader et al. (2017) and Bader & Portele (2019) show psycholinguistic evidence for object NPs to be preferred in the prefield, although they do not refer to the most salient referent (i.e. the topic). Part of the data might be explained by the different behaviour of origo markers.

7. This way of citing follows the indications in the *Bonner Frühneuhochdeutschskorpus*.

topics are the most common PPFs, and they are preferred over all other sorts of PPFs. Later, in Early New High German (henceforth ENHG), we see that a decrease in the relative frequency of topics compared to the other PPFs has taken place, and the numbers almost match the numbers derived from modern texts. This can be interpreted rather not as a strictly structural change in the architecture of the prefield, but as a change in the usage of this architecture. If we assume a cartographically articulated left periphery for German as e.g. Grewendorf (2002) – which is subject to some mechanism that makes sure that in the end only one position in the C-architecture is filled (e.g. Grewendorf 2002, but see Speyer 2008b and Wiese et al. 2017) –, this setup might well have been identical over the past 1200 years. But this architecture can be utilized in different ways. In Speyer (2008a), the actual instantiation of the prefield was modeled using Stochastic Optimality Theory (SOT). The three constraints that are responsible for filling the prefield were stated there as follows:

- SCENESETTING-VF (if the clause contains a scene setting element, it is this one that stands in the prefield)
- POSET-VF (if the clause contains a contrastive element, it is this one that stands in the prefield)
- TOPIC-VF (if the clause contains an aboutness-topic, it is this one that stands in the prefield)

The ranking arrived at in Speyer (2008a) was SCENESETTING-VF >> POSET-VF >> TOPIC-VF. In SOT, the constraints are assigned numeric target values that are understood as high points of a Gaussian curve. If the numeric values of two constraints A and B that are ranked A >> B are relatively close together, paradoxical rankings can result, i.e. that the actual value of B happens to be higher than the actual value of A, so that a ranking B >> A could occasionally occur.

The change in prefield filling described above would correspond to a change in the target values of the constraints. The constraint TOPIC-VF (candidates corresponding to this constraint are clauses in which the prefield is filled by the aboutness-topic) was ranked highest in OHG. After the OHG period, it lost its numeric value and thus descended from its highest position – a position in which it even dominates the constraint SCENESETTING-VF (which takes care that scene setting elements end up in the prefield) – to a position close to, perhaps slightly below the constraint POSET-VF, which is the constraint favoring candidates in which the prefield is filled by contrastive elements.

This paper is devoted to the investigation of the hypothesis that discourse relations could directly influence the ranking. It is organized as follows: Section 2 presents the data from a modern text corpus, in Section 3 the data from an ENHG corpus is put forward. A comparison is made in Section 4.

## 2. The prefield and discourse relations in Modern German

### 2.1 Text type as factor

In order to investigate the influence of discourse relations on the filling of the prefield, a number of texts from different genres were analyzed. The declarative clauses in these texts were coded for elements undergoing the prefield ranking and in addition for the discourse relation, in which the clause stands relative to some preceding partner. As heuristic for determining the discourse relation the conditions given in Asher & Lascarides (2003) were used. As a default, the discourse relation of a clause  $C_n$  to the preceding clause  $C_{n-1}$  was used. In cases in which it was obvious that  $C_n$  primarily refers to a clause  $C_{n-m, m > 1}$ , this relation was used (see on the problem e.g. Speyer & Fetzer 2014). Texts of a not too sophisticated stylistic level were chosen. This is because the rather oral style of ENHG prose should be matched. So, as the written prose style is yet under development in the ENHG period, close-to-oral text types (and within the text types representatives whose authors are not accustomed to writing) have been selected for the Modern German sample. The Modern German text types were selected in such a way as to more or less match the text type of the ENHG text sample. A perfect fit of the text types was not attained, as the text types as such developed in the meantime so that the parameters of a given text type might have changed between the ENHG and the modern period. For instance, the text type “sermon” in ENHG was not matched with Modern German instances of the text type “sermon”, but rather with “plea”, as the aim of printed sermons is rather different nowadays than it was in the ENHG period.<sup>8</sup> In both periods, a point was made of varying the text type (argumentative versus narrative) and of varying the personal involvement of the author (high versus low personal involvement). Table 1 shows the genres and the representative texts in comparison. At least 200 verb-second declarative clauses per cell were analyzed.

A first analysis of the prefield ranking in relation to text type did not lead to a conclusive picture. In Table 2, the cases in which two or three PPFs occur in a text and therefore compete for the prefield in competition are listed. The numbers

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8. The publication of sermons up to the 18th/19th century had the persuasion of the reader as the main objective, whereas with modern printed sermons this is probably not the case. Modern pleas, however, have a mainly persuasive character and thus are more appropriate to be compared with ENHG sermons in terms of intended reception. The choice of the authors, however, was made in such a way as to keep some consistency with the ENHG text type ‘sermon’: two of the three authors of the pleas are clerics (including Marx, who in this case is not the 19th century economist).

**Table 1.** Text types and sample texts used for the analysis (Modern German)

	Narrative	Argumentative
high personal involvement	autobiography ( $n = 207$ ): Beissel von Gymnich (1977): 38 l.16–41 l.26. Rota (1995): 118 l.1–120 l.23; 120 l.34–121 l.35. Thoelke (1995): 243 l.28–246 l.8; 251 l.9–252 l.13; 252 l.20–253 l.2; 253 l.28–254 l.21.	plea ( $n = 201$ ): Küng (2010): 13 l.1–18 l.21. Marx (2008): 80 l.1–85 l.15. Schmidt (1998): 14 l.3–21 l.5.
low personal involvement	research report ( $n = 201$ ): Krausse et al. (2014): 134–137 (J. König); 170–172 (C. Bollacher & M. Steffen); 173–175 (K. Kortüm); 114 section ‚Ein Ausblick‘ (F. Klein); 115–119 (D. Krausse & N. Ebinger-Rist).	academic lecture on radio ( $n = 230$ ): Sauer (2012): 2 l. 15–6 l. 27 Vogelsang (2012): 2 l.15–6 l. 17.

involving phrasal discourse relation markers are printed in italics. The cells with more than two competitors are to be read as: If the row title is ‘ $x > y, z$ ’, the numbers in the cell are in the format ‘ $m_x/m_y, m_z$ ’, where  $m$  is the total number of occurrences in which the one indexed condition, say  $x$ , wins over the other conditions, say  $y$  and  $z$ . The percentages of  $m_x$  are given after the numbers, divided by a semicolon.

**Table 2.** Competing PPFs, separated for text type (Modern German)

	Autobiography	Research report	Plea	Radio lecture
$D > S$ ; %	1/0; 100		1/0; 100	2/0; 100
$D > C$ ; %		5/5; 50	1/0; 100	4/2; 67
$D > T$ ; %	1/1; 50	6/7; 46	9/1; 90	6/1; 86
$S > C$ ; %	21/1; 95	20/3; 87	16/2; 89	4/2; 67
$S > T$ ; %	30/1; 97	29/4; 88	15/8; 65	20/4; 83
$C > T$ ; %	19/0; 100	7/8; 47	14/24; 37	14/30; 32
$D > S, C$ ; %		0/2, 1; 0	1/0, 0; 100	
$D > S, T$ ; %		2/1, 0; 67	1/1, 0; 50	
$D > C, T$ ; %	1/0, 0; 100	1/0, 1; 50	1/1, 1; 33	3/1, 5; 33
$S > C, T$ ; %	4/1, 0; 80	2/0, 3; 40	3/0, 0; 100	1/0, 0; 100
$D > S, C, T$ ; %			1/0, 0, 0; 100	

It is obvious that there are some differences. It is questionable, however, whether these differences are to be attributed to the parameter text type alone, as the picture is quite heterogeneous. The numbers of the text type ‘autobiography’ match more or less the numbers in the newspaper texts that underlie the ranking in Speyer (2008a). Phrasal discourse relation markers are rare, but if they occur, they mostly oust the other PPFs. The similarity is not surprising, as the newspaper texts and autobiographies are both narrative text types, so a certain similarity in terms of the setup is to be expected. With the text type ‘research report’, the dominance of scene setting elements over all other PPFs is obvious. The ranking of the three other types of PPFs, topics, contrastive elements and phrasal discourse relation markers, is however unclear, as in competition cases the ratios of the two competitors are rather equal. This can be illustrated with the examples in (6), in (6a), (c) the expected PPFs (contrastive and scene setting element respectively) are in the prefield, whereas in (6b), (d) it is the least expected PPF, the topic.

(6) a. topic > contrastive element

[<sub>T</sub> *Spätlatènezeitliche Gebäude diese[s] Typs* ] *kommen* [<sub>C</sub> *auch in den late-latène-age buildings of.this type come also in the Viereckschanzen Bayerns* ] ... *vor*.  
square-ditched-enclosures of.Bavaria for  
‘Buildings of this type from the late Latène age are found also in the square ditched enclosures of Bavaria [...]’ (König in Krausse et al. 2014: 134)

b. contrastive element > topic

[<sub>C</sub> *Ein Vierpfostenbau* ] *überlagert* [<sub>T</sub> *das beschriebene Gebäude* ]  
a four-pole-building overlies the described building  
*im Südosten*.  
in.the south-east  
‘The described building is overlaid by a building constructed with four poles in the south-east.’ (König in Krausse et al. 2014: 137)

c. scene setting element > contrastive element, topic<sup>9</sup>

[<sub>S</sub> *Im Norden* ] *mündet* [<sub>T</sub> *der Graben* ] [<sub>C</sub> *in eine Reihe von in.the north leads the ditch in a series of großen Pfostengruben* ].  
large post-pits  
‘In the north, the ditch leads into a series of large post-pits.’  
(König in Krausse et al. 2014: 135)

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9. Note that this way of writing only indicates that there is no relevant ranking difference between topics and contrastive elements, and does not say anything about the order of the not selected PPFs in the middle field.

## d. topic &gt; scene setting element, contrastive element

[<sub>T</sub> *Stirnpanzer für Pferde* ] *sind* [<sub>S</sub> *bisher* ] [<sub>C</sub> *aus der*  
 front-plates for horses are hitherto from the  
*Hallstattkultur* ] *nicht bekannt und auch* [<sub>C</sub> *in der Latènezeit* ] ...  
 Hallstatt-culture not known and also in the Latène-era  
*extrem selten.*  
 extremely rare

‘Front plates for horses have not been known from the Hallstatt era and are extremely rare also in the Latène era [...]’

(Krausse & Ebinger-Rist in Krausse et al. 2014: 116)

Turning to the argumentative text types, there is a clear dominance of scene setting elements over contrastive elements in the text type “plea”, but less so with topics. In the case of “radio lectures”, there is a clear dominance of scene setting elements over topics, but less so with contrastive elements. In both text types, the topics clearly dominate contrastive elements, as can be seen from the fact that in around 2/3 of the competition cases between contrastive element and topic it is the topic that wins over the contrastive element. Phrasal discourse markers, on the other hand, seem to be high in the ranking as they win over topics in most cases ((7a); *insofern* marking the relation Elaboration) and even seem to oust scene setting elements from the prefield in the few competition cases ((7b); *aber dennoch* marking the relation “Contrast”).

- (7) a. [<sub>D</sub> *Insofern* ] *hatten* [<sub>T</sub> *sie* ] *auch noch keine hinreichende Antwort*  
 insofar had they also still no sufficient answer  
*auf die Soziale Frage ihrer Zeit.*  
 on the social question of their age  
 ‘Consequently, they had not yet a sufficient answer to the social question of their age.’ (Marx 2008: 80)
- b. [<sub>D</sub> *Aber dennoch* ] *muss* [<sub>S</sub> *auch hier* ] *festgehalten werden...*  
 but nevertheless must also here put.on.record be  
 ‘But nevertheless one must put on record here...’ (Marx 2008: 82)

On the whole, a clear dominance of scene setting elements is visible for all four text types, although there are possibly ousted by DR-markers (judging from the very limited number of occurrences). Apart from that, there are some differences. Phrasal discourse relation markers seem to clearly dominate over topics in the argumentative text types, but less so in the narrative text types. The respective dominance of contrastive elements and topics is clearly different, reaching from an almost categorical preference of contrastive elements over topics in the text type ‘autobiography’ to a palpable preference of topics over contrastive elements in the argumentative text types.



Although text type seems to have an effect, it is questionable whether this is a real causal effect or rather an epiphenomenon of some other difference. In the following we will further pursue this thought and investigate whether a different behaviour of PPFs in different discourse relations (which constitute text types in the end) is responsible for the observed differences.

## 2.2 Discourse relations as factor

Abstracting away from the text types we might concentrate on the discourse relations in which the clauses stand relative to the preceding or an earlier clause. It could be the case that the current discourse relation influences the prefield ranking. The reason for that is as follows: The prefield in general is the very place in the clause that is predestined to establish a link of some sort to the preceding discourse (see on the clause-initial position in general e.g. Vallduví 1992; Vallduví & Engdahl 1996; Halliday 1996: 38). So, we could expect a link not only in terms of information structure – i.e. representing given information, or representing the topic or ‘link’ in Vallduví’s terminology – but also in terms of the discourse semantic structure of the discourse. Thus, the occurrence of any overt markers that indicate the current relation is not surprising. At the same time, discourse semantics could also influence information packaging. With some discourse relations, the explicit recapitulation of the topic might be more relevant (e.g. in Elaboration, which is *per definitionem* an excursus given additional information to a referent in the main discourse) than in others. A discourse relation such as Contrast, on the other hand, might favor a clausal setup in which any contrasted elements are at a prominent place such as the prefield, so contrastive elements could receive a higher rank in the prefield ranking in such cases as opposed to other discourse relations. Table 3 shows that there are indeed some effects.<sup>10</sup>

Phrasal DR-markers play a role only in a subset of the most common discourse relations, mainly Comment, Contrast, Elaboration and to some degree Continuation. It is hardly possible to make some valid statements from the limited number of tokens, but phrasal DR-markers dominate the other PPFs (including scene setting elements) in all discourse relations except for Contrast and Continuation. With Contrast a certain dominance of contrastive elements seems to be visible, although they perform poorly in direct competition with topics. In Continuation, the constraint for phrasal DR-markers is ranked lower than scene setting elements as can be deduced from the

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10. Only direct competition cases are represented. In very few cases, other elements (e.g. prefield-expletives *es* ‘it’ or *da* ‘there’; subject personal pronouns) were in the prefield; these cases are not displayed.

**Table 3.** Competing PPFs, separated for discourse relations (Modern German)

	Continuation	Elaboration	Narration	Explanation	Contrast	Comment
$D > S$ ; %		2/0; 100			2/0; 100	
$D > C$ ; %	2/1; 67	2/1; 67			1/4; 20	3/1; 75
$D > T$ ; %	2/3; 40	2/0; 100	0/1; 0	1/0; 100	7/2; 78	4/1; 80
$S > C$ ; %	14/2; 88	13/0; 100	17/1; 94	3/0; 100	2/1; 67	
$S > T$ ; %	14/5; 74	27/6; 82	24/0; 100	3/0; 100	4/1; 80	1/1; 50
$C > T$ ; %	14/14; 50	18/17; 51	6/0; 100	3/5; 38	5/8; 38	2/2; 50
$D > S, C$ ; %	0/1, 0; 0	1/0, 0; 100			0/0, 1; 0	
$D > S, T$ ; %		2/1, 0; 67			0/1, 0; 0	
$D > C, T$ ; %		0/0, 2; 0		1/0, 0; 100	2/0, 1; 67	0/1, 0; 0
$S > C, T$ ; %	1/0, 0; 100	1/1, 1; 33	3/0, 0; 100		0/0, 1; 0	
$D > S, C, T$ ; %	1/0, 0, 0; 100					

fact that scene setting elements win over contrastive elements and topics in more cases than do phrasal DR-markers.

It comes as a surprise that phrasal DR-markers do not figure at all with Narration, but this is most certainly an epiphenomenon from the stylistic ban on using *dann* 'then' for the marking of temporal sequences, that is: Narration, in written texts. In the oral texts underlying the ranking in Speyer (2010), no such ban existed, and therefore the speakers made freely use of *dann*, being the archetypical phrasal discourse relation marker for Narration.

Concentrating on the 'classical' PPFs scene setting elements, contrastive elements, and topics, we see also some differences. Scene setting elements are high in the ranking in all relations (with the possible exception of Contrast). The main difference lies in the ranking value of the topic relative to contrastive elements. In the case of Narration, contrastive elements appear regularly in the prefield. In the case of Continuation, Elaboration and possibly Comment, the ranking of topic and contrastive elements seems to be on a par. In the case of Explanation and Contrast, topics appear more frequently in the prefield, so we can conclude that for these relations, topics are ranked higher than contrastive elements.

In the light of this data, we might conclude that the prefield ranking differs depending on the discourse relation the clause holds with some other clause. The relation-specific ranking looks as follows (abstracting away from phrasal DR-markers, if their position cannot be deduced either for want of attested cases or because the numbers are inconclusive):

- Narration: Scene setting elements >> contrastive elements >> topics
- Continuation: Scene setting elements >> phrasal DR-markers >> contrastive elements, topics

- Elaboration: Phrasal DR-markers >> scene setting elements >> contrastive elements, topics
- Explanation, Contrast: Scene setting elements >> topics >> contrastive elements

The ranking of Narration corresponds to the ranking developed in Speyer (2008a) for newspaper texts. As such texts consist mainly of Narration and Elaboration sequences, this ranking does not come as a surprise.

Turning to a synthesis of the two approaches, separating for text type and separating for discourse relation, the effect found for argumentative text types that the topic is more preferred as PPF than contrastive elements, might be a consequence of the fact that the clauses in these text types mostly undergo discourse relations such as Elaboration, Explanation, Contrast, whereas e.g. Narration plays only a marginal role. These are DRs which show a preference of topics over contrastive elements or, in the case of Elaboration, show an equal distribution. So the prefield ranking specific for these discourse relations is mirrored in the prefield preferences of the text type as a whole. On the other hand, a text type such as ‘autobiography’ has a high portion of clauses undergoing a Narration relation to other discourse segments, so the numbers of this text type more or less mirror the numbers for the discourse relation Narration.

### 3. The prefield and discourse relations in Early New High German

#### 3.1 Text type as factor

The development of the prefield ranking was subject to change over the history of German (s. Speyer 2015). Therefore it should be tested whether the same distinctions that are visible in Modern German also hold for an earlier period of German.

The Early New High German (ENHG) period offers an abundance of textual material and is therefore the obvious choice for such a comparison. As for Modern German, texts were selected according to two bivalent parameters, namely narrative versus argumentative text types, and text types with high versus low personal involvement. An overview of the texts and text types is given in Table 4. The texts are taken from the Bonner Frühneuhochdeutschkorpus (BonnerFrnhdC, Besch et al. 2017).

Scientific treatises such as the *Mainauer Naturlehre* address an interested audience which however is not necessarily acquainted with scientific terminology. The relation between writer and audience is thus in some ways comparable to modern popular scientific texts, as a representative of which the text type ‘radio lecture’ was chosen in Section 2, because this is the modern popular scientific text type which is closest to the oral pole of the oral-written-continuum (cf. Koch & Oesterreicher 2007). As the written prose style is yet under development in the Early New High German period,

**Table 4.** Text types and sample texts used for the analysis (ENHG)

	Narrative	Argumentative
high personal involvement	autobiography ( $n = 104$ ): Kottanerin, Helene: <i>Denkwürdigkeiten</i> (Wien 1448–1452) (Bonner FrnhdC Text 113)	sermon ( $n = 106$ ): Tauler, Johannes: <i>Sermon</i> (fl. Elsaß 1330–1361; print: Leipzig 1498) (Bonner FrnhdC Text 143)
low personal involvement	chronicle ( $n = 100$ ): Bange, Johann: <i>Chronik</i> (Mühlhausen 1599) (Bonner FrnhdC Text 255)	scientific treatise ( $n = 107$ ): Mainauer <i>Naturlehre</i> (Mainau c.1400) (Bonner FrnhdC Text 211)

and still influenced by oral patterns, for the modern text types close-to-oral-text types were selected. With ‘autobiography’, authors were chosen that are not accustomed to writing (as is obviously the case with the ENHG representative, Helene Kottanerin) and therefore show oral features in their writing. Around 100 verb second declarative clauses were analyzed per cell.

The results of the analysis of the PPFs in the Early New High German are given in Table 5.

**Table 5.** Competing PPFs, separated for text type (ENHG)

	Autobiography	Chronicle	Sermon	Academic treatise
$D > S$ ; %	1/0; 100		2/0; 100	1/0; 100
$D > C$ ; %	11/0; 100	1/0; 100	11/1; 92	5/0; 100
$D > T$ ; %	20/0; 100	15/1; 94	9/1; 90	3/0; 100
$S > C$ ; %	2/1; 67	1/1; 50	2/1; 67	6/0; 100
$S > T$ ; %	11/2; 85	18/2; 90	1/1; 100	7/0; 100
$C > T$ ; %	3/7; 30	10/2; 83	8/8; 50	4/6; 40
$D > S, C$ ; %		2/0, 0; 100	2/0, 0; 100	
$D > S, T$ ; %	1/1, 0; 50	1/0, 0; 100	1/0, 0; 100	1/0, 0; 100
$D > C, T$ ; %	4/0, 0; 100	2/0, 0; 100	6/1, 0; 86	3/0, 0; 100
$S > C, T$ ; %	5/1, 0; 83	4/0, 0; 100		1/0, 0; 100
$D > S, C, T$ ; %	1/0, 0, 0; 100			

It is obvious that phrasal DR-markers play a more dominant role than in the modern texts. If there is competition between a phrasal discourse relation marker and some other PPF, it is the DR-marker that wins out, throughout the text types in an almost categorical fashion (8a). The same preference for phrasal DR-markers as PPFs is visible with three and four competitors. Most notably, scene setting elements are regularly ousted by phrasal DR-markers (8b).

- (8) a. [<sub>D</sub> *Da* ] *bewarb* [<sub>T</sub> *er* ] [ *ander Kriegßvolck* ]  
 then recruited he other war-people  
 ‘then he recruited other mercenaries’ (Bange sheet 11 verso)
- b. [<sub>D</sub> *also* ] *wirfet dc firmamentu[m]* [<sub>T</sub> *die planeten* ] *von oriente zuo*  
 thus throws the sky the planets from east to  
*dem occidente* [<sub>S</sub> *aller tegelich* ]  
 the west all daily  
 ‘Thus, the sky hurls the planets each day from east to west.’  
 (Mainauer Naturlehre sheet 294 recto col.B)

Differences between the text types are visible mainly in the relative ranking of contrastive elements and topics. In the text type ‘autobiography’, topics seem to be higher ranked than in the other text types, as they oust contrastive elements in 70% of cases and even win over scene setting elements every now and then. Apart from the chronicle text (which is from the end of the ENHG period, which might play a role), the higher ranking of contrastive elements as opposed to topics, which is visible in modern newspaper texts, seems not yet to be in place.

### 3.2 Discourse relations as factor

As for the Modern German texts, the four Early New High German texts were also analyzed for discourse relations and the frequency of PPFs was calculated per discourse relations. The results are given in Table 6.

**Table 6.** Competing PPFs, separated for discourse relations (ENHG)

	Continuation	Elaboration	Narration	Explanation	Contrast	Comment
<i>D</i> > <i>S</i> ; %	2/0; 100	1/0; 100				1/0; 100
<i>D</i> > <i>C</i> ; %	0/1; 0	2/0; 100	10/0; 100		2/0; 100	3/0; 100
<i>D</i> > <i>T</i> ; %	4/0; 100	2/0; 100	24/1; 96			2/0; 100
<i>S</i> > <i>C</i> ; %	1/2; 33	4/0; 100	2/1; 67		1/0; 100	
<i>S</i> > <i>T</i> ; %	5/2; 71	3/0; 100	7/1; 88	1/0; 100		
<i>C</i> > <i>T</i> ; %	6/12; 33	11/4; 73	2/2; 50	0/2; 0	2/1; 67	1/0; 100
<i>D</i> > <i>S</i> , <i>C</i> ; %				1/0, 0; 100	1/0, 0; 100	
<i>D</i> > <i>S</i> , <i>T</i> ; %	2/0, 0; 100	2/0, 0; 100	3/0, 0; 100	3/0, 0; 100		
<i>D</i> > <i>C</i> , <i>T</i> ; %		0/1, 0; 0	5/0, 0; 100	3/0, 0; 100	1/0, 0; 100	1/0, 0; 100
<i>S</i> > <i>C</i> , <i>T</i> ; %		1/0, 0; 100	4/0, 0; 100	1/0, 0; 100		

Obviously phrasal discourse relation markers are highly dominant in all discourse relations and even win over scene setting elements. The main difference between the discourse relations lies again in the ranking of contrastive elements and topics. Elaboration and possibly Contrast and Comment seem to be the discourse relations

that favor contrastive elements over topics. In Continuation and Explanation, topics clearly dominate over contrastive elements, with Narration they seem to be on a par. So, the relative ranking of PPFs in clauses standing in particular discourse relations to other partners looks as follows for Early New High German:

- Continuation, Explanation: Phrasal discourse relation marker >> scene setting element >> topic >> contrastive element
- Narration: Phrasal discourse relation marker >> scene setting element >> topic, contrastive element
- Elaboration, Contrast, Comment: Phrasal discourse relation marker >> scene setting element >> contrastive element >> topic

#### 4. The ranking of PPF in Early New High German and Modern German

Comparing the text samples presented in Sections 2 and 3, we see one striking difference: The overt marking of discourse relations by phrasal DR-markers is in general more prominent in Early New High German. Not only do they occur more often (78 competition cases involving phrasal discourse relation markers within the six most common discourse relations in Early New High German, as opposed to 56 in Modern German, although the size of the text base was double), they win over all other PPFs in Early New High German. In Modern German, the picture is different, whereas the discourse relation Elaboration favors a dominance of phrasal discourse relation markers, the others are inconclusive, or, as in the case of Continuation, even disfavor phrasal discourse relation markers.

It is questionable whether this is an epiphenomenon of the more oral flow of Early New High German prose. In order to control for this, Modern German sources that had a certain affinity to orality, by text type or by performing orality (on this concept see Speyer 2013) were selected. It is at least as probable that phrasal discourse relation markers as a group lose ground. A potential reason might be the development of the modal particles within the ENHG period; modal particles are partly sensitive to discourse relations. Another reason might be the assignment of discourse relation markers to the position before the prefield; an elaborate system of connectives and connecting adverbial such as *allerdings* ‘at any rate’ that can stand before the prefield came into place. So, phrasal DR-markers fall out of the ranking simply because they as a group are replaced by non-phrasal markers or pre-left-peripheral expressions.

Another difference pertains to the relation-specific ranking of the PPFs topic and contrastive element. Some relations show continuity from ENHG to Modern German: With Explanation, the ranking of topics over contrastive elements remained

stable over the periods. With the other relations, matters seem to be in flux. It is however not possible to say anything definite from the limited database; an investigation on a broader scale is warranted in order to answer these questions.

It remains to be asked what changed between ENHG and Modern German. In the Stochastic Optimality Theoretic model mentioned in Section 1, the change in frequencies is the reflex of changes in the numeric values of the constraints selecting the optimal candidates. The more optionality occurs (i.e. the more even the distribution between two variants is), the closer are the numerical values of the two constraints responsible for selecting these candidates, leading to frequent paradoxical assignments (i.e. situations in which candidate B wins out over candidate A, although the constraint  $C_B$  that would select B as the optimal candidate is ranked lower than  $C_A$ , being the constraint that would select A as the optimal candidate). The situation in ENHG presents itself to us in such a way that a constraint, let us call it DRM-VF (the constraint would read as such: If a clause contains a phrasal discourse relation marker, it is this one that stands in the prefield), that selects a candidate with a discourse relation marker in the prefield is ranked rather high in ENHG and loses numeric value over the time, in some discourse relations faster than in others. At the same time we see that POSET-VF and TOPIC-VF have not reached a principal ranking independent of discourse relations.

After having included phrasal DR-markers in the ranking, it is time to ask what the status of the prefield ranking is in an architecture of grammar.<sup>11</sup> In order to answer this it is necessary to first think what the status of the prefield is in general. An observation is that prefield movement usually does not influence the interpretation of the clause from a semantic point of view, for instance scope ambiguities hold regardless of what is in the prefield. Therefore the question arises whether the prefield is filled in deeper layers of grammar at all – that is, between Deep and Surface Structure in the model of Chomsky (1981), or between the Lexicon and Spell-Out in the model of Chomsky (1993). The fact that it is filled with respect to information structural considerations points also in the direction that the prefield in general is rather a PF phenomenon, as information structure is sensitive to the very local context in which the clause under consideration is situated, and as information structure interacts with prosody. In fact, one should say that the filling of the C-architecture in general is part of syntactic operations taking place after Spell-Out. If this is so, the discourse relation, in which a clause stands to some partner, is equally a local condition which clauses are subject to, on the same level as topichood or contrastivity. The fact that these preferences can be modeled with a surfacy model such as SOT points in the same direction.

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11. A reviewer commented on this, wondering in what ways it can be part of grammar, given that it is sensitive to very context specific conditions such as discourse relations.

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# Informational aspects of the extraposition of relative clauses

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This paper investigates the correlation of information structure (givenness) and the extraposition of relative clauses from Early New High German (16th century) to early Modern German (19th century) via a corpus study of letters. It aims to determine whether relative clauses with a high proportion of new referents are more likely to be extraposed because new referents put more strain on the working memory and can therefore be better interpreted at a position where more memory capacities are available again (Gibson 1989) and help spread the information of the whole sentence more evenly (Levy & Jaeger 2007). Another goal of the paper is to show that there is a decreasing influence of information structure on extraposition over the centuries. It will be shown that there is evidence for both hypotheses put forward in the paper.

## 1. Introduction

Attributive relative clauses are among the most common types of subordinate clauses in the German language. They characterize a head noun more closely and can vary with regard to their position in the sentence (see examples in Table 1).<sup>1</sup>

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1. The idea of dividing a sentence into five parts goes back to the *Topologisches Feldermodell* (Drach 1937, and for a more modern analysis: Höhle 1986; Wöllstein 2014). Based on this model, the predicate can be found in the left sentence bracket and/or in the right sentence bracket, depending on whether the tense or mood is built synthetically or analytically and depending on the sentence type. The right sentence bracket marks the boundary of the middle field and, in most cases, of the clause itself. Material positioned in the postfield is often characterized as not as closely connected to the main statement of the sentence as the material within the boundary of the sentence brackets. For a closer analysis, see Wöllstein (2014).

**Table 1.** Adjacent and non-adjacent relative clauses

	Prefield	Left sentence bracket	Middle field	Right sentence bracket	Postfield
a.	Ich	habe	das Buch, das du magst,	gekauft.	
	I	have	the book that you like	bought.	
b.	Ich	habe	das Buch	gekauft,	das du magst.
	I	have	the book	bought	that you like.
	'I have bought the book that you like.'				

In example (a) in Table 1, the relative clause is adjacent, i.e. directly connected to its head noun, whereas in example (b) the relative clause is moved to the postfield, the position after the right sentence bracket (Drach 1937; Wöllstein 2014). It is consequently extraposed. The extraposition of relative clauses depends on the length of the relative clause, the sentence accent, the type of the relative clause, i.e. whether it is restrictive or non-restrictive, and the position of the head noun (Zifonun et al. 1997 among others). Zifonun et al. (1997) also state that “information disentanglement” (Zifonun et al. 1997) is a criterion for the extraposition of relative clauses. The authors, however, do not define what this means in concrete terms. As Hawkins (1994); Hoberg (1997) and Speyer (2015a) have shown in previous work, information disentanglement can be understood in terms of information structure. Information disentanglement refers to an optimal distribution of information in terms of givenness and newness of referents over a sentence to guarantee efficient communication.

This paper investigates the extraposition of relative clauses. A corpus consisting of relative clauses is examined in order to test whether information structure can serve as an explanation for extraposition. In addition, I use a diachronic approach and examine whether there are differences with regard to extraposition in different periods of the German language, from Early New High German to Modern German.

## 2. Research hypotheses

In order to answer these questions, two hypotheses are presented. They are closely related to information structure. The basic idea, however, is based on Shannon’s (1948) information density theory, which aims to discover how a message can be transmitted most efficiently in medial communication without losing any information (Speyer 2015a).

Shannon (1948) explains that frequently used words are easier to guess in a given context and therefore easier to understand than those used less frequently. One can draw the following conclusion from these considerations: complicated facts, i.e. those

with a lot of new information, should be packaged in short or simple statements (Jaeger 2010; Pasch 1997 and Speyer 2015a). For the variation of the relative clauses, this means that information that is more difficult to guess, i.e. new information, is moved to extraposed relative clauses and vice versa. Therefore, the following hypotheses can be formulated:

- H1. a. Adjacent relative clauses have a higher proportion of given referents.
- b. Extraposed relative clauses have a higher proportion of new referents.

The second question is diachronic in nature. As research by Speyer (2015a, 2015b, submitted) and others (Coniglio et al. 2015) has shown, the different possibilities of relative clause placement exist in all stages of German. However, the rules for the occupation of certain fields have changed across them (Axel 2002). Among others, Sapp (2014) states that extraposition in Early New High German is more frequent than in latter stages of the language. His analysis shows the influence of the phrase type (e.g. PP or NP), the length of the extraposed material counted in words, focus (following Halliday 1967), genre and timespan (Sapp 2014). According to Sapp's analysis, phrases exhibiting such characteristics must be extraposed. In Modern German, we must assume that these characteristics no longer influence extraposition as much as it did during the time of Early New High German. We can draw the following conclusion: the occupation of various fields in more recent language stages seems to have become more arbitrary. Whether this is also true for the extraposition of relative clauses is what the second hypothesis wishes to test:

- H2. The restrictions for the extraposition of relative clauses decrease from Early New High German to New High German.

This means that the distribution of given and new referents no longer influences the extraposition of relative clauses as stated in (H1). Though this seems contradictory at first, it is well documented that there is a change in the influence information structure has on extraposition. Information structure is supposed to have a stable influence for extraposition phenomena (Speyer 2015a, 2015b). Yet, an increasing exposition in written language to more complex topics and a higher level of education for many people might facilitate the understanding of sentences and texts with a higher information load. Thus, this leads to a higher inclusion rate of information instead of the extraposition of information. Speakers who are used to a more complex way of speaking can understand more complex and intricate sentences.

The paper is structured as follows: the methodology is presented in Section 3, which is divided into two parts: corpus description and operationalisation. In Section 4, the raw data and results of the corpus study are presented with statistical evaluations. Section 5 is then dedicated to the discussion on whether the hypotheses can be substantiated or refuted and what further conclusions can be drawn from the data.

### 3. Methodology

#### 3.1 Selection of texts

300 relative clauses from three different time periods (1530 to 1630, 1630 to 1700 and 1830 to 1850) were analysed to test the hypotheses. The evidence comes from a corpus of private or semi-private letters, which is composed as shown in Table 2.<sup>2</sup>

**Table 2.** Time, authors and type of letters of the corpus

Time	Author	Type of letter
1530–1600 (Early New High German)	Albrecht Dürer Paulus Behaim	private correspondence to sponsors and family
1630–1700 (early Modern German)	Jacob Böhme	open letters
1800–1870 (Modern German)	Hermann Ludwig Heinrich von Pückler-Muskau (1785–1871) Ludwig Börne (1789–1837) Bettina von Armin (1785–1859)	travel letters and everyday letters

By looking at data from the different periods of German, developments in embedding and extraposition can be described. Due to book printing and the associated opportunity to disseminate texts nationwide, it was necessary to develop a standard language (Speyer 2010). In the course of language standardisation, the use of the sentence brackets became more firmly established. Consequently, the study presented in this paper begins with Early New High German during the period of 1530 to 1630. While it is assumed that material following the right sentence bracket is more frequent in older language periods (Speyer 2015a), the amount of material at the right edge of the sentence, i.e. after the right sentence bracket, decreases more and more in recent stages of the language. However, the restrictions for extraposition to

2. I composed the corpus for the present study, which is – as a whole – not available online. The references for the texts used can be found at the end of the paper. Apart from Boehme, all texts are available via *Deutsches Textarchiv* (DTA, [www.deutschestextarchiv.de/](http://www.deutschestextarchiv.de/)). The Boehme letters are available in print. Due to issues with the written version and the fact that one part of the corpus is not digitalized, a report on the number of tokens – as requested by one reviewer – is not possible. Of course, the conclusions about the different time periods cannot be drawn for the whole population in the time in question since only a small number of letters and authors were used for this paper. Given that the annotation process (see Section 3.2) was all done manually, including more texts and authors would have exceeded the appropriate amount of time for this analysis. This analysis guarantees a high quality annotation, but only for a limited amount of texts. While I will talk about the linguistic periods in question during the paper, one should be aware that these statements only refer to the investigated texts with their limitations.

the right are minimized starting in Early New High German (Speyer 2015a). Letters from the 19th century are examined to investigate this contrast. Here, the development of the sentence brackets has been completed and there are already restrictions on the postfield occupation or extraposition (Hoberg 1997).

The text type “personal letters” was chosen for the analysis, since these are conceived in approximation to the spoken discourse style. Koch and Oesterreicher (2007) distinguish between “spoken” and “written” (Koch & Oesterreicher 2007: 348) conceptions. These are what Koch and Österreicher (2007: 348, my translation) define as “variety-related and discourse-pragmatically relevant options in linguistic expression (as well as the corresponding expectations on the part of the recipients)”. Graduations between the poles can be seen, for example in the fact that colloquial language can also seep into a scientific lecture to loosen it up, or a conversation among friends can also contain technical terms. Communication, however, does not only take place on a conceptual, but also on a medial level. At this level, a distinction is made between a graphic and phonic level (Koch & Oesterreicher 2007). The private letter among friends is regarded as the form of communication that is written – in its medial conception – yet is conceptually close to spoken language. This view by Koch & Oesterreicher (2007) offers interesting possibilities for the examination of such phenomena.

On the one hand, conclusions can be drawn about information structure in spoken language, and on the other hand, linguistic changes can be well documented by looking at letters. This is based on the intersubjectively valid norms of discourse (*Diskurstradition* in Koch & Oesterreicher 2007: 364), which are positioned in the field of tension between proximity and distance. The hypothesis (H2), which states that more recent periods of the German language are subject to less severe restrictions on extraposition, can be acutely rejected or confirmed by examining letters for the following reasons: for these texts from the earliest stage, it can be assumed that elements from the oral discourse are more strongly incorporated into the written discourse, due in part to the lower literacy rate and number of literal templates, which changed during the 19th century. There is thus a tendency for elements previously used more in oral communication to find their way into written form or vice versa (Koch & Oesterreicher 2007).

### 3.2 Procedure and operationalization

The most important variable in the analysis of relative clauses is the embedding depth, for which a basic distinction is made between embedding and extraposition of a clause. A relative clause is considered adjacent if there is no material between the antecedent or head noun and the relative clause (1a). If the relative clause is in the postfield (b), i.e. the right sentence bracket, or other material (c) is between



the relative clause and antecedent, the relative clause is considered not adjacent or extraposed (Konopka 2006).

- (1) a. *Ich habe den Mann, der sie umarmte, gesehen.*  
 I have the man who her hugged seen  
 'I have seen the man who hugged her.'
- b. *Ich habe den Mann gesehen, der sie umarmte.*  
 I have the man seen who her hugged  
 'I have seen the man who hugged her.'
- c. *Ich sah einen Mann am Strand, der sie umarmte.*  
 I saw a man at.the beach who her hugged  
 '(At the beach,) I saw a man who hugged her.'

In order to code information structure, the cognitive status was recorded manually for each referent. The reference value is the current discourse, since the world knowledge of the recipients is not verifiable. The world knowledge traces back to the notion of Common Ground (Krifka 2006), which hosts knowledge about the surrounding world and shared experiences between the communication partners. The more information is shared in a communication, the more efficient the communication itself can be. As such, shorter expressions like pronouns can be used, since the referents that these pronouns refer to, are anchored *a priori* in the memory of the speakers and listeners (cf. more details about memory and usage of referents later in this Section). A modern reader, however, cannot reconstruct the knowledge of the authors, especially because the answers of the addressees of the letters in most cases, except for Dürer, are not present in the corpus. Consequently, the current letter counts as the relevant discourse and assumptions about the Common Ground are not made.

As the main goal of this paper is to find a connection between extraposition and information structure, all sentences were annotated for the information status of every referent. Here, the most relevant factor for information structure is familiarity or the concepts “givenness” and “newness”. In particular, a distinction is made between four statuses which refer to works presented by Chafe (1976); Gundel et al. (1993) and Prince (1981):

- new in discourse (corresponds to Chafe’s 1979 definition of “novelty”)
- inferable from current discourse (corresponds to Prince’s 1981 “inferable”)
- already mentioned in the discourse, but no longer salient (corresponds to Gundels et al.’s 1993 “familiar”)
- already mentioned in the discourse, and salient (corresponds to Gundels et al.’s 1993 “activated”)

Furthermore, I annotated the distance between the most salient referent and its last mention, counted in referents.

Chafe's (1976) approach to givenness states that a referent is either given, once it has been introduced in the discourse, or new if it has not yet appeared. Therefore, it is used to classify the novelty of a referent in the discourse. No distinction is made between degrees of novelty (Prince 1981; Gundel et al. 1993). The authors of the letters are considered inferable. The term follows the definition by Prince (1981): "A discourse entity is Inferable if the speaker assumes the hearer can infer it, via logical – or, more commonly, plausible – reasoning, from discourse entities already Evoked or from other Inferables." (Prince 1981: 236).

In order to determine whether a certain referent can be considered inferable, the entities already established in the discourse are regarded as a reference point. In other cases, assumed world knowledge of communication participants is used in order to assign the label "inferable" to a referent. This is particularly relevant for those inferables which must be recognized solely from the surrounding linguistic material in connection with world knowledge ("noncontaining inferables", Prince 1981: 236, whereas "containing inferables" already have the reference word in their own phrase, Prince 1981):

(2) *Shit! One of the plates is broken!*

*One* is the referent the utterance is about. The fact that it is a plate is clearly recognizable by the prepositional phrase with which it is connected. It is therefore regarded as being inferable (from the context).

When a referent is mentioned in the discourse, it can be classified by the information status distinction by Gundel, Hedbers & Zacharskis (1993).

At the lowest level of the previously presented referents there is the status "familiar" (Gundel et al. 1993: 278). It indicates that the referent is present to the recipient's mind either in their long-term or short-term memory, if it has only recently been mentioned (cf. a definition of "recently" in the context of this paper at the end of this section).

In principle, these conditions also apply to the status "activated" (Gundel et al. 1993: 278). Those referents, however, must be present in the short-term memory. They may have been recovered from long-term memory, but they may also be present in the immediate linguistic context. This can be indicated in English by the demonstrative *that* or by stressed personal pronouns. Personal pronouns and demonstrative pronouns can also be used in German to mark the status. A referent marked in this way must have been introduced into the discourse or be found in the immediate (real) environment of the speaker.

The last variable refers to the problem of finding out how long a referent can be evaluated as given, and when it must be assigned the status "familiar" or "activated" (Gundel et al. 1993).

Chafe (1976) states that once an element is introduced into a text, it remains given. If the text is completed and a new one started, an entity becomes new again

(O'Grady 2016, after Prince 1992). Chafe (1976), however, also describes only accessible elements as being given. That refers to the representation of an entity in short-term memory. Since this has only a capacity of seven elements, he argues that a referent is no longer given if it was last mentioned seven sentences ago. Nevertheless, there is disagreement as to whether seven partial sentences or seven complete sentences or seven tone units should be counted (see for instance O'Grady 2016). In addition, topics or speaker changes are considered to be reasons why a referent can no longer be regarded as given (Geluykens 1989). However, the corpora used for these investigations refer to English, which often differs with respect to German as far as the number of syntactic structures allowed is concerned. Instead of the nominal style in German, English uses subordinate clauses. This can explain why the givenness status is to be determined via clauses. Nonetheless, if one considers the possibility of constructing very long sentences in German without dividing them into subordinate clauses, it is questionable whether the number of seven clauses is still tenable as a measure of givenness. Hence, I suggest counting a distance of seven referents instead of seven clauses in order to describe an entity as both given and salient.

This distance is measured between the most salient referent and its previous mention. Subsequently, a referent is considered salient/activated if there are fewer than seven referents between it and its last mentioning. If there are more than seven referents, it is considered to no longer be salient. For this reason, the status of the relative pronouns was not determined. In their case, the status "given, salient" is assumed, since there cannot be enough material between them and the antecedent to assign them any other status.<sup>3</sup>

The analysis appears as follows when applied to my data:

- (3) [*Ich*<sub>[familiar]</sub>] kam [*bei mehreren großen Besitzungen*<sub>[new]</sub>] vorbei, die [*ich*<sub>[activated]</sub>] aber [*des ungewissen Wetters*<sub>[inferable]</sub>] ... wegen unbesucht ließ.

'I went past several mansions which I left unvisited because of the uncertain weather and the limited time.' (Pückler-Muskau 1830: 26)

3. This assumption can be clarified through the following sentence:

- (i) <sup>?</sup>*Ich habe einen Mann am Strand gesehen, als ich dort vergangenen Mittwoch mit meiner Freundin und meiner Mutter bei Regen, den Radiomoderatoren in der ‚Morning Show‘ schon am Dienstag angekündigt hatten, joggen ging, **der einen Hund spazieren führte.***  
'I saw a man on the beach when I went jogging with my girlfriend and mother last Wednesday in the rain that radio presenters on the Morning Show' had announced on Tuesday, **who was walking a dog.**'

The distance between the antecedent (underlined) and the relative clause (boldface) is so large that the sentence becomes very hard to process and would therefore probably not be found in natural language.

Looking at the beginning of this letter, one can find every status mentioned above. The first *ich* ('I') is familiar, since *ich* has been mentioned more than seven referents ago. The *Besitzungen* ('mansions') were not mentioned so they are new. The second *ich* in this sentence is activated, because only *Besitzungen*, that is one referent, intervenes between the two referents. Finally, *des ungewissen Wetters wegen* ('because of the uncertain weather') is inferable, because the writer complains about the occasional rain in the very first sentence of the letter. All sentences containing relative clauses were analysed in this way.

This also includes the analysis of matrix clauses. The distribution in general gives an indication of how well the clauses can be processed and how successful communication by means of them can be (Shannon 1948; Gibson et al. 2019; Levy & Jaeger 2007). If one imagines a matrix clause that contains a lot of new information and therefore places high demands on the processability of the content, it is less likely that this sentence will contain an embedded relative clause that would lead to a trough in the information profile. The fact that such a break in the information profile is not very desirable is described expressly by Levy & Jaeger (2007), even if they do not refer to information structure, but rather to information density. Conversely, the endeavouring of speakers and recipients towards an information profile that is as even as possible also applies to a low basic level of information in the matrix clause, which is achieved through a large amount of given information and would be broken by the embedding of a relative clause containing many new referents. Therefore, in order to take this line of thought into account, the matrix clauses were also analysed.

Due to the small amount of data, only tendencies can be revealed concerning the two hypotheses. The statistical analysis should thus only be understood as an approximation. We decided to set the significance level  $p$  of the used chi-square-test between 0 and 0.15, acknowledging the fact that this is a quite broad setting. As you will see in the following section, tendencies of the descriptive statistics shall be principally supported by the chi-square-results.

## 4. Data

### 4.1 Given and new referents in relative clauses

The ratio of relative clauses in the 16th and 17th century is relatively even. In the 16th century, there was a slight tendency for adjacent relative clauses. Of the 100 relative clauses found, 57 were adjacent and 43 extraposed.

The corpus used for the 17th century consists of 49 relative clauses that were adjacent, 51 extraposed; their distribution is even.

In contrast to the 17th century, the corpus from the last period is made up of various letters and authors. The count for the 19th century shows a distribution of 67 adjacent and 33 non adjacent clauses. This picture clearly differs from the two earlier periods and makes it slightly more difficult to find meaningful values for the extraposed sentences. At the same time, this distribution can also be interpreted as a minimisation on the restrictions of embedding. This would confirm the second hypothesis.

Table 3. Share of given referents in relative clauses

		Number of referents	Number of given referents	Share of given referents
16th century	adjacent	81	55	0.68
	non adjacent	79	44	0.56
17th century	adjacent	68	39	0.57
	non adjacent	98	49	0.50
19th century	adjacent	102	27	0.26
	non adjacent	55	20	0.36

The number of the given referents in the relative clauses shows a clear difference between the adjacent and extraposed sentences (Table 3). In the adjacent relative clauses of the 16th century, the proportion of given referents is 67.9%, in the non adjacent relative clauses merely 55.9%. These numbers already confirm the large difference in the cognitive status of the referents of the sentences and support hypothesis (H1): The processing of sentences with given information is easier, which is why these sentences are able to be processed within the matrix clause and need not be extraposed. This statement is also supported by the significance value of  $p = 0.11$ .

In summary, relative clauses with a high proportion of given referents are adjacent. In the 17th century, the difference between the ratio of given referents in extraposed and adjacent relative clauses is smaller and consequently unlikely to support our claim with an overall variance of only 7.35%. The significance analysis also shows a probability of  $p = 0.35$  which points to the idea that the difference is due to chance.

In the 19th century, the share of given referents of adjacent relative rates (26.47%) is 9.89% smaller than that of non adjacent relative rates (36.36%). Hypothesis (H1) suggests the opposite. However, this is not the case here, and the significance analysis also confirms a marginal correlation ( $p = 0.197$ ) between the proportions of given referents and the extraposition. However, this seems to suggest that a higher proportion of given referents facilitates the extraposition of the relative clause.

On the contrary, the presence of more given referents in adjacent relative clauses might support the second hypothesis as well and could hint at language change.

Nevertheless, the share of new referents in the relative clauses should also be observed.

**Table 4.** Share of new referents in relative clauses

		Number of referents	Number of new referents	Share of new referents
16th	adjacent	81	22	0.27
century	non adjacent	79	32	0.41
17th	adjacent	68	25	0.37
century	non adjacent	98	48	0.49
19th	adjacent	102	60	0.59
century	non adjacent	55	55	0.51

A cross-check with unknown referents (Table 4) supports the data in Table 1. The adjacent 16th century relative clauses contain 27.16% new referents, while the non adjacent clauses contain 40.50%. Relative clauses with a higher number of new referents hinder interpretation of the sentence and are therefore extraposed. The significance analysis ( $p = 0.07$ ) also shows such a correlation.

In the extraposed relative clauses of the 17th century, 48.97% of the referents are new, in the adjacent relative clauses only 36.76%. This indicates that relative clauses with a high proportion of new referents are more likely to be extraposed than relative clauses with a lower proportion of unknown referents, which in turn are more difficult to process cognitively. These figures thus support the first hypothesis (H1). In addition, the random probability of only  $p = 0.12$  suggests that this result is significant.

Again, the results for the 19th century differ from the prior periods. The relative clauses show that 58.82% of the referents are new in adjacent relative clauses and only 50.90% in non adjacent relative clauses. The difference of about 8% is indicative of a correlation. Relative clauses that contain more new referents are more likely to be adjacent.

#### 4.2 Given and new referents in the matrix clauses

As described in Section 3.2, the ratio of given and new referents in the matrix clauses might affect extraposition as well as the share of the different statuses in the relative clauses themselves.

**Table 5.** Share of given referents in matrix clauses

		Number of referents	Number of given referents	Share of given referents
16th	adjacent	169	63	0.37
century	non adjacent	113	43	0.38
17th	adjacent	129	58	0.45
century	non adjacent	154	62	0.40
19th	adjacent	132	36	0.27
century	non adjacent	72	52	0.72

The differences in the matrix clauses are much smaller in the 16th century (Table 5). The matrix clauses of adjacent relative clauses contain 37.27% given referents, those of non adjacent relative clauses 38.05%. The slightly higher proportion of extraposed relative clauses may indicate a balance between matrix and attributive clauses. The significance value of  $p = 0.89$  also contradicts a correlation. The same holds for the 17th century. In the matrix clauses of the adjacent relative clauses, there are 44.96% given referents. That is 4.71% more than in the reference sets of non adjacent relative clauses (40.25%). The differences are so small in both cases that the information structure of the matrix clauses seems to be irrelevant for extraposition, which is supported by the p-value of 0.43.

In the 19th century, 27.27% of the matrix clauses that contain adjacent relative clauses are composed of given referents, 72.22% of the referents in matrix clauses with extraposed relative clauses are given. The probability that this result is random is very low ( $p < 0.005$ ). In contrast to (H1), there is a correlation between the information structure of the matrix clause and the extraposition of the relative clause.

In the 16th and 17th century the share of given referents in matrix clauses containing extraposed relative clauses was smaller than in those containing adjacent relative clauses. In the 19th century, that changes and this might hint at language change as proposed in (H2).

**Table 6.** Share of new referents in matrix clauses

		Number of referents	Number of new referents	Share of new referents
16th century	adjacent	169	104	0.62
	non adjacent	113	59	0.52
17th century	adjacent	129	65	0.50
	non adjacent	154	85	0.55
19th century	adjacent	132	75	0.57
	non adjacent	72	47	0.65

The analysis of the matrix clauses regarding the new referents also confirms the influence of unknown referents on extraposition (Table 6). In the matrix clauses of the 16th century containing an adjacent relative clause, the proportion of new referents is statistically higher at 61.53% compared to 52.21% in those of non adjacent clauses. The probability that this result is based on chance is about 12% ( $p = 0.12$ ), we can thus speak of a connection.

The variations in the reference rates differ less for the 17th century. Nevertheless, more new referents (55.19%) can be found in the matrix clauses of the non adjacent relative clauses than in those of the adjacent relative clauses (50.38%). The significance value however does not suggest a correlation ( $p = 0.42$ ).

The ratio is slightly different for the matrix clauses in the 19th century. Matrix clauses with a higher proportion of new referents (65.28%) are followed by extraposed relative clauses, while matrix clauses with adjacent relative clauses contain 56.81% new referents. Although the significance analysis only gives a value of  $p = 0.24$ , the matrix clause seems to have a small influence on adjacency and extraposition of the relative clauses. The results of the investigation of the information structural values in the sample of the 19th century show that the proportion of given referents in the matrix clauses is the most important criterion for extraposition. However, it contradicts the hypothesis (H1) that matrix clauses with more given referents tend to be followed by extraposed relative clauses.

## 5. Discussion

Two hypotheses were proposed to help investigate the motivation for extraposition of relative clauses. This section explains to what extent these hypotheses can be confirmed or refuted and the reasons for the empirical data found in Section 4.

Hypothesis (H1) can be validated for the relative clause of the 16th century:

- H1. a. Adjacent relative clauses have a higher proportion of given referents.
- b. Extraposed relative clauses have a higher proportion of new referents.

The proportion of given referents is significantly higher in the adjacent relative clauses than in the extraposed ones. A cross-check with the new referents, whose share is higher in the extracted relative clauses, confirms the importance of information structure for extraposition even more.

An explanation for this result lies on the one hand in the position of the adjacent relative clauses. 61.02% of them are in the middle field. This position is most deeply integrated into the matrix clause and can then be regarded as most strongly adjacent. In front of and after the matrix clause, there is further material that must be understood and remembered while the relative clause is constructed and perceived. Gibson (1998) calls this memory performance “memory cost” (see Hawkins 1994 for a similar idea). If, however, the relative clause is in the postfield, the construction of the matrix clause has already been concluded. In order to understand relative clauses, more mental capacity is available again. Therefore, the extraposed clauses do not cause understanding difficulties for the peripient.

The validation of the first hypothesis also indicates that the letters of this period were more often closer to conceptual orality than conceptual literacy. The previous explanation of the extraposition in connection with memory cost and the understanding of matrix or relative clauses should be less strong in medially written texts (Koch & Oesterreicher 2007). It is possible to relieve the memory by returning to the



beginning of the sentence in order to read it again if the complex relative clause poses problems to understanding the matrix clause. With medially oral texts, on the other hand, this is not possible, since the components of the utterance are fleeting. The media design of the letters is also strongly related to their reception. It can be assumed that in the 16th century, letters were often read aloud, since widespread literacy was still not common during the time. One could also imagine that both Behaim and Dürer had few written models at their disposal, which is why structures and other peculiarities of what was spoken were strongly incorporated into their letters.

The relative clauses of the 17th century exhibit similar results. The first hypothesis can therefore also be confirmed for them. However, the correlation between extraposition and the cognitive status of the referents in the relative clauses is slightly weaker. For example, it can be observed that, although less given referents are in extraposed relative clauses and the corresponding matrix clauses, this difference does not produce a significant result. Instead of the given referents, the proportions of new referents show significant results ( $p = 0.12$ ). Nevertheless, sentences with many new referents are more likely to be extraposed than sentences with a low number of unknown referents.

This is to be justified as far as possible with the same arguments that were used for the 16th century. The majority of adjacent relative clauses are in the middle field, so their processing should be easier so as not to interfere with that of the whole construction. Thus, indications of this change can be found in the language periods under consideration. In addition, the type of text in the letters, i.e. open letters, can also be used to explain why particular care is taken to ensure that the texts are comprehensible to all readers, since they were also intended to be presented to an uneducated audience. It would be contrary to the purpose of the texts if more cognitive energy were used to parse the construction than to understand the content.

For the relative clauses of the 19th century, however, I have not found evidence to support hypothesis (H1). In the extraposed relative clauses, the proportion of given referents is greater than in the in situ relative clauses. On the other hand, the matrix clauses and their proportion of given referents seems to correlate with extraposition. Matrix clauses with many given referents, however, contain extraposed relative clauses. The proportion of new referents in the matrix clause is irrelevant for extraposition and the proportion of new referents in the relative clauses is irrelevant for embedding or extraposition.

This change cannot be justified by the position of the adjacent relative clauses, since it is reasonable to assume that the memory cost (Gibson 1998) does not change in diachrony. In addition, the distribution of the sentences is very similar to that of the other time periods with more than half of the sentences in the middle field. Since the data was taken from letters, however, one could rightly argue that the influence of the oral discourse type would also remain. Conversely, it should be

noted here that the writers of the letters are professional authors and the letters were meant to be published. It can then be assumed that these letters are conceptually closer to the written discourse mode. As mentioned previously, the memory cost can be reduced by re-reading parts of the sentence. In addition, the literacy of the population and the dissemination of written texts were much more advanced in the middle of the 19th century as compared with the 16th and 17th centuries. It would be useful to examine, on the basis of other corpora, how great the influence of written conception actually is on the design of the texts.

The results of testing (H1) can be summarized as follows: for all the periods considered, I found evidence for the influence of information structure in terms of givenness on extraposition. It can be argued that there is a shift in the influence of information structure on the various clause types under study. While in the 16th century the information structure of the relative clause has a greater impact on its position, in the 19th century it is the information structure of the matrix clause that influences extraposition and embedding of the relative clause, respectively. I take this as evidence for (H2).

H2. The restrictions for the extraposition of relative clauses decrease over time.

Information structure influences extraposition in all investigated time periods. However, from the onset of Early New High German to 19th century German, its influence on matrix vs. relative clause changes. While the influence of given and new referents in relative clauses seems to be more substantial in Early New High German, extraposition in Modern German in the 19th century depends on the information structure of the matrix clause. The influence was already diminishing during the Early New High German period. The results from the 19th century present a further decrease in the effect of new referents.

On the one hand, this shows change in language, but on the other hand, the influence of the written or oral conception should not go unobserved. Again, it remains to be established whether the decrease in the influence of information density on extraposition can be reproduced by a uniform conception of the corpus. However, this turns out to be difficult, since e.g. scientific texts from Early New High German are more oriented towards letters than scientific publications of the 20th or 21st century (Petrovka-Kessanlis 2015). Consequently, influences of oral proximity cannot be excluded there either. Moreover, a corpus conceived orally can also not be used for investigation since the evidence from the 16th and 17th centuries is missing. This possible corpus would include prose novels, documents or newspaper articles.

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This volume offers an up-to-date survey of linguistic phenomena at the interfaces between syntax and prosody, information structure and discourse – with a special focus on Germanic and Romance – and their role in language change. The contributions, set within the generative framework, discuss original data and provide new insights into the diachronic development of long-burning issues such as negation, word order, quantifiers, null subjects, aspectuality, the structure of the left periphery, and extraposition.

The first part of the volume explores interface phenomena at the intrasentential level, in which only clause-internal factors seem to play a significant role in determining diachronic change. The second part examines developments at the intersentential level involving a rearrangement of categories between at least two clausal domains.

The book will be of interest for scholars and students interested in generative accounts of language change phenomena at the interfaces, as well as for theoretical linguists in general.



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