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Lexical, Morphological, and Information-Structural Interactions

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Series Preface

Modern diachronic linguistics has important contacts with other subdisciplines, notably first-language acquisition, learnability theory, computational linguistics, sociolinguistics, and the traditional philological study of texts. It is now recognized in the wider field that diachronic linguistics can make a novel contribution to linguistic theory, to historical linguistics, and arguably to cognitive science more widely.

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Adam Ledgeway and Ian Roberts
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displays fronting to PolP (in the case of QP-fronting), whereas Modern Spanish exhibits WFF.

17.5 Conclusion

This chapter explores the homogeneous pattern of Old Spanish and Old Catalan with respect to WFF and examines the asymmetry between Modern Spanish and Modern Catalan with respect to this phenomenon. Whereas Modern Spanish still exhibits WFF, Modern Catalan only allows QP Fronting, the licensing of which is directly related to a presuppositional interpretation. Additionally, Modern Catalan displays double negation, has grammaticalized many adverbs as emphatic polarity markers (either negative or affirmative), and allows for two negations (*no que no*). This leads us to propose that the above-mentioned asymmetry is related to a deeper generalization linked to the behaviour of the two languages. More precisely, we suggest that Modern Catalan QP Fronting is hosted by PolP, which is 'strong' enough to attract quantifiers, and also that the syntactic change that took place from Old Catalan to Modern Catalan involves the deactivation of the Unmarked Focus Projection.

Sources

(*CICA*) *Corpus Informatitzat del Català Antic*, J. Torruella (dir.), with the collaboration of Manuel Pérez Saldanya, Josep Martines and Vicent Martines. <http://www.cica.cat>

(*CORDE*) *Corpus Diacrónico del Español*: <http://corpus.rae.es/cordenet.html>

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18

An interface account of word-order variation in Old High German

ROLAND HINTERHÖLZL

18.1 Introduction

The chapter addresses the issue of whether word-order properties can be reduced to interface properties. Dispensing with the Head Complement parameter (cf. Kayne 1994; Chomsky 1995b), the unmarked order in a language is not a basic property any more and the question arises as to which other properties in the grammar word-order properties can be related to.

I will argue that word-order properties follow from the interaction between prosodic and information-structural conditions. In particular, I will look at word-order variation in Old High German (OHG), and show that the factors that determine this variation are either prosodic or information-structural in nature.

18.1.1 Word-order variation in older Germanic

It is well known that the older Germanic languages showed greater freedom in word order than their respective modern descendents. In this respect, mixed word orders are of special interest since they pose a challenge for accounts based on the Head Complement parameter.

Next to mixed word orders in modern Yiddish as in (1) (Diesing 1997), we find mixed OV/VO orders in the older stages of all Germanic languages, as is illustrated for Old English (OE) in (2) (Pintzuk 1999), for Old Icelandic (OI) in (3) (Hróarsdóttir 2000), and for OHG in (4) (taken from the *Tatian* translation).

(1) a. Maks hot nit gegebn Rifken dos bukh
Max has not given Rifken the book

b. Maks hot Rifken dos bukh nit gegebn
Max has Rifken the book not given
'Max has not given Rifken the book'

(2) a. þæt he his stefne up ahof
that he his voice up raised
'... that he raised up his voice'

b. þæt ænig mon tellan mæge ealne one demm
that any man relate can all the misery
'... that any man can relate all the misery'

(3) a. eftir það þeir höfðu eplið eteð
after that they had apple-the eaten
'after they had eaten the apple ...'

b. að hann haði edið kjotið
that he had eaten meat-the
'... that he had eaten the meat'

(4) a. thaz then alton giqu&an uûas (T64, 13a)
that to-the old ones said was
'what was said to the old ones'

b. thaz gibrieuit uuvrdi al these umbiuuerft (T35,9)
that listed was-SBJV all this mankind
'... that all this mankind was listed'

As the examples in (2b) from OE and (4b) from OHG clearly show, we do not only find a combination of pure head-final (OV) word orders, as in (2a) and in (4a), and pure head-initial (VO) orders, as in (3b), in the same text, but also mixed word orders within the same sentence. To take an example from OE, the infinitive precedes the finite auxiliary, as is typical for an OV-language, but the direct object follows the selecting verb (and the auxiliary) as is typical for a VO-language.

While mixed word orders in Yiddish, Old English, and Old Icelandic have been and are subject to thorough investigation and heated debates concerning their correct analysis (cf. i.a. Diesing 1997 vs. Vikner 2001 for Yiddish, and Roberts 1997 vs. Pintzuk 1999 for OE), the discussion concerning older stages of German has been non-existent, owing to the—as I will show—incorrect assumption that OHG was already an OV-language, albeit one permitting a high degree of extraposition. While indisputable VO-features in OHG have often been relegated to Latin influence, I will show on the basis of the *Tatian* translation that these features belong to an independent OHG system.

18.1.2 Outline of the chapter

Focusing on English and German, the above data raise the following questions:

A) Were OHG and OE basic OV or basic VO languages?
B) Do mixed word orders call for the presence of two grammars?
C) How can we characterize OV and VO languages in the absence of the Head Complement Parameter?

In the following sections, I will try to provide interesting new answers to these questions. In particular, I will show that word order in OHG was determined by prosodic and information-structural (IS) requirements. Furthermore, I will argue that mixed word orders can be effectively accounted for by assuming a VO-base plus leftward movement triggered by licensing considerations. The difference between OV- and VO-orders will be relegated to spell-out options which are taken to be fixed by interface conditions.

18.2 Word-order variation and the Head Complement parameter

Traditionally, word-order variation has been accounted for by assuming a basic word order—taken to be fixed by the Head Complement parameter—and by assuming additional rules like extraposition, heavy NP-shift, and the like to derive marked word orders from the unmarked base order. In this section, I will show that such accounts are not able to account for the word-order variation found in OHG.

18.2.1 OV grammar plus extraposition

On the assumption that OHG was an OV language like modern German, the simplest way to account for data like (4b) is to assume that the subject is extraposed from a position preceding the verb cluster. Note that modern German does not allow for the extraposition of non-complex arguments. As is illustrated in (5), DP arguments must be modified or conjoined in order to appear at the right edge of the clause in modern German. Furthermore, note that nominal, adjectival, or prepositional predicates cannot be extraposed in modern German either, as is illustrated in (6a–c) respectively.

(5) a. Auf Gleis 5 fährt ein der Interregio nach Straubing
on platform 5 comes in the regional train to Straubing
'On platform 5, the regional train to Straubing is arriving'

b. ?? Auf Gleis 5 fährt ein der Interregio
on platform 5 comes in the regional train

c. Es sind eingeladen Peter, Hans und Sabine.
it are invited, Peter Hans and Sabine
'There were invited Peter, Hans and Sabine'

d. ?? Es ist eingeladen der Präsident
it is invited the president

(6) a. *Er hat ihn genannt einen Idioten
he has him called an idiot

b. *Er hat den Hund geschlagen tot
he has the dog beaten dead

c. *Er hat die Vase gestellt ins Regal
he has the vase put into the shelf

In OHG, on the other hand, light arguments can be found in considerable numbers in postverbal position in embedded clauses. Moreover, nominal and adjectival predicates predominantly appear in postverbal position in the OHG *Tatian*. Since this text constitutes an interlinear translation from Latin, it is important to point out that these features of OHG also appear independently of or, often, in contrast to the Latin original. This is illustrated for arguments in (7) and for predicates in (8). Thus, these features cannot be relegated to Latin influence and must be taken to express genuine OHG properties.

(7) Latin / OHG

a. ut in me pacem habeatis / thaz in mir habet sibba
so-that in me peace.ACC have-you / so-that in me you-have peace
'so that you may have peace in me' (T 290, 8)

b. & qui demonia habebant / inti thie thár hab&un diuual
and who demons they-have / and those that have demon
'and those that have demons' (T 59, 1)

(8) a. cui nomen simeon / thes namo uuas gihezzan Simeon
whose name Simeon / whose name was called Simeon
'whose name was Simeon' (T 37)

b. Beati misericordes / salige sint thiethar sint miltherze
blessed mild-hearted / blessed are those-who are mild-hearted
'Blessed are those who are mild-hearted' (T 60, 12)

In conclusion, if OHG is assumed to have been an OV language, we have to acknowledge the existence of extraposition operations that are quite different from those observed in modern Germanic OV languages like German and Dutch. I argue that, instead, these properties speak in favour of the presence of a VO-grammar in OHG. Similar arguments have been made by Pintzuk (1999) to show that OE must have had a VO-basis. To account for undeniable OV-properties like the preverbal occurrence of verbal particles and the presence of verb clusters of the form V_2 V_1, with V_2 representing the verb selected by V_1, Pintzuk proposed the parallel presence of both an OV and a VO base in OE, an approach which has come to be known as the 'Double Base Hypothesis' (DBH).

18.2.2 An account based on the Universal Base hypothesis

Given that there is good evidence for the presence of a VO grammar in OHG, the question arises if we also have to assume the presence of an OV grammar to account for OHG's OV-properties.

There is a simpler alternative to assuming the presence of two grammars or two divergent parameter settings. Roberts (1997) showed that all the various mixed word orders found in OE can be derived from a universal VO-base plus optional movement operations known to exist in modern German and Dutch. These movements are given in (9).

(9) a. licensing movement of arguments into a Case position (cf. Zwart 1993 for Dutch, Hinterhölzl 2006 for German)

b. licensing movement of verb particles into the specifier of a low Aspect position (cf. Hinterhölzl 2006)

c. licensing movement of predicative elements into a Predicate phrase (cf. Koster 1995 for Dutch, Hinterhölzl 2006 for German)

There is one major drawback to Roberts's (1997) proposal: movement operations that are obligatory in the modern Germanic OV-languages were assumed to be optional in OE to account for mixed word-order patterns. Secondly, Roberts (1997) did not provide any motivation as to when these optional movements did or did not apply. These problems are addressed in Biberauer and Roberts (2005). They propose a complex system of licensing, where the EPP-feature of a higher head can be satisfied by the minimal category targeted by the operation of Agree or by the containing category (a case of pied-piping).

18.2.3 An approach in terms of variable spell-out

The proposal that I am going to make is in line with Roberts (1997), and Biberauer and Roberts (2005). Starting from a universal VO basis, I assume the obligatory licensing movements given in (9). Mixed word orders in this approach are taken to result from spell-out options which are fixed by interface conditions. To provide a simple example, superficial OV-order is derived by obligatory movement of the object into a Case-licensing position in the middle field and spell-out of the higher copy, while superficial VO-order is derived by its obligatory movement into a Case-licensing position and spell-out of the lower copy in vP. This is illustrated in (10a) and (10b) respectively.

(10) a. [$_{CP}$ [$_{IP}$ DO [$_{vP}$ V ~~DO~~]]]
b. [$_{CP}$ [$_{IP}$ ~~DO~~ [$_{vP}$ V DO]]]

While the derivation in (10a), in which the lower copy is deleted, is uncontroversial, the derivation in (10b) with the spell-out of the lower copy is non-standard and needs additional justification.

First, note that the spell-out of the higher copy is in fact based on the stipulation that features are only checked on the remerged copy, but not on the copy in the position prior to movement. Since movement and checking occurs to get rid of uninterpretable features, it is necessarily the lower copy that needs to be deleted at PF, according to

the account of Nunes (2004). Chomsky (1993), however, originally proposed that, in a checking operation, a feature is checked (and deleted) in all occurrences of the remerged copy. Second, note that the copy that is interpreted at LF and the copy that is interpreted at PF need not be the same. The simplest account of reconstruction effects and, likewise, the best argument for the existence of copies assumes that a moved constituent can be interpreted in its checking position at PF, but in its base position at LF. Hence it is generally accepted that in (10a)—where the higher copy is interpreted at PF—the lower copy may be interpreted at LF. (10b), on the other hand, should constitute a case in which the lower copy is interpreted at PF and the higher copy should be interpretable at LF.

Incidentally, there is empirical evidence from scopal interaction between arguments and adjuncts for the assumption that arguments in English are spelled out in a position that is lower than their LF-position. Note first that arguments in German undergo scrambling in order to bind a pronoun contained, for instance, in a temporal adjunct. This is illustrated in (11).

(11) a. *Hans traf an ihrem$_i$ Geburtstag jedes$_i$ Mädchen
Hans met on her birthday every girl

b. Hans traf jedes$_i$ Mädchen an ihrem$_i$ Geburtstag
Hans met every girl on her birthday
'Hans met every girl on her birthday'

c. John met every$_i$ girl on her$_i$ birthday

In (11a), binding is impossible since in the unmarked order temporal adjuncts precede direct objects. However, when the direct object is scrambled across the adjunct as in (11b), binding of the pronoun in the adjunct by the argument quantifier becomes possible. (11c) displays the parallel state of affairs in English. Note that this is unexpected under the assumption that adjuncts are adjoined to the vP or are introduced in the extended projection of the verb, as proposed in Cinque (1999). Note furthermore that QR of the direct object does not constitute a solution to this problem since it would necessarily lead to a weak cross-over effect. A solution to this problem is provided in Larson (1988), who proposes that event-related adjuncts are contained in vP-shells below the base position of the direct object. This approach, however, fails to account for the comparative dimension and cannot explain the adjunct placement facts in German (cf. Hinterhölzl 2009a).

Alternatively, I adopt Cinque's (1999) approach and follow Barbiers (1995) in assuming that the postverbal position of adjuncts is derived via vP-intraposition. Given that event-related adjuncts introduce predicates on the event-argument of the verb (cf. Davidson 1966; Parsons 1990), I propose that these adjuncts constitute separate phases from the projections of the verb. This will become important when we talk about prosodic domain formation in Section 18.4.1.

In such an approach, one can assume that the direct object in English undergoes scrambling like the direct object in German does, but that it is the lower copy in the vP that is spelled out.[1]

18.2.4 *Mixed word orders and stylistic preferences*

Traditional grammarians have pointed out that word order in older Germanic is less fixed than in their modern varieties and argued that word-order preferences are due to a large degree to stylistic factors. Most notable among these is Behaghel's (1932) statement of the Law of Growing Elements. Behaghel observed that pronouns and unmodified nouns tend to precede the verb, while modified nouns, PPs, and other heavy material tend to follow it. This gives rise to the generalization in (12).

(12) Light elements precede heavy elements in OE, OI, and OHG. (Behaghel 1932)

The statement in (12) raises the question of what *light* means in this context. The first interpretation is that *light* in (12) is to be understood as prosodically light. In the same passage, Behaghel also talks about information-structural weight and the general rule that constituents with greater informative weight follow informationally light elements. As it turns out, both factors make relevant predictions about the unmarked word order in older Germanic.

There is good evidence that prosodic factors and information-structural factors play a major role in determining word order in OI and in OE. In particular, Hróarsdóttir (2006) reports that both factors play a role in OI word order but concludes that prosodic weight was the decisive factor in OI. Furthermore, Taylor and Pintzuk (2008) argue for the relevance of both factors for word-order variation in OE and show that the two conditions, though overlapping, are independent of each other. In the following section, I will show that these factors also govern word order in OHG.

18.3 Prosodic and information-structural constraints in OHG

An important observation about word order in OHG is that pronouns and verb particles do not appear after the selecting verb, that is, in their presumed base position, abstracting away from the effect of V2, while PP-adjuncts and PP-arguments appear predominantly in postverbal position. This property can be related to the Law of Growing Elements, or better related to a prosodic condition which requires that light, non-branching constituents precede the verb, but heavy constituents—that is, phrases containing three words and more—follow the verb.

On the other hand, a careful investigation of the information-structural contribution of arguments and adjuncts in their context gives rise to a different generalization. One basic notion in information structure is the distinction between focus and

[1] This analysis is supported by vP-topicalization effects discussed in Hinterhölzl (2013).

background. Interlocutors make assumptions about the shared information in the conversation (also called *common ground*) and tailor their utterances according to what they believe is already known to the hearer (*background*) and what provides new relevant information (*presentational focus*). It turns out that that in mixed word orders in OHG, the verb serves to separate the background domain from the focus domain in the utterance. This is illustrated in (13) (cf. Hinterhölzl 2010; Petrova and Hinterhölzl 2010). The generalization in (13) will be slightly refined below.

(13) C background V focus

If we look at the role of focus in languages, at least three types of focus must be distinguished: wide and narrow presentational focus, as illustrated in (14a, 14b), and emphatic focus or contrastive focus. In general, focus indicates the presence of alternatives that are relevant for the interpretation of linguistic expressions (Krifka 2008). In the case of an information focus, the alternatives are relatively unrestricted by the conversational background. With contrastive focus, a speaker specifically indicates that he considers relevant an alternative distinct from another alternative already under discussion. (14c) illustrates a case in point. With emphatic focus, the speaker indicates that he is positively or negatively surprised by the relevance of a certain alternative that may be already given or new. In intonational languages like German and English, emphatic focus is expressed by an extra high pitch tone.

(14) a. What did John do? (broad presentational focus)
John [gave a book to Mary]

b. What did John give to Mary? (narrow presentational focus)
John gave [a book] to Mary

c. John gave Mary [a BOOK], not a pen (contrastive focus)

In conclusion, similar to what is reported about OI and OE, both prosodic and information-structural constraints are operative in OHG. The important question now is how these conditions can be defined and how they interact with each other. This is the question to which we will turn in the following section.

18.3.1 On the interaction between IS and prosody in OHG

In this section, I report on the results of a small-scale empirical investigation based on the deviations from the Latin original listed in Dittmer and Dittmer (1998). For this investigation, I assume that non-branching constituents count as light and that branching constituents count as heavy. I investigated the information-structural role of constituents violating the Law of Growing Elements. Of particular interest therefore were non-branching constituents in the postverbal field and heavy, branching constituents in the preverbal field.

A) Cases of preposing: in total, there were 138 cases in which a constituent in the postverbal field in Latin was moved into the preverbal field in OHG. Of these, 102 involved pronominal subjects and objects. Since pronominal constituents are discourse-given and light, their placement follows from Behaghel's Law as well as from the generalization in (13). Thirty cases involve a nominal subject, among which 23 are branching, and the rest are biblical names like *Jesus*, *Johannes*, etc. Six cases involve a nominal object, among which three constituents are branching.

Investigating the cases of preposed branching subjects and objects, I found out that all of them are discourse-given. Typically, these noun phrases involve a demonstrative pronoun, which in the absence of a grammaticalized determiner, indicates that the nominal in question is taken to refer back to a referent introduced in the previous discourse.

B) Cases of postposing: Dittmer and Dittmer (1998) only list ten cases in which an element from the Latin middlefield appears postverbally in OHG. Obviously, this low number is due to the rare presence of a middlefield in Latin. However, it is interesting to note that seven out of these ten cases involve a light element in our terms. Two examples of this type are given in (15) and (16). When we interpret these sentences in their context, it turns out that both elements are narrowly focused.

(15) thisu sprahih iu thaz in mir habet sibba in therru weralti
this I-tell you that in me you-have peace in the world
habet ir thrucnessi
you-have unrest
'This I tell you, that in me, you have peace; in the world, you have unrest'
(T 290, 10)

(16) bidiu uuanta iogiuuelih thiedar sih arheuit uuirdit
therefore everyone who(ever) that REFL lifts-up will-be
giotmotigot inti therdar giotmotigot sih wirdit arhaban
humiliated and the-one humiliates REFL will-be uplifted
'therefore everyone that exalts himself will be humiliated, but the one who humiliates himself will be uplifted' (T 195, 16)

Let us briefly discuss these cases in turn. (15) involves a contrastive statement, in which the preverbal PPs 'in me' and 'in the world' function as contrastive topics (cf. Büring 1997; Frascarelli and Hinterhölzl 2007) and the postverbal DPs provide the relevant alternative, both constituting new information in the overall context.

The most natural reading of the relevant sentence in (16) is 'the one that humiliates HIMSELF will be lifted up'. In modern German, the reflexive, incapable of

carrying main stress, would be reinforced with the particle *selbst*, which carries heavy stress. In OHG, it seems to have been sufficient to move the reflexive into the postverbal domain in order to indicate a narrow focus reading.

C) contrastive focus: Looking closer at the deviations from Latin in the OHG *Tatian* text, it turns out that there is another class of elements that regularly appears in a preverbal position in OHG. Even heavy constituents, including modified DPs and PPs, appear left-adjacent to the verb, when they are contrastively focused, as is illustrated in (17).

(17) niuuizze íz thin uuinistra/ uuaz thin zesuua tuo
NEG-know it your left-(hand) what your right-one does
'your left hand should not know what your right one is doing' (T 67, 5)

Thus, we have to adjust the characterization of the interaction between word order and IS given in (13). Taking into account the role of contrastive focus (CF), the generalization in (18) emerges.

(18) C background CF V presentational focus

The generalization in (18) raises the following questions: A) Why should background information have to precede the verb? B) Why should new information have to follow the verb? C) Why can heavy (branching) constituents that belong to the background or are contrastively focused precede the verb? In Section 18.4, I will argue that (18) follows from the way in which information-structural categories are made visible at the interfaces.

18.3.2 On the nature of the prosodic factor

Above I have simply assumed that a non-branching constituent is prosodically light and therefore I have treated all branching constituents as prosodically heavy. Modern English data show that the overall picture is a bit more complex than this.

It is well known that the English middle field—unlike the German middle field, which allows for heavy constituents—is restricted to light adjuncts only. This is illustrated in (19).

(19) a. John (very) carefully read the book
b. *John with care read the book

The generalization derivable from this data is that the head of the adjunct may be modified to its left, but may not be extended to its right. This difference between English and German has traditionally been captured by the Head-Final Filter (HFF), first proposed by Williams (1982). A generalized version of the HFF is given in (20).

(20) Generalized Head-Final Filter (HFF):
A premodifier must be head-final

While the HFF covers a great number of empirical facts (cf. i.a. Escribano 2009) and thus constitutes a valid empirical generalization, its status as a genuine syntactic condition is problematic for the following reasons.

First, note that HFF-effects do not arise with subjects (the specifier of IP), PP-frames, and specifiers of other functional heads in the C-domain. This is illustrated in (21). This raises the question of why the condition should apply to modifiers, but not to specifiers.

(21) a. [Students [of linguistics]] read Chomsky a lot
b. [On [Tuesday evening]] I will take out Mary for dinner
c. [In [which city]] did John meet Mary?

A second question concerns the issue of its cross-linguistic application: it applies in the I-domain of VO-languages, but fails to apply in this domain in OV-languages. A possible answer to this is that the HFF is somehow linked to the Head-Complement parameter. This line of approach leads to a peculiar conclusion, namely that its application in a VO-language like English has the effect that certain types of phrases must be head-final in an otherwise categorically head-initial language.

Third, what is the status of the HFF in the grammar? The HFF is not a likely candidate for being a syntactic condition. In newer treatments of modifiers as specifiers of functional heads in the extended projection of the modified category (Cinque 1999), the HFF can no longer be stated as a genuine syntactic generalization based on the specific configuration of adjunction. Within current minimalist theory, it is best treated as a bare output condition at the PF interface since order and adjacency are taken to be irrelevant to narrow syntax. Note furthermore that the condition, as stated in (20), cannot be a genuine PF-condition either, since the structural difference between specifiers and modifiers is no longer visible at PF. It is generally assumed that prosody has (restricted) access to syntactic structure (cf. Selkirk 1984; Nespor and Vogel 1986).

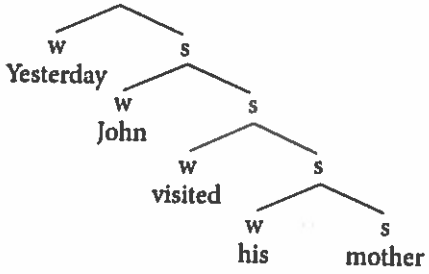
HFF-effects are reminiscent of weight effects in foot-construction systems at the word level (cf. Halle and Vergnaud 1987). In weight-sensitive systems, a heavy syllable must occupy a dominant branch in the metrical structure. In a parallel fashion, I would like to propose that a heavy syntactic phrase has to appear on a dominant branch in the syntactic structure, if the mapping between syntax and prosody happens to be weight-sensitive in a given domain. This raises the following two questions: a) When does a syntactic phrase count as heavy? And b) What counts as the dominant branch in syntactic structure?

A syllable counts as heavy if its right branch, the rhyme, is itself branching, the complexity of the onset being immaterial for computing its weight. The parallelism between syllable structure and the X'-schema suggests the definition of syntactic weight given in (22), deriving the classical HFF-effects.

(22) A syntactic phrase XP counts as heavy if both its head X and the complement of X contain lexical material.

HFF-effects can be avoided by placing the adjunct after the modified head, indicating that the dominant branch in prosodic structure should be identified with a right branch in syntactic structure. In anti-symmetric syntax, the right branch constitutes the recursive branch. A standard metrical interpretation of a binary branching tree assigns the metrical value *strong* (s) to the right-hand branch at each projection level, as is illustrated in (23).

(23) Yesterday John visited his mother



The metrical interpretation of the syntactic tree in (23) makes clear why HFF-effects should apply to premodifiers, since a left branch is less prominent than the respective nominal or verbal head. It also makes clear why the postnominal/postverbal placement of a heavy adjunct discards the effect: in this case, the heavy syntactic constituent occupies a more prominent branch than the head with which it is going to form a prosodic constituent, suggesting the relevance of the interface condition in (24).

(24) The weight condition (PF-transparency):
A heavy specifier in a given domain must occupy a more prominent branch than the selecting/modified head in prosodic structure, if this domain is weight-sensitive.

The metrical rendition of HFF-effects makes the following prediction in the present approach, in which arguments are taken to be licensed in Specifiers of functional heads in the I-domain. Assuming that the weight condition applies in the English I-domain, but fails to apply in the German I-domain, heavy DP- and PP-arguments are predicted to be spelled out in their base position in English, but may be spelled out in their licensing position in German.

This approach raises the following questions: why does the weight condition not apply to subjects in English and why is movement into the C-domain not subject to the weight condition at all, as is indicated by the data in (21b, 21c)? One possible answer is to assume that weight-sensitivity is defined phase by phase.

Some evidence for this assumption is given in Hinterhölzl (2009a). He argues that while the German I-domain is not weight-sensitive, the German v-domain is weight-sensitive; this is to account for restrictions on word order in the verbal complex and leads to a typology of phases and subphases from which these facts follow.[2]

In the following section, I discuss how the prosodic rendition of the HFF fits into general assumptions about the syntax-prosody interface.

18.4 On the mapping between syntactic and prosodic structure

Because of the special role of accents in the focus-background articulation of intonational languages, most researchers favour an accent-first-based approach to the mapping between syntactic and prosodic structure (cf. Gussenhoven 1983; Uhmann 1991; Selkirk 1995; Truckenbrodt 1999). In these accounts, prominence relations in the clauses are adjusted to accent patterns that are derived from syntactic structure with the help of focus projection rules. For instance, in Uhmann (1991), it is assumed that accented syllables are metrically reinforced by receiving an extra beat after accent assignment.

As said above, the core of these accounts consists in focus projection rules (Selkirk 1995), which serve to derive the focus domain for a given accented constituent or vice versa, so as to derive the placement of the sentence accent (nuclear accent) for a given focus domain.

Büring (2002) proposes that focus projection rules can be dispensed with in a system in which (metrical) prominence relations are taken into account. He also argues that such a prominence-based system (also called *stress-first-based accounts*) additionally captures the default prosody in prefocal structures.

Consequently, I will adopt a stress-first-based approach (cf. Halle and Vergnaud 1987; Ladd 1996), which assumes that accent positions in the clause are (also) determined by prominence relations.

18.4.1 Prosodic domain formation in a phase-based approach

There are two basic approaches to deriving prosodic structure from syntactic structure. End-based approaches (cf. Selkirk 1984) match boundaries of syntactic constituents with prosodic boundaries. These alignment rules are best expressed in an OT-like account (cf. Truckenbrodt 1999). In relation-based approaches (cf. Nespor and Vogel 1986; Wagner 2005), on the other hand, prosodic constituents are built around lexical heads on the basis of the relations they entertain with adjacent constituents. The two approaches differ in the assumption of how much syntactic information is available at the interface: while end-based approaches only assume the visibility

[2] The reader is referred to Hinterhölzl (2009a, 2013) for an account of why subjects in English and constituents in the C-domain are weight-insensitive.

of syntactic boundaries, relation-based approaches assume the visibility of syntactic relations expressed within the X'-schema.

In this respect, note that it has been argued that prosody must have access to syntactic structure (cf. Gussenhoven 1983; Krifka 1984), since arguments in German and Dutch are phrased with the adjacent verb, while an adjunct and an adjacent verb form two separate phonological phrases. This is illustrated in (25). In the following, I will use round brackets to indicate phonological phrases, square brackets to indicate intonational phrases, and underlining (of the prosodic word) to indicate main stress.

(25) a. [(weil Hans) (im Zelt blieb)]
since Hans in.the tent remained
'... because Hans stayed in the tent'

b. [(weil Hans) (im Zelt) (rauchte)]
since Hans in.the tent smoked
'... since Hans smoked in the tent'

Wagner (2005) proposes that there are two modes of prosodic composition which take into account whether an argument or an adjunct follows or precedes its selecting/modified head. To account for the differences in prosodic phrasing between German and English, illustrated in (26), Wagner proposes that subordination applies to a head and its preceding argument and creates a joint prosodic constituent, while sister matching applies to a head and the argument following it and derives two separate prosodic constituents that may optionally be restructured at a later point in the derivation.

(26) a. [(weil Hans) (das Buch las)]
since Hans the book read
'... since Hans read the book'

b. [(since John) (read the book)]

c. [(since John) (read) (the book)]

In analogy to Wagner (2005), Hinterhölzl (2009a) proposes two modes of prosodic composition, which, however, are not directionality-based, but instead take into account the phasal status of two adjacent syntactic constituents. This is illustrated in (27).

(27) Modes of prosodic composition (Hinterhölzl 2009a)
a. subordination: (DP) + V → ((DP) V)
b. coordination: (PP) & V → (PP) (V)

Subordination applies to constituents that belong to the same phase (the verb and its arguments), irrespective of their relative order, and creates a recursive prosodic constituent, in (27a) a recursive phonological phrase. Coordination, in turn, applies to constituents that belong to separate phases, irrespective of their relative order, creating two separate prosodic constituents of the same type, in (27b) two separate phonological phrases. Remember that adjuncts constitute separate phases in the present approach.

Recursive prosodic categories are eliminated at a later level by restructuring operations and the deletion of outer boundaries that take into account global parameters like rate of speech, length, and branchingness of prosodic constituents.

In this approach, it is assumed that prosodic composition follows the syntactic composition in a bottom up fashion. That is, parallel to syntactic composition, two prosodic constituents are combined according to the two modes in (27) and a head is determined, according to (28). This head is assigned an extra beat on the higher line, deriving a bracketed grid representation as in Halle and Vergnaud (1987).

(28) a. *Extrinsic heading (default value)*:
In prosodic composition, the right-hand member is metrically stronger than its sister constituent.

b. *Intrinsic heading*:
In the combination of two distinct prosodic constituents, the constituent that is higher on the hierarchical layer counts as metrically stronger than its sister constituent.[3]

Languages may differ in whether they allow only for extrinsic heading or also for intrinsic heading. Intrinsic heading is necessary to account for the main prominence on the direct object in German. As is shown by the position of manner adverbs in (29), the direct object must be assumed to move out of vP in a Cinque-type approach to modification, and it is spelled out in a position that is structurally higher than the verb, obliterating an account of main-sentence stress in terms of the null theory of Cinque (1991). Without intrinsic heading, main stress would be predicted to fall on the verb in German, contrary to fact. With intrinsic heading, the direct object may receive main stress in a phase-based system for the following reason: at the point of the derivation in which the verb (a prosodic word) is combined with the direct object, the latter has already been mapped onto a phonological phrase (by default), deriving a joint prosodic category whose head is (the prosodic constituent corresponding to) the direct object.

(29) a. weil Hans einen Brief sorgfältig las
since Hans a letter carefully read
'... since Hans read a letter carefully'

[3] I will refer to this effect as *strength-sensitivity* parallel to the case of weakness-sensitivity triggered by discourse-given constituents to be discussed in the following section.

b. weil Hans sorgfältig einen Brief las
since Hans carefully a letter read
'. . . since Hans carefully read a letter'
(only subject-oriented reading is possible)

In the following section, I discuss the complex interaction between prominence, accent assignment, and information-structural categories.

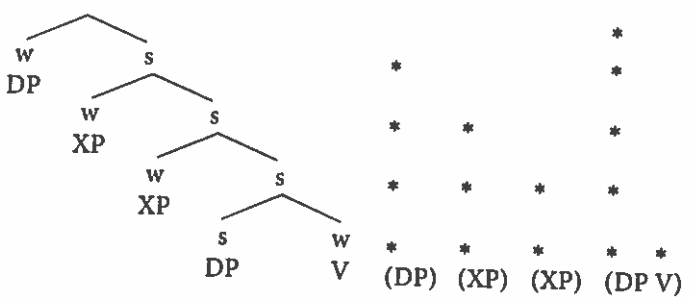
18.4.2 Focus, prominence, and rules of accent placement

Adopting a stress-first-based account (cf. Ladd 1996), I assume that accent assignment applies after prosodic domain formation and assigns an accent tone to each prosodic constituent. In particular, I assume that a word-level accent is assigned to each prosodic word, a phrase-level accent is assigned to each phonological phrase, and a sentence accent, usually called the 'nuclear accent', is assigned to each intonational phrase of the utterance, according to the principle in (30).

(30) The accent must fall on the metrically most prominent syllable in a prosodic domain.

If we assume, following Halle and Vergnaud (1987) as outlined above, that the labelled tree is converted into a bracketed grid representation during prosodic evaluation, the relative strengths of the several accents in the clause can be derived. This is illustrated in (31) for a putative German sentence comprising a subject DP, two adjunct XPs, a direct object DP, and the verb.

(31)



However, prosodic structure is not only determined by and derived from syntactic structure, as illustrated in (31), but it is also crucially determined by information structure (IS). In particular, it must be ensured that the focused constituent in an utterance is assigned the main stress, independently of its position in the clause. Thus, Jackendoff (1972) argued for the introduction of a syntactic feature F (for focus), which is interpreted both at PF and LF, with the PF-interpretation given as in (32) below. A similar constraint is also proposed in Truckenbrodt (1995), as given in (33).

(32) Prosodic Effect of F (Jackendoff 1972)
F attracts the strongest stress of the sentence.

(33) Focus Prominence (Truckenbrodt 1995)
Focus needs to be maximally prominent.

I assume the following condition for the mapping between accent and focus in intonational languages like German and English.

(34) The focused constituent must contain the most prominent accent in the clause.

How can focus prominence be achieved in a stress-first-based system? Note that in such a system the relative strength of an accent depends on its metrical value in the clause. If the mapping between syntactic structure and prosodic structure is monotonic, then there must exist a direct mapping relation between metrical values and IS-categories. Accent-first-based systems assume a special interface condition for constituents representing background information, usually marked with the feature G (for given information), as is illustrated in (35). In analogy to the condition in (35), I assume the condition in (36).

(35) Prosodic effect of G (Fery and Samek-Lodovici 2006)
G rejects sentence and phrasal stress.

(36) Background-Transparency
A given constituent must occupy a weak position in prosodic structure.

Note that there are basically two ways of satisfying a condition like (36). A) A given argument moves out of its postverbal (strong) base position and is spelled out in a preverbal position, which necessarily counts as metrically weak. B) The default value assigned in prosodic composition to a given postverbal constituent is overridden by projecting its intrinsic prosodic value, namely weak, in prosodic composition. We have a case of deaccenting *in situ*, which, in the present system, represents the third case of sensitivity to inherent metrical properties in prosodic domain formation.

Parallel to the condition in (36), I will assume the condition in (37) for constituents pertaining to the focus domain of the utterance.

(37) Focus-Transparency
A constituent representing new information must occupy a strong position in prosodic structure.

How can this condition be satisfied? The simplest option is that an argument undergoes licensing movement, but is spelled out in the vP in a postverbal position where it occupies a strong branch with respect to the verb. Another option in which focus can interact with metrical structure is more indirect and involves the insertion of a functional head in syntactic structure. Such a head, typically called Focus and found

in the left periphery of the clause (cf. Rizzi 1997) must be assumed to have the property, next to its LF-property of introducing alternative values for an open proposition (cf. Rooth 1992; Krifka 2007), of assigning the metrical value *strong* to its specifier (the focused constituent) and the metrical value *weak* to its complement, which represents the presupposition of the utterance. In many languages, this strategy is reserved for emphatic or contrastive focus, while information focus is often unmarked and can be handled most naturally by dictating spell-out options as assumed above. Returning to the generalization in (18), I propose that OHG had such a specialized focus position in the middle field, which was predominantly used for contrastively focused constituents.

18.5 Conclusions

With these assumptions about the interface between syntax, prosody, and IS in place, let us now return to the OHG data in Section 18.3. There are in fact two (different) motivations for spelling out an argument in the vP. Weight-sensitivity requires heavy constituents to be spelled out in a postverbal position, and constituents that belong to the domain of new information will also, independently of their prosodic weight, be spelled out in the vP, due to focus-transparency. Preverbal heavy constituents that are contrastively focused do not represent an exception to the weight law since the latter only requires heavy constituents to occupy a strong branch with respect to the verb and, as stated already, the specifier of a specialized focus position counts as metrically strong. Given constituents are spelled out in the preverbal domain. This follows from background transparency.

There are two cases that remain problematic at this point. First, it is not clear what forces verb particles to be spelled out preverbally since there is no specific interface condition that requires light elements to be spelled out preverbally. There are two options to resolve this issue. Either we assume a default condition on spell-out, as given in (38), or we assume that there is a specific interface condition on complex predicate formation which requires that particle and verb form a prosodic unit with the default pattern being (s w), as is generally the case in compounding in Germanic. I will leave this issue for further research.

(38) Preference for the higher copy:
A constituent is spelled out in its checking position, unless interface requirements demand its spell-out in the base position.

Second, there remains the issue of why branching given constituents do not violate the weight law in OHG. Also in this case, there are two options for resolving the issue. As we said above, most of these cases involve a noun modified by a demonstrative determiner. Either we assume that the demonstrative element still occupied SpecDP with D empty, such that this phrase does not count as prosodically heavy (in other words the determiner was not grammaticalized yet in the OHG *Tatian* translation), or we assume that given constituents were moved into the C-domain in OHG, which is generally not subject to the weight condition, as argued in Hinterhölzl (2013). Both assumptions, however, require more research to explore them in detail, which goes beyond the scope of this chapter.