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*Interfaces with information  
structure*

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## CHAPTER 62

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**THE INTERACTION  
BETWEEN SYNTAX,  
INFORMATION  
STRUCTURE, AND  
PROSODY IN WORD  
ORDER CHANGE**

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**1. INTRODUCTION**

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The primary concern of this chapter is to explore the role of information structure (IS), syntax, and prosody in explaining word order variation and change in the history of English. An important feature of this approach is that it embeds changes in English in a wider picture of parallel or diverging developments in Germanic. Given that Old English (OE) and Old High German (OHG) show similar word order variation, but subsequently diverge into different directions, the major word order changes of English, namely the loss of OV-orders and the loss of V<sub>2</sub> in (non-negative) declarative clauses will be compared to and contrasted with the generalization of V<sub>2</sub> and the loss of VO-orders in the history of German.

Since this chapter serves mainly as background for the other chapters, much of it is devoted to explicating the theoretical underpinnings of the complex interaction between word order, information structure, and prosody. As a starting point, it seems reasonable to consider word order as part of sentence grammar, and IS as part of pragmatics (in historical work: “text grammar”): while the syntax determines the set of grammatical sentence forms, pragmatics determines which sentence forms are appropriate in a given context.

The fact that both IS and prosody have an impact on word order raises the question of how these two domains of linguistic competence interact. In formal approaches, it is widely assumed that IS constitutes the interface between syntax and pragmatics. Prosody is usually considered to be part of the phonological component of grammar, raising the question of how it interacts with syntax and IS. While over the last two decades, our knowledge of the makeup of each of these components of linguistic competence has grown considerably, we are only beginning to understand the nature and the intricacies of the interaction between them.

Principles of text organization, which serve textual coherence by establishing types of rhetorical relations and anaphoric links between sentences/clauses, have an impact on word order and prosody at the clause level. In German, scrambling of an object (the leftward movement of discourse-given elements) signals that its referent has been established in the previous discourse, as in (1).

- (1) Hans hat gestern die Sabine getroffen  
 John has yesterday the Sabine met  
 a. Er hat seine Freundin sofort umarmt  
 b. Er hat sofort seine Freundin umarmt  
 He has (his girlfriend) immediately (his girlfriend) embraced

By de-stressing the direct object and choosing the scrambled word order in (1a), the speaker indicates that the referent of *his girlfriend* is *Sabine*, while stressing the direct object and choosing the word order in (1b) signals that the speaker establishes a new discourse referent: the referent of *his girlfriend* is not *Sabine*. This example thus shows how IS, word order and prosodic realization are intimately connected in German. In section 2 below, we address the issue of the interaction between syntax, prosody, and IS.

The older Germanic languages have considerable word order variation, both in the left periphery of the clause, as shown by the co-occurrence of verb first (V1), verb second (V2), and verb third (V3) structures in declarative clauses in OE and OHG, and in the right periphery, as shown by the co-occurrence of OV and VO orders. In sections 3 and 4, we will therefore address the question of whether the range of word order variation in older Germanic and their subsequent historical developments can receive new explanations in terms of this complex interaction.

## 2. THE INTERACTION BETWEEN IS, SYNTAX, AND PROSODY

The most extensively studied case of the interaction between pragmatics and grammar is the IS category focus. In intonational languages like German and English, focus is predominantly indicated by prosodic prominence. In the context of the question (2a), the answer (2b),<sup>1</sup> though grammatical, is infelicitous. The focus of the answer should correspond to the *wh*-constituent in (2a), as in (2c).

- (2) a. Who did John meet yesterday?
- b. # JOHN met Mary yesterday
- c. John met MARY yesterday

IS-categories like topic, focus, and givenness are inherently pragmatic notions in the sense that they can only be defined in relation to the context of an utterance. For instance, in the context of the question in (2a), the direct object in (2b, c) is interpreted as new information (focus): the question provides the background information for the answer. Example (2b) thus represents a mismatch between pragmatic interpretation and prosodic realization. While IS-categories can only be defined at the level of discourse, they must also be considered as grammatical categories, since they typically have syntactic and/or prosodic correlates, as shown by (1) and (2).

### 2.1 Two models of the interaction between grammar and information structure

Functional approaches to grammar have argued for the direct integration of pragmatics and grammar (Hopper 1979), while formal approaches assume that pragmatics, syntax, and phonology form separate modules. In this chapter, we discuss two formal models of the interaction between grammar and IS, noting that their key notions mostly derive from earlier functional work.

In Government and Binding Theory (Chomsky 1981), sentence grammar is built on purely syntactic notions, defining a set of abstract grammatical objects that assign to a given string of words a semantic interpretation (Logical Form, LF) and a phonological interpretation (Phonological Form, PF). This is depicted in the following model of grammar, also known as the T-model (Figure 1).

LF and PF are further interpreted in separate modules leading up to articulated phonetic interpretations and to full-fledged semantic interpretations. It is assumed that LF only represents context-independent aspects of sentence meaning. In this framework, the syntax produces clauses independently of context; a particular form is selected in the pragmatic module according to the context of its use.

<sup>1</sup> Capital letters indicate focus and prosodic prominence.

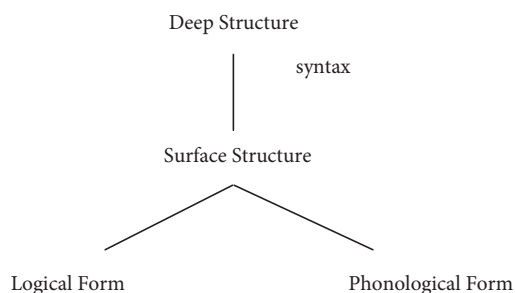


Figure 1. The T-model of grammar

At the same time, evidence was brought forward that casts doubt on this model. It was noted that focus as in (2) not only influences the appropriateness of a sentence in context but also has truth-functional effects that are semantic in nature and are thus part of LF, which is derived from the syntactic structure of the clause. Let us consider (3): while in the context of (3c), (3a) is true, (3b) is false, although it differs from (3a) only in its accent placement (signaling a different focus structure).

- (3) a. John only gave a book to SUE  
 b. John only gave a BOOK to Sue  
 c. John gave a book and a journal to Sue. He gave nothing else to anyone.

Since focus has both semantic and prosodic effects, Jackendoff (1972) argues for the introduction of a focus feature in the syntax. This syntactic feature then guides both the prosodic and the semantic interpretation of the clause.

## 2.2 Minimalism and the cartographic approach

The tension between the concept of syntax as an autonomous system, and also as a module that relates sound to meaning, has been compounded in the Minimalist Program (Chomsky 1995). Here, syntax is viewed as a “dumb” computational system that operates on inherent features of (inflected) lexical items such as Tense, Mood, Agreement, and so on. On that basis, it is not expected that topic, focus, and other pragmatic notions are encoded in the syntax. This raises the question of how these pragmatic categories are identified in the grammar.

One approach to this problem is the so-called stress-based approach (Reinhart 1995; Neeleman and Reinhart 1998), which relies on the well-known stress-focus correspondence in intonational languages: the focus of an utterance always contains the main stress of the utterance.

In this approach, focus and other IS categories are not encoded in the syntax. Rather, it is assumed that the prosody of the utterance determines the set of possible foci in accordance with the principle of stress-focus correspondence, as illustrated in (4). The stress pattern in (4a) is compatible with focus on the direct object

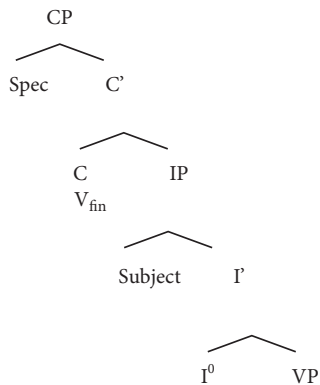
as required by the context in (4b), focus on the VP as required in (4c), or with focus on the entire clause/IP as required in (4d).

- (4) a. John has met his former TEACHER
- b. Who did John meet?
- c. What did John do?
- d. What happened?

Focus is thus identified by intonation: a stressed constituent in the PF representation is interpreted as focus at LF. This means that there is no direct interaction between syntax and IS as part of the pragmatic module. Instead, it is assumed PF and LF interact directly with each other, counter to the T-model of grammar.

Rizzi (1997) set the basis for an alternative approach in which pragmatic notions are incorporated in the syntax, building on a clause structure in which grammatical information is encoded in so-called functional projections, which had been introduced into the theory to represent relations between syntactic elements that are mediated by inflectional morphology. For instance, in the structure (5), the functional projection CP (where C is short for “complementizer”) encodes information about clause type, whereas IP (I is short for “inflection”) encodes information related to verbal inflection.

(5) Clause structure with functional projections CP and IP

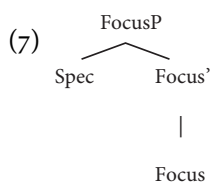


The functional head C relates the proposition expressed by its IP complement to the syntactic context by expressing a subordinating or coordinating relation to the main clause. Den Besten (1983) famously argues that this functional C head should also be present in main clauses, allowing an elegant and simple analysis of the V<sub>2</sub>-property of the Germanic languages. In (5), the finite verb (V<sub>fin</sub>) in main clauses obligatorily moves to the C-head, whose specifier must be filled by exactly one constituent. IP in (5) encodes the relation between subject and predicate (the VP); a relation which in many languages is signaled morphologically by subject-verb agreement.

Rizzi (1997) generalizes the meaning of functional projections like CP, proposing that the C-head in main clauses serves to relate the proposition expressed by the main clause IP to its pragmatic context. The clause-initial-domain then contains not only a position for complementizers and Vf in main clauses with the V2 property, but is split up in a number of functional heads that represent pragmatic notions like topic and focus, as in (6), where the heads *Force* and *Fin* stand for speech act type and finiteness and are assumed to be the target positions for different types of complementizers and for verb movement in the case of V2.

- (6) [Force [Topic\* [Focus [Topic\* [Fin [IP...]]]]]]

Extending Jackendoff's (1972) original proposal, it is assumed in this approach that an element interpreted as focused bears a [+focus] feature, and that a functional head, Focus, projects a phrase in the clause-initial domain, as in (7):



If a language has an active focus head, this attracts the focused element to the specifier of FocusP to check the focus feature. Thus, Spec,FocusP is singled out as the focus of an utterance, just as the specifier of IP is singled out as the subject of predication. A pragmatic category like focus in this approach is thus unambiguously identified in the syntax.

If we compare the approach in terms of stress-focus correspondence to Rizzi's approach in terms of syntactic triggers, the stress-based approach is clearly too narrow, since it predicts that focus and other pragmatic notions are exclusively encoded by prosody or intonation. This is obviously not the case: in most languages focus is encoded by morphological markers or by syntactic position. The core argument favoring the stress-based approach over Rizzi's trigger approach, namely that pragmatic categories like focus are not encoded unambiguously, seems to be a property only of intonational languages and is related to the use of nuclear stress to encode wide focus. English is such a language, giving rise to ambiguities of the kind illustrated in (4). In languages which encode focus morphologically, the ambiguity between NP-focus, VP-focus or sentence focus illustrated in (4) above usually does not arise. The syntactic trigger approach on the other hand seems to be too strict in that it does not encompass languages in which focus is encoded exclusively by morphology or by intonation.

In this chapter, we argue for an intermediate approach on the basis of the kind of variation and change found in the history of the Germanic languages. In sections 3 and 4, we argue that IS categories can be clearly encoded in the grammar and propose that languages and language stages can differ in whether they mark them syntactically, morphologically, or prosodically. For a model of grammar such as the T-model above, in which morphology and phonology are derived from the



syntax, this implies that pragmatic notions, if encoded in the grammar at all, are present in terms of syntactic features.

### 3. WORD ORDER VARIATION AND CHANGE IN THE RIGHT PERIPHERY: OV/VO WORD ORDER

Variation between OV and VO word order is a well-known feature of OE and OHG. As the examples in (8b) from OE and (9b) from OHG clearly show, we not only find pure OV-word orders, as in (8a) and in (9a), and pure VO-orders, but also a mix of both within the same clause. In (8b), for example, the infinitive precedes the auxiliary, as typical of OV-languages, but the direct object follows the verb (and the auxiliary) as typical of VO-languages.

The best studied case of this type of variation is found in OE, giving rise to the well-known and controversial double base hypothesis (e.g. Kroch and Taylor 2000; Pintzuk 2005), in which two grammars are taken to be in competition: one with basic OV-order and one with basic VO-order. An alternative approach is to try and account for it in terms of one grammar, relating the variation to prosodic or IS properties.

- (8) a. *Ðæt he his stefne up ahof*  
 that he his voice up raised (Pintzuk 1999)
- b. *Ðæt ænig mon atellan mæge ealne one demm*  
 that any man relate can all the misery (Pintzuk 1999)
- (9) a. *thaz then alton giqu&an uías*  
 that to-the old ones said was (Tatian 64, 13)<sup>2</sup>
- b. *thaz gibrieuit uuvrdi al these umbiuuerft*  
 that listed was-SUB all this mankind (Tatian 35, 9)

#### 3.1 The role of information structure and prosody in word order variation

Traditional grammarians have noted the role of prosodic and IS considerations in explaining word order in older Germanic. Notably, Behaghel (1932) points out that old information precedes new information and that heavy elements follow light elements in OE, Old Icelandic, and OHG. Although there is widespread agreement on the validity of these observations (Hroarsdottir 2000; Taylor and Pintzuk 2012), a central question is how IS factors and prosodic factors interact

2 The OHG examples are cited by manuscript page and line number according to Masser (1994).

with syntax. Another important question is how to define prosodic heaviness. Furthermore, while there is growing consensus on how to define IS notions, there is the practical problem of applying them to historical texts, which mostly lack prosodic cues.

### 3.1.1 *Information structure and word order*

The IS notion that is most directly applicable and most widely used is that of discourse status, distinguishing between given and new discourse referents. However, discourse status cannot be identified directly with the notions focus and background. Interlocutors make assumptions about shared information (also called common ground) in conversation and tailor their utterances according to what they believe is already known to the hearer (background), and to what provides new relevant information (presentational focus). While new discourse referents are usually part of the focus domain, and given discourse referents are typically part of the background of the clause, this is not necessarily the case, as (10) and (11) show.

- (10) A: John hit Mary.  
B: No, SHE hit HIM
- (11) A: I do not remember whether John bought a house or a boat  
B: He bought a HOUSE

Focus generally indicates the presence of alternatives (cf. Krifka 2007). With “contrastive focus” a speaker indicates the relevance of an alternative in contrast to another alternative already under discussion, as in (10): though the pronouns *she* and *him* are discourse-given, they do not belong to the background of the utterance since they are contrastively focused. In a similar vein, the direct object *a house* in (11), though discourse-given, represents the (selective) focus of the clause. Thus, while *new* discourse status implies that the constituent is part of the presentational focus of the clause, *given* discourse status does not guarantee that it is part of the background.

Also, it is important to distinguish between focus types. For instance, OHG positionally distinguishes between presentational (or new information) focus and contrastive focus. While contrastively focused constituents are placed pre-verbally, those pertaining to the presentational focus of clause are placed post-verbally, as illustrated in (12) and (13).

- (12) a. ther giheizan ist **p&rus**  
who named is Petrus (Tatian 54, 15)  
b. Inti thie thár hab&un **diuual**  
and those that had the devil (Tatian 59, 1)
- (13) niuuzze íz **thin uuinistra/** uuaz **thin zesuaa** tuo  
NEG-know it your left (hand) what your right-one does (Tatian 67, 5)

This shows that investigating the role of IS in explaining word order variation requires careful and extensive analysis of the syntax of clauses in context; counting superficial OV and VO orders and correlating them with the discourse status of objects will miss important syntactic and IS distinctions.

### 3.1.2 *Prosody and word order*

Returning to the question of the interaction between IS- and prosodic factors, Hroarsdottir (2000) reports that in Old Icelandic (OI), both IS and prosodic factors influence the choice between OV and VO order and that prosodic factors prevail over IS: while non-branching constituents (comprising one word) are almost categorically pre-verbal in OI, constituents comprising three or more words are almost exclusively post-verbal, with IS merely influencing the placement of phrases with two words.

On the other hand, Hinterhölzl (2009) shows that in OHG, IS is the decisive factor ruling pre- versus post-verbal object placement. Only prepositional phrases (PPs, independently of discourse status) are regularly post-verbal, unless they are contrastively focused, in which case they are pre-verbal like contrastively focused DPs. Turning to OE, it is interesting to note that both IS and prosody also influence the choice between OV and VO order in OE, as Taylor and Pintzuk (64) show. They also note that the influence of IS weakens in later OE.

While there is good evidence that prosodic weight plays an important role in object placement in older Germanic, it is not clear how to measure it. Leaving aside clausal complements and adjuncts, the data from OI point to a three-way distinction between light (non-branching constituents), non-light (branching DPs), and heavy constituents (PPs), while the OHG data indicate the relevance of a binary distinction between heavy (for PPs) and non-heavy constituents (for NPs and pronouns).

However, if the condition on prosodic weight is metrical in nature, as argued in Hinterhölzl (2011), we do not expect that heaviness can be measured only in terms of numbers of words in a phrase. It is beyond the scope of this chapter to pursue this matter further here.

## 3.2 Toward an account of mixed word orders in Germanic

The simplest account for mixed word order patterns like in (8b) and (9b) above is to assume an OV-base plus a process of extraposition, which in contrast to modern German and Dutch also applies to nominal arguments. This involves a methodological risk, however, of attributing a set of properties to an ancient language stage that is not attested in known languages.

The same logic is applied by Pintzuk (1999) to establish that OE must have had a VO-base. She argues that post-verbal occurrences of verb particles and pronouns in OE cannot be due to extraposition from an OV-base, since modern German and Dutch only allow extraposition of heavy constituents. A similar argument can be made for OHG: nominal and adjectival predicates and light arguments are frequently post-verbal in embedded clauses, as in (14) and (15). This establishes that both languages have a VO-base.

- (14) *salige sint thiethar sint miltherze*  
 blessed are the-ones that are merciful (Tatian 60, 12)
- (15) *thaz in mir habet sibba*  
 such that in me you-have peace (Tatian 290, 8)

The crucial question then is whether we should also assume an OV-base, as argued by the proponents of the double base-hypothesis. An alternative is to assume that both OE and OHG had only a VO-base, but like Present-Day German move arguments and predicates into the middle field. Given the obligatory movement of arguments and predicates to pre-verbal positions from a VO-base, OV-orders would result from their spell-out (lexicalization) in their derived positions, while VO-orders would result from their spell-out in their base positions. If a grammar allows for this kind of flexibility, interface conditions can kick in to choose between these options according to IS- or prosodic properties.

We have seen above that OHG distinguishes between contrastive focus and presentational focus. Note that also discourse-given constituents are regularly pre-verbal in OHG but move into higher positions in the C-domain. We arrive at the characterization of word order regularities in OHG in (16).

- (16) [<sub>CP</sub> Background [<sub>IP</sub> ContrastFocus [<sub>VP</sub> V PresentFocus]]]

This simple picture is complicated by prosodic factors, which require that CPs and heavy PPs and DPs are post-verbal in OHG. The reader is referred to Taylor and Pintzuk (64) to see how IS and prosody influence the pre- vs. post-verbal placement of arguments in OE.

### 3.3 Interface conditions and word order change

An approach in which word order is the result of the complex interaction between syntax, IS and prosody urges the question how to account for word order change: word order change must now be considered as a change in this complex interaction; changes in OV/VO word order can no longer be regarded as syntactic parameter changes (in this case, a change in the head complement parameter).

In OHG and OE, discourse-given elements are dominantly pre-verbal, while discourse new ones are dominantly post-verbal. Prosodic factors complicate this picture, as they require that discourse-given heavy elements appear post-verbally and that discourse-new light elements appear pre-verbally. We have seen above that OHG gives precedence to IS, while according to Taylor and Pintzuk (64) prosody is the more dominant factor in OE.

An important independent change in both grammars, occurring in late OHG and in the ME period, is the grammaticalization of definite determiners. Recent studies of the grammaticalization of the definite determiner in German (e.g. Leiss 2000; Demske 2001) agree that the definite determiner—derived from

the demonstrative pronoun—first appears in contexts with pragmatically definite interpretations in OHG, that is, they appear first with discourse given elements in the pre-verbal domain.

In a language like OHG, in which word order is primarily triggered by IS, these discourse-given phrases can remain pre-verbal, leading to a further weakening of evidence for prosodic conditions in the German middle field. In a language like OE, in which according to Taylor and Pintzuk (64), the order of object and verb was predominantly determined by prosodic conditions, with the IS-factor beginning to lose strength towards the end of OE-period, heavy discourse-given objects should increasingly appear post-verbally. This is discussed in more depth by Petrova (65), who addresses the variation in word order in the right periphery in OHG and OE, and their subsequent word order divergence. If this approach is correct, we have a case in which a specific IS distinction changes from being marked by syntactic position to being marked morphologically, by determiner type.

## 4. WORD ORDER VARIATION AND CHANGE IN THE LEFT PERIPHERY IN OLDER GERMANIC: VERB SECOND

We now turn to discussion of word order variation in the initial part of the clause in English and German. Here, we argue that this variation and subsequent changes can receive interesting new explanations if IS is taken into account.

### 4.1 Word order variation in the left periphery: Verb second

OE and OHG main clauses were both characterized by the verb second (V<sub>2</sub>) constraint. Beside the OV/VO variation discussed in the previous section, the finite verb (V<sub>f</sub>) in main clauses (whether a lexical V<sub>f</sub> or a finite auxiliary) is found systematically in the initial part of the clause, in a position distinct from that of the non-finite verb.<sup>3</sup> This is as true for subject-initial main clauses as for those introduced by a nonsubject constituent. We focus on main clauses introduced by a nonsubject constituent, where subject-verb inversion is most typical. Here, there are two basic types of V<sub>2</sub>: one in which V<sub>f</sub> always immediately follows the first constituent (illustrated in (17) for OE and in (18) for OHG); and a second in which the position of V<sub>f</sub> is more variable. This is illustrated for OE in (19) and for OHG in (20):<sup>4</sup>

3 We cannot do full justice here to the complexity surrounding the position of the finite verb in OE; the reader is referred to Fischer et al. (2000) for an overview of the issues.

4 The references for Old English follow the referencing conventions of the York-Toronto-Helsinki Parsed Corpus of Old English Prose (YCOE).

- (17) a. Hwi **wolde** God swa lytles þinges him **forwyrnan**  
 Why would God so small thing him deny  
 ‘Why should God deny him such a small thing?’ (*ÆCHom* I, 1.14.2)
- b. Þa **wæs** þæt folc þæs micclan welan ungemetlice **brucende**  
 Then was the people the great prosperity<sub>Gen</sub> excessively partaking  
 ‘Then the people were partaking excessively of the great prosperity’ (*Or* 1.23.3)
- (18) uuanan **uueiz** ih thaz  
 where-from know I that (*Tatian* 27, 10)
- (19) a. **Wæs** Hæsten þa þær cumen mid his herge V1  
 was Hæsten then there come with his host  
 ‘Hæsten then had come there with his host’ (*ChronA* (Plummer) 894.43)
- b. Him **geaf** þa se cync twa hund gildenra paeninga V2  
 him gave then the king two hundred golden pennies  
 ‘Then the king gave him two hundred golden pennies’ (*Haeberli* 2002a: 88)
- c. Hiora umtrymnesse he **sceal** ðrowian on his heortan V3  
 their weakness he shall atone in his heart  
 ‘He shall atone their weakness in his heart’ (*Haeberli* 2002a: 90)
- (20) a. **Was** liutu filu in flize, in managemo agaleize V1  
 were people many in diligence in great effort  
 ‘There were many people in diligence, in great effort’ (*Otfrid* I 1,1)
- b. then **scuóf** hér namon V2  
 them<sub>Dat</sub> created he names  
 ‘He gave them names’ (*Tatian* 59, 21)
- c. erino portun ih **firchnussu** V3  
 iron doors I smatter  
 ‘I will smatter iron doors’ (*Isidor* 157)

OE and OHG thus share very similar word orders. These have often been discussed in the literature as variations on the V2 word order that is characteristic of many of the Germanic languages, historical and present-day. Of particular interest here is the subsequent history of English and German: while English maintained the type of V2 in questions as in (17a), albeit restricted to auxiliaries, it lost those exemplified in (17b) and the patterns of Vf fronting in (19). In German, on the other hand, the two types of V2 illustrated by (18) and (20) were both generalized to strict V2 in all main clauses.

The variable V2 grammar of OE and OHG, and the subsequent divergence between the two languages raises the important question why and how the V2 pattern was generalized and regularized in German, and why and how was it lost in English. These issues have been at the heart of the study of word order regularities in Germanic (e.g. van Kemenade 1987; Fuß 1998; Pintzuk 1999; Fischer et al. 2000; Haeberli 2002a, 2002b). Here, we summarize recent research, showing that word order variation in OE and OHG is to an important extent determined by discourse

context. Furthermore, we argue that consideration of the interaction between IS and syntax enables us to provide new and more comprehensive answers to these questions. The role of prosody here has not yet been extensively studied, with the exception of Speyer (67) and references cited there.

The examples in (17–20) represent different types of context: for the type exemplified in (17–18), with inversion of all types of subject, it is generally agreed that the position of Vf is C, as in (5) above: only one constituent in Spec,CP can precede Vf. For V1 clauses in Old Germanic as in (19a) and (20a), it is likewise generally agreed that they involve V to C movement (van Kemenade and Los 2006 and references cited there; Hinterhölzl and Petrova 2010 (RH/SP)). In the contexts in (19b–c) and (20b–c), which alternate between V2 and V3, more than one constituent can precede Vf and thus Vf is taken to be in a position lower than C. Since both first constituent and subject may precede Vf, we will call this type “accidental V2”: it may but need not result in V2 word order. We first turn to the discussion of the historical development of High German, and then contrast it with the historical development of English.

## 4.2 Old High German and its subsequent history

RH/SP, following Asher and Lascarides (2003), show that variation between V1 and V2 word order in OHG main clauses correlates with two types of discourse relations, called subordinating and coordinating discourse relations. To phrase the conditions in IS terms, clauses with a topic-comment structure (subordinating) are systematically expressed by V2-structures, those lacking a topic-comment structure (coordinating) by V1-structures.

In V2 declaratives in OHG, a specific discourse referent is singled out (topic) and the comment gives relevant information **about** this referent (called elaboration in Asher and Lascarides 2003), as in (21).

- (21) a. ih bin guot hirti.      guot hirti /      **tuot** sina sela furi  
 I am good shepherd. good shepherd gives his soul for  
 siniu scaph.  
 his sheep (Tatian 225, 16–17)
- b. senu arstorbaner / uúas gitragan einag sun / sinero muoter  
 look: dead-one was carried. only son of-his mother  
 Inti thiu      **uuas** uuituuua  
 and this-one was widow (Tatian 84, 22 ff.)

V2-clauses in the history of German thus express the encoding of the aboutness topic in the sense of Reinhart (1981), and Vf placement in OHG serves to separate the aboutness topic from the comment.

In contrast, V1 clauses mark the beginning of an episode, as in (22a) (an aboutness topic has not been established yet), or, within episodes, the continuation of

the main story line, linking an event in a direct temporal sequence to the previous event. This is typical of narration and is illustrated in (22b).

- (22) a. **uuarun** thô hirta In thero lantskeffi  
           were there shepherds in that area (Tatian 35, 29)
- b. antlingota thô sîn muoter Inti quad  
           responded then his mother and said (Tatian 30, 24)

At a later stage, V1 clauses were increasingly replaced by *tho*+Vf-structures, leading to the generalization of the V2-pattern in declarative clauses in German. RH/SP propose that this is the effect of extending the grammatical marking of subordinating discourse relations (V2) to coordinating discourse relations (eliminating V1). They envisage a change by which the reference function of a clause-initial topic in subordinating discourse relations is extended to the clause-initial adverb *tho* in V1 structures, which then comes to refer to the previous discourse situation. This implies that *tho* becomes a basic discourse linker which explicitly expresses the temporal sequence of two situations, subordinating the *tho*+Vf clause to the previous discourse situation. This function parallels that of a continuing aboutness topic which links the comment to the previous discourse by referring to a referent in the discourse. Placement of *tho* in Spec,CP, immediately followed by Vf in C, thus explicitly marks a temporal anaphoric relation that was implicit in a sequence of V1-clauses.

The OHG V3 pattern as in (20c) was lost as well, and we must assume that it, too, gave way to the strict V2 pattern. Axel (2007) notes that V3 in OHG was relatively limited and was lost relatively early. Importantly, however, all coordinating and subordinating discourse relations come to be expressed by V2. With the first constituent in such a V2 structure signaling the discourse link, the impact of this development is that the IS-status of the clause-initial position is neutralized. This implies that the element serving as the discourse linker is moved there from a lower position in the C-domain, according to RH/SP from the domain dedicated to the licensing of discourse anaphoric elements, called familiar topics in Frascarelli and Hinterhölzl (2007). We may think of this process as the “syntacticization” of V2: various discourse relations are no longer signaled by different word order patterns; V2 becomes a syntactic requirement.

### 4.3 Old English and its subsequent history

Following up the approach to changes in V2 in OHG, we now turn to OE, which shows a very similar alternation between V1 clauses (introducing a new episode in the discourse, as discussed in Los (2000) and illustrated in (19a), and a very frequent V2 pattern involving V to C movement, in which a clause-initial adverb like *þa*, *þonne* ‘then’ is immediately followed by the finite verb, as in (17b) above.

This distribution compares nicely with that in OHG: V1 introduces a new episode in the discourse; the *þa*-Vf pattern refers back in a temporal sequence to the preceding clause. Clause-initial *þa* thus behaves like a basic discourse-linker, as discussed



by van Kemenade and Los (2006: 228–29). More generally, Los (2009) and Los and Dreschler (66), establish the importance of the first constituent as a discourse link in OE and ME. This parallelism between OHG and OE once again raises the question why their further development was divergent. We advance the following hypothesis: while OE shows the same variation between V<sub>1</sub>-clauses and *þa*-V<sub>f</sub>-clauses as OHG, it crucially differed from OHG in the expression of subordinating discourse relations: the accidental V<sub>2</sub> pattern in OE (with V<sub>2</sub> as well as V<sub>3</sub> word orders) is far more robust than it ever was in OHG. This pattern in OE serves to separate ALL discourse-anaphoric elements from the focus domain of the clause, rather than only the aboutness topic; the pre-verbal domain in OE and ME thus consists of more than one anaphoric linking position: one for the clause-initial constituent, and one for the subject. This may result in any of the following word orders:

- (23) a. topic—given pronominal subject—finite verb ...  
*Hiora umtrymnesse he sceal ðrowian on his heortan* (19c) V<sub>3</sub>
- b. topic—given nominal subject—finite verb ... V<sub>3</sub>  
*Forðon þa ærestan synne se weriga gast scyde þurh*  
 For the first sin the accursed spirit suggested through  
*þa næddran,*  
 the serpent  
 ‘For the accursed spirit suggested the first sin through the serpent’  
 (*Bede*\_1:16.86.28.791)
- c. topic—finite verb—non-given subject ... V<sub>2</sub>  
*þas ðreo ðing forgifð God his gecorenum*  
 These three things gives God his chosen  
 ‘These three things God gives to his chosen’ (*ÆCHom* I, 18.250.12)

This type of IS-driven variation continued in frequencies that shifted between contexts as discussed in van Kemenade and Westergaard (2012) and van Kemenade (63), and dwindled in numbers in the fifteenth and sixteenth centuries. Van Kemenade and Westergaard (2012) demonstrate that one important aspect of the loss of accidental V<sub>2</sub> is the increase of pre-verbal nominal subjects such as those in (23b), which moreover increasingly come to include discourse-new subjects. We interpret this as the neutralization of the IS status of the pre-verbal subject position: the pre-verbal subject position becomes a syntactic requirement.

The early English *þa*-V<sub>2</sub> pattern was ultimately lost as well, though not entirely in tandem with the loss of the accidental V<sub>2</sub> pattern. As shown in van Kemenade (63), it shows a gradual decline over the ME period in contexts with nominal subjects, but also a marked increase with pronominal subjects, particularly with finite auxiliaries. This shows that ME continued to differentiate between coordinating and subordinating discourse relations by means of the choice of word order pattern. Over the sixteenth and seventeenth centuries, the pattern was well on the way to decline—V to C movement became more and more restricted to auxiliaries in questions. This latter fact shows that the loss of *þa*-V<sub>2</sub> was not a necessity: there

does not seem to be any syntactic reason why the pattern could not have continued to thrive, becoming restricted to auxiliaries as it did in questions. We therefore hypothesize that the loss of this pattern represents the final loss of the early English mode of marking discourse relations by means of a designated discourse linker.

#### 4.4 Discussion

We have so far traced the divergent historical development of English and German with respect to the V<sub>2</sub> property. Both OHG and OE employed V<sub>1</sub> and V<sub>2</sub> word orders to differentiate between coordinating and subordinating discourse relations. In OHG, this distinction was neutralized as general V<sub>2</sub>. The V<sub>3</sub> pattern was not robust and also gave way to generalized V<sub>2</sub>. In OE, the V<sub>3</sub> pattern that expressed subordinating discourse relations was quite robust, and gives clear evidence for two pre-verbal positions for discourse-anaphoric elements. This pattern first developed independently and was later lost as well.

Why were both patterns lost in English? We have treated the various types of V<sub>2</sub> in the older Germanic languages as phenomena that primarily reflect differential ways of establishing discourse relations. In both patterns, the first constituent is in Spec,CP and serves a discourse-linking function. In V<sub>2</sub> languages like Present-Day Dutch and German, deictic adverbs and PPs figure prominently in first position, e.g. Dutch *daar* ‘there’, *hier* ‘here’, *daarin* ‘therein’, *daarvan* ‘therefrom’, and so on. These were frequent in OE as well, and were lost over the ME period, with some lexical relics in Present-Day English. Another anaphoric device that was lost is the *se* paradigm of demonstrative pronouns, which, beside marking definiteness on nouns in OE, could also be used as an independent pronoun and a relative pronoun. A special type of first constituent are topicalized objects: as discussed in Speyer (67) and Los and Dreschler (66), object topicalization is typically used to mark contrast with the preceding discourse. Speyer argues that V<sub>2</sub> variation in this context is determined by the relative prosodic prominence of first constituent and subject putting the role of prosody in this part of the clausal domain on the research agenda. The loss of V<sub>2</sub> patterns then led to significant drops in the frequency of object topicalization, and to restrictions of its function. More generally, Los and Komen (66) show that the loss of the discourse-linking function of the first constituent also meant that it could no longer express contrast with the preceding discourse, and that this led to alternative and new syntactic strategies to mark contrast and emphatic prominence.

Returning to the *þa*-V<sub>2</sub> pattern, the initial adverb marks continuation of the discourse, establishing an anaphoric relation with the previous event. This type of V<sub>2</sub> is triggered by a restricted and designated set of first constituents. We have argued that this pattern was lost because it was part and parcel of the ancient Germanic discourse-linking strategy of V<sub>2</sub>.

The accidental V<sub>2</sub> pattern could alternately yield V<sub>2</sub> or V<sub>3</sub> word orders. Here, too, the first constituent serves a discourse-linking function, establishing an

aboutness topic, or an adverbial discourse link, which however does not trigger V to C movement. There is thus a wide range of first constituents that do not trigger V to C movement.

In the accidental V2 pattern, a second pre-verbal position was relevant: that of a discourse-given subject. Over the ME period, the pre-verbal subject position was generalized to include discourse-new subjects, leading to the breakdown of accidental V2. If pre-verbal subjects come to predominate, whatever the first constituent, and whatever their IS-status, a syntactic requirement that the subject be pre-verbal is likely to take over, leading to the loss of erstwhile positions differentiated on the ground of IS-considerations.

## 5. CONCLUSIONS

Let us finally address the question what the changes discussed here can tell us about the complex interaction between syntax, IS and prosody.

In section 3 on OV/VO word order, we have presented evidence that syntax, IS and prosody all three influence the choice for a particular word order pattern. As OV word order is lost in English, and strengthened in OHG, the pertinent IS distinctions become encoded in the newly developing grammatical system of definite and indefinite determiners. These facts show that IS interacts with the entire grammatical system, rather than with just one component—PF in stress-based accounts and syntax in position-based accounts.

In section 4 on the loss of V2 in English, we have also seen good evidence for the interaction of syntax and IS: if the loss of V2 just meant the loss of V-movement to C, we cannot explain why, for example, topicalization in Present-Day English can no longer have a discourse linking function, as it still does in Present-Day German. OE had two pre-verbal discourse linking positions, and we have suggested that the functional breakdown of deictic adverbs and PPs led to the loss of the discourse linking character of the Spec,CP position. This provides a motivation for why subjects become predominantly realized pre-verbally in ME: they are the only category left that may function as a discourse linker. This scenario has the following implications for the interaction between syntax and IS. For a lexical element, like a demonstrative or deictic pronoun, to function as discourse linker, a corresponding syntactic position in the left periphery is required. In other words, it is not sufficient to form a phrase *demonstrative + noun* to obtain a discourse anaphoric-reading. The reading only becomes active in the corresponding syntactic position.

As the higher discourse linking position was lost, it follows that topicalization of a nonsubject constituent can only have a contrastive reading in modern English. There is thus a very close relationship between discourse-related meanings of lexical elements and syntactic positions in the CP-domain. When lexical items lose

their discourse-anaphoric readings, as demonstrative elements of the *pa*-class did in ME, the relevant syntactic positions are lost.

Taken together, these cases constitute a strong argument for the assumption that IS is part of grammar and fosters the functionalist approach to the interaction between grammar and pragmatics, which has found a formalist revival in the so-called cartographic approach of Rizzi (1997) and subsequent work.

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