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75 Verb Clusters, Verb Raising, and Restructuring

SUSI WURMBRAND

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Sections

1 Introduction

The term 'verb cluster' refers to constructions involving more than one verbal element, such as the examples in (1). The notation in this chapter will follow common practice used in works on verb clusters, which is to label the different verbal elements with numbers representing the hierarchical (i.e., deep-structure or selectional) order of the elements. In particular, ascending numbering will be used such that the structurally highest verb (i.e., the verb that scopes over all other verbs) is assigned 1, the next highest 2, etc. As the examples in (1a–c) show, in a language like English, the linear order of verbs in a verb cluster strictly follows the hierarchical order in that a verbal complement follows the selecting verb. To express, for instance, a sense that John is required to have the desire to leave, a sentence like (1a) would be used, whereas the sense that John has a desire to be required to leave would be expressed by a sentence like (1b). In a language like German, on the other hand, the linear order of verbs in a verb cluster corresponds to the opposite hierarchical order: as can be seen in (1d), the verbs appear in a descending 3–2–1 order – i.e., hierarchically lower verbs precede hierarchically higher verbs:

(1)

English vs. German:

a. John has to (1) want to (2) leave. (3)
b. John wants to (1) have to (2) leave. (3)
c. that John must (1) have (2) been (3) elected (4)
d. daß Hans gewählt (4) worden (3) sein (2) muß (1)
that Hans elected become be must

The contrast between (1c) and (1d) might not appear particularly surprising, given that the order between heads and complements is often inverted in the two languages. However, looking in more detail at the distribution of verb clusters in German and other West Germanic languages and dialects, it has been observed that the situation is in fact far more complex in that not only ascending and descending word orders are possible, but also (in at least certain languages and constructions) various other combinations. To give an illustration of (some aspect of) the verb-cluster phenomenon, consider Swiss-German. As is shown in (2) (cf. Schönenberger 1995: 382), constructions involving two modal verbs can (at least for certain Swiss speakers) be expressed with a fully ascending order of the verbs (cf. the 'English' order in (2a)), with a fully descending order as in (2b), or with mixed orders such as the 1–3–2 order in (2c) and the 3–1–2 order in (2d). Importantly, all versions of (2) have the same meaning – i.e., *want* takes scope over *can* and not vice versa.

(2)

Swiss-German – double modal construction:

a. das er . . . wil chöne vorsinge
that he . . . wants (1) can (2) sing (3)
b. das er . . . vorsinge chöne wil
that he . . . sing (3) can (2) wants (1)
c. das er . . . wil vorsinge chöne
that he . . . wants (1) sing (3) can (2)
d. das er . . . vorsinge wil chöne
that he . . . sing (3) wants (1) can (2)

All: 'that he wants to be able to sing'

Beside differences among languages or dialects in the order of the verbal elements of a cluster, the distribution of verb clusters is also subject to various language-internal properties. As is illustrated by the contrast between the examples in (2) and in (3) (all from Swiss-German), different types of constructions do not necessarily allow the same orders. While double modal constructions can be represented by the four orders in (2), a modal(1)-auxiliary (2)-participle(3) construction is best in 1–3–2 order, accepted by some speakers in 3–2–1 order and 3–1–2 order, and excluded in 1–2–3 order:

(3)

Swiss-German – modal-auxiliary-participle construction:

a.	wil	er	si	mues		gsee		ha	
	since	he	her	must	(1)	seen	(3)	have	(2)
b.	%wil	er	si	gsee		ha		mues	
	since	he	her	seen	(3)	have	(2)	must	(1)
c.	%wil	er	si	gsee		mues		ha	
	since	he	her	seen	(3)	must	(1)	have	(2)
d.	*wil	er	si	mues		ha		gsee	
	since	he	her	must	(1)	have	(2)	seen	(3)

All: 'that he must have seen her'

In the context of verb clusters a number of interesting empirical and theoretical questions have been raised, which this chapter attempts to summarize. Beginning with the empirical characterization – i.e., the determination of the (im)possible orders of verbal elements in different constructions and different languages and dialects – a phenomenon one is immediately struck by is the notable speaker, language, and dialect variation found in this area. It has long been known that among the West Germanic languages, closely related languages (in particular, languages with comparable syntactic properties) diverge significantly in the distribution of verb clusters. For instance, while Dutch and German are quite similar regarding the general layout of their syntactic structures, they show the exact opposite word orders in many verb-cluster constructions. Apart from these well-known differences among languages, recent dialect studies have revealed that the distribution of verb clusters also shows significant microparametric variation and that in addition to the 'standard' word orders reported in grammars, many other orders are possible in certain dialects as well. Some aspects of this complex distribution and the variation attested in verb clusters will be presented in section 2.

To see what the basic theoretical questions are that have been addressed in the works on clusters, we begin with a very simple example: an auxiliary-participle construction (i.e., a verb cluster involving two verbal elements). As is shown in (4), Dutch allows both of the two possible orders between these elements.

(4)

Dutch – auxiliary-participle construction:

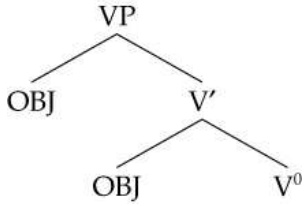
a.	dat	Jan	het boek	gelezen		heeft	
	that	Jan	the book	read	(2)	has	(1)
b.	dat	Jan	het boek	heeft		gelezen	
	that	Jan	the book	has	(1)	read	(2)

The first question raised by the distribution in (4) is whether the two orders are both basic orders (i.e., whether the two verbs are freely generated in any order) or whether there is a derivational relation between the two orders. The predominant view in the works on verb clusters is that only one of the orders in (4) is the basic order and that the other order is derived. The details of (i) what the basic order is and (ii) how the reordering is derived, however, are far from being agreed upon and have led to very interesting discussions among researchers interested in the topic.

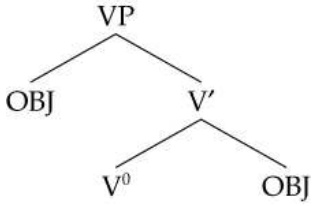
One such issue is the question of whether languages like German and Dutch involve a head-initial or a head-final base structure. The traditional view is that the verb is base-generated to the right of its complement in Dutch and related languages (cf. (5a)), since objects generally precede the verbs in these languages. A more recent view, on the other hand, which has been inspired by Kayne's (1994) Linear Correspondence Axiom (LCA), is that all languages involve a basic head-initial structure (cf. (5b)) and that the final position of the verb is derived by leftward movement of the complement:

(5)

a. **Head-final structure:**



b. **Head-initial structure:**

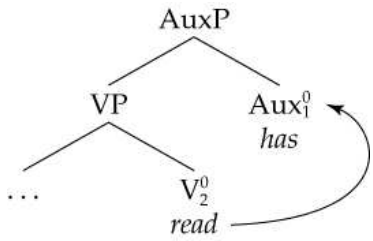


Assuming the different orders in verb clusters are not base-generated but derivationally related, one obviously has to pick one of the structures as the basic structure. An interesting question then is whether the distribution of verb clusters provides any indication for the superiority of one of the approaches in (5). As we will see in the course of this chapter, the mechanical derivation of the possible word orders is fairly trivial under both a head-final and a head-initial structure, given generous assumptions about movement possibilities. To give a basic

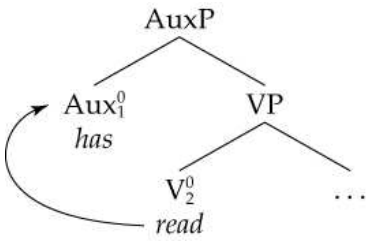
illustration, consider again the two orders in (4). Assuming a basic head-final structure (cf. (6a)), nothing is required to derive the 2–1 order, whereas the 1–2 order would require reordering such as rightward movement of the lower verb or verb phrase. Assuming a basic head-initial structure (cf. (6b)), nothing is required to derive the 1–2 order, whereas the 2–1 order would require reordering such as leftward movement of the lower verb or verb phrase:

(6)

a. **Head-final structure:**



b. **Head-initial structure:**



Thus, this overview will show that the question of whether one of the two approaches in (6) is superior cannot be determined on purely empirical grounds. The more interesting question then is whether one of the two approaches is superior in terms of its explanatory power. Comparing representative examples of both approaches, the conclusion this chapter will reach (see section 3.4) is that the choice between the two approaches can only be made in conjunction with the choice of a particular syntactic framework or aspect of a syntactic theory, and hence the decision between the head-final and the head-initial structure is largely a subjective one.

Besides the directionality issue, questions that have been discussed concerning the actual derivation of the different orders in verb clusters (i.e., the technical implementation of the arrows in (6)) include the question of whether the reorderings involve head-movement or phrasal movement, the question of what the target positions are, the question of what the triggers for the reorderings are, and the question of where the reorderings apply (i.e., surface structure, PF, LF). Furthermore, an interesting issue that is raised by verb clusters is the question of what elements are involved in clustering phenomena. As we have seen in the Swiss examples in (2) vs. (3), verb clusters are not homogeneous constructs (in one and the same language), but rather, different orders depend crucially on the category of the elements involved. In general, clustering phenomena are found with auxiliaries and modal verbs. In some languages, other so-called 'restructuring verbs' (which include, for instance, *try*, *begin*, *dare*) also participate in various reordering phenomena. Since in many approaches, auxiliaries and modal verbs are distinguished from full main verbs, the distribution of verb clusters also raises interesting questions regarding the general architecture of clauses, the classification of verbal elements (auxiliaries vs. main verbs, functional vs. lexical categories, thematic vs. non-thematic verbs), and the issue of restructuring.

The aim of this chapter is to present the progress that has been made in answering these questions. The works on verb clusters have brought to light a wealth of fascinating facts, and among the numerous interesting proposals on the topic, many insightful explanations have been offered as answers to the issues mentioned. There is, however, one question which has not received a fully satisfactory answer yet. As we will see in the course of this overview, many interesting accounts have been suggested addressing the question of *how* verb clusters are derived. However, what still appears to be an open question is that of *why* the elements of a verb cluster are inverted in certain languages and constructions. An answer to the question of what the (deep) motivation of verb-cluster formation is and why this phenomenon exists only in certain languages is still outstanding, and any new insight into this question would be highly beneficial not only to the study of verb clusters and restructuring, but also to our general understanding of clause structure and the architecture of grammar.

This overview is organized as follows. Section 2 presents a summary of the empirical situation of verb clusters as attested so far in some West Germanic languages and dialects, and provides a descriptive account along the lines of the analysis developed in Haegeman and Van Riemsdijk (1986). Section 3 addresses the questions of whether verb-cluster reordering involves head or phrasal movement, what the motivation of verb-cluster reordering is, and whether a head-final or a head-initial approach can be considered to be superior. Finally, section 4 presents an overview of the restructuring phenomenon and summarizes the major findings related to this topic.

2 Empirical overview

2.1 Verb-cluster languages

To define the set of languages that display verb-cluster phenomena, various criteria have been invoked depending on the theoretical background assumptions. The most common criterion is word order: a language is a verb-cluster language if it does not display a rigid word-order pattern in multiple verb constructions – i.e., if the unmarked order of verbal elements is different from the underlying order in at least one construction.[1] Languages that fall into this category (independently of whether one takes the underlying order to be a head-final or a head-initial order) are Afrikaans, Dutch, German, Swiss-German, West Flemish (including all the dialects of these languages), and Hungarian. Setting aside Hungarian, which differs from the other languages in many respects, the

remaining languages have all traditionally been characterized as head-final. However, the correlation between the head-final nature of these languages and verb-cluster formation might also be challenged. First, apart from Hungarian, one could see Yiddish as a counter-example to the generalization that all head-initial Germanic languages display a rigid 1-2-3 order. Since Yiddish, which many researchers treat as a head-initial language, allows optional reordering of passive participles in multiple verb constructions (cf. Den Besten and Moed-van Walraven 1986), Yiddish could be classified as a head-initial verb-cluster language. Second, it can be debated whether all head-final Germanic languages indeed display verb-cluster phenomena. Frisian, for instance, features a rigid 3-2-1 order in modal and auxiliary constructions (i.e., configurations that typically show clustering effects in other languages; see sections 2.2 and 2.3). Assuming an underlying OV structure, Frisian thus would not involve any verb-cluster reordering. If, however, the empirical domain is extended to include *te/to/zu*-infinitives, certain reorderings are obligatory (cf. De Haan 1992, 1993, 1996), and hence Frisian would qualify as a verb-cluster language, allowing us to maintain the generalization that all head-final Germanic languages are verb-cluster languages.

In light of more recent approaches – in particular, approaches that are based on the Universal Base Hypothesis (cf. Kayne 1994) – the 'head-initial' vs. 'head-final' distinction is not a grammatical notion, since all languages are considered to be organized along a head-initial schema. Hence, the generalization noted above cannot be stated by referring to the directionality setting of the base structure. Thus, in these approaches, verb-cluster languages do not share an underlying typological property, but are rather defined by the overt/covert settings of various movement operations or the factors that trigger verb-cluster formation itself.

A further commonality of the (Germanic) verb-cluster languages that has been noted in the works on verb clusters is the so-called Infinitivus Pro Participio ('Infinitive For Participle', or IPP) effect. As illustrated in (7), Dutch modal verbs that occur in a perfective construction (i.e., under the auxiliary *have*) do not show up as participles but rather as infinitives (the same is the case for causative and perception verbs, as well as other restructuring verbs in Dutch):

(7)

Dutch – Infinitivus Pro Participio (IPP):

a. dat Jan het boek heeft kunnen lezen
that Jan the book has (1) can-IPP (2) read (3)
'that Jan has been able to read the book'

b. *dat Jan het boek heeft gekund lezen
that Jan the book has (1) can-PART (2) read (3)
'that Jan has been able to read the book'

The IPP effect is found in Dutch, German, and West Flemish – i.e., languages that are also classified as verb-cluster languages.[2] Thus, an interesting question arising from this first generalization is whether there is a strong or weak correlation between the IPP effect and verb-cluster formation (i.e., whether it is the case that all languages displaying the IPP effect also involve verb-cluster reordering and/or whether it is the case that all languages involving clustering also display the IPP effect). Other languages that have to be considered in this respect are Afrikaans, Frisian, and Swiss-German. Note first that Afrikaans and Swiss-German, which are other clustering languages (again independently of the base structure), appear to be irrelevant for the present issue, since these languages do not distinguish between infinitives and participles, and hence, it is not testable whether these languages display the IPP effect (cf. Robbers 1997 for Afrikaans and Schönenberger 1995 for Swiss). Turning to Frisian, it has been noted that Frisian permits only rigid descending (i.e., 3-2-1) orders in multiple-verb constructions (except – as pointed out above – in constructions with *to*-infinitives); thus, under a head-final base structure, no reordering takes place in these constructions in this dialect. If the IPP effect is only found when reordering takes place we would expect that Frisian should not display the IPP effect. According to what is reported in the literature, this seems to be correct. It has been pointed out by a number of researchers (cf., for instance, De Haan 1992; Hoekstra and Taanman 1996; IJbema 1997) that Frisian lacks the IPP effect (in the descending order).[3] Thus, we can state a one-way generalization between languages that involve verb-cluster reordering and languages that display the IPP effect: IPP is only found in languages that divert from the strict descending 3-2-1 order. Although this correlation appears to be quite striking and is unlikely to be accidental, it is not clear what property of grammar it targets and what its importance is. The reason is that this correlation is an indirect generalization about languages and not about a causal relationship between the properties involved (verb-cluster formation and the IPP effect). To strengthen the IPP/verb-cluster correlation, it has therefore been suggested that there is in fact a direct causal relationship between the IPP effect and verb-clustering (see, for instance, Den Dikken 1989; Van der Meer 1990). This step, however, has to be taken with some caution (see IJbema 1997 for a critical overview of this issue).

Although a detailed illustration will be postponed until section 2.3 (see in particular table 75.2), it should be mentioned at this point that (i) the IPP effect is licensed in the presence and absence of verb-cluster formation; and (ii) verb-cluster formation takes place in the presence and absence of the IPP effect. Regarding the first point, it is the case that independently of what one considers to be the base structure for the languages under consideration, there are constructions displaying the IPP effect but lacking verb-cluster reordering (assuming a

head-final base structure, certain Austrian and German dialects would be problematic for the claim that the IPP effect is triggered by or tied to verb-cluster reordering; assuming a head-initial base structure, Dutch, Swiss-German, and West Flemish IPP constructions would be problematic for this claim). Thus, verb-cluster reordering cannot be seen as the (sole) cause of the IPP effect. Regarding the second point, we will see that verb-cluster formation takes place in all types of constructions (e.g., double modal constructions, auxiliary-participle constructions) and is not restricted to IPP constructions. Furthermore, IJbema (1997) also shows that there are dialects such as Achterhoeks where, although reordering takes place in potential IPP constructions, the IPP effect nevertheless does not occur or is optional in these constructions. Thus, the IPP effect cannot be considered to be the cause for clustering.

In sum, while there are interesting generalizations between verb-cluster reordering and the directionality setting of a language as well as the IPP effect, the generalizations are only one-way and direct causal relationships between these properties cannot be established. In what follows, an overview of the distribution of verb clusters in West Germanic will be provided (Hungarian is set aside here; the reader is referred to Koopman and Szabolcsi 2000). Since the majority of works on verb clusters concentrate either on a single construction or on a single language or dialect, it is sometimes hard to see how particular word orders and specific theoretical claims and analyses relate to a more global characterization of this phenomenon. The aim of the following overview is hence to present a summary of the verb-cluster patterns as documented for the major West Germanic languages and dialects. While this empirical overview has the aim of presenting the verb-cluster patterns for all major constructions in any given language, it also has to be kept in mind that it is by no means an exhaustive characterization – in particular, many interesting micro-parametric differences cannot be distinguished here. The overview will then form the basis for the subsequent review of the theoretical accounts of the verb-cluster phenomenon.

2.2 Two-verb clusters

The constructions involving verb clusters with two verbs are auxiliary-participle constructions (e.g., *John has left*) and auxiliary/modal-infinitive constructions (e.g., *John will/must leave*). Table 75.1 summarizes the possible word orders for two-verb clusters in a number of West Germanic languages/dialects; data illustrating these orders are provided in the appendix to this chapter.

The following three generalizations emerge from the languages/dialects investigated so far. First, the distribution of auxiliary-participle constructions does not (necessarily) coincide with the distribution of modal-infinitive constructions. In Afrikaans, Dutch (when 1 is non-finite), Swiss-1, and West Flemish, the orders vary with respect to the constructions involved – i.e., there is no general (1-2 or 2-1) word order schema for two-verb clusters in these languages. Note in particular that in Afrikaans and West Flemish, where only one order is possible in each construction, the order required in the auxiliary-participle construction is excluded in the modal-infinitive construction (and vice versa). Second, the 2-1 order is possible in all dialects for auxiliary-participle constructions. In other words, no dialect requires the 1-2 order in this construction (this is again different in the modal-infinitive construction). Third, if the 1-2 order is possible in an auxiliary-participle construction it is also possible in the modal-infinitive constructions (but not vice versa).

Table 75.1 Verb clusters with two verbal elements

Language	Aux-Part	Mod-Inf
Afrikaans	2-1	1-2[a]
Dutch (1 = finite)	1-2	1-2
	2-1	2-1
Dutch (1 = non-finite)	1-2	1-2
	2-1	
Frisian	2-1	2-1
German	2-1	2-1
Swiss-1	2-1	2-1
		1-2
Swiss-2	2-1	2-1
	1-2	1-2
West Flemish	2-1[b]	1-2

Notes:

[a] *Come* + INF allows the 2-1 order (Robbers 1997).

[b] 1-2 is possible if 2 is followed by an extraposed PP or CP (Haegeman 1995a: 53; 1998c: 294).

Sources: References are given only for cases that might be considered to be controversial or are not well established.

Swiss-1: Schönenberger (1995); Haeberli (p.c.); Van Riemsdijk (p.c.).

Swiss-2: Schönenberger (p.c.; Bernese), Hsiao (1999, p.c.).

Frisian: Quoted from Zwart (1996) and IJbema (1997); confirmed by the results of a questionnaire conducted by Peter Ackema.

Given the distribution in table 75.1, dialects can be grouped into five types: (i) dialects with rigid 2–1 order (German, Frisian); (ii) dialects with rigid 2–1 order in auxiliary–participle constructions, but flexible order in modal–infinitive constructions (Swiss–1); (iii) dialects with flexible order in both constructions (Swiss–2, Dutch when 1 is finite); (iv) dialects with flexible order in auxiliary–participle constructions and finite modal–infinitive constructions, but rigid 1–2 order in non–finite modal–infinitive constructions (Dutch when 1 is non–finite); and (v) dialects with rigid 2–1 order in auxiliary–participle constructions and rigid 1–2 order in modal–infinitive constructions (West Flemish, Afrikaans). What appears to be unattested (at least to this end) are, first, dialects that display clustering effects but only allow a 1–2 order for auxiliary–participle constructions, and, second, languages that allow a flexible order for auxiliary–participle constructions but a rigid 2–1 order for modal–infinitive constructions.

2.3 Three-verb clusters

The five major types of constructions involving verb clusters with three verbal elements are: double modal constructions, two types of auxiliary–modal constructions, modal–auxiliary constructions, and double–auxiliary constructions.[4] Examples are given in an abstract form in (8) (English words are used to illustrate the constructions, but of course, some of the examples would be impossible in English, since modals can only be part of a multiple–verb construction when they are the highest verbal element in English). Constructions involving infinitival complements with an infinitival marker (*to*, *zu*, *te*, etc.) are not considered in this section (see section 3.1.3 and section 4):

(8)

a. **Mod–Mod–V:** John must (1) can (2) sing. (3)
FIN (1) INF (2) INF (3)
'John must be able to sing.'

b. **Aux–Mod–V:** John will (1) must (2) sing. (3)
FIN (1) INF (2) INF (3)
'John will have to sing.'
John has (1) must (2) sing. (3)
FIN (1) IPP (2) INF (3)
'John has had to sing.'

c. **Mod–Aux–V:** John must (1) have (2) sung. (3)
John must (1) be (2) elected. (3)
FIN (1) INF (2) PART (3)

d. **Aux–AUX–V:** John has (1) been (2) elected. (3)
FIN (1) PART (2) PART (3)

The distribution of these constructions in various West Germanic languages and dialects is given in table 75.2 (for examples the reader is referred to the appendix to this chapter). Note that the rows 'German and Austrian dialects' and 'Swiss dialects' refer to the superset of various dialects (i.e., there are speakers who accept all the orders listed, however, there are also speakers who only accept subsets of these orders). The reader is referred to Hsiao (1999, 2000) and Wurmbrand (2000, 2004) for some more refined characterizations of the distribution in different dialects. If a cell contains more than one option, the word orders are given in order of preference where the highest order one is the most preferred option. Furthermore, it should be noted that column 4 (i.e., 'AUX–MOD–V; FIN–IPP–INF') refers to the orders in the second construction in (8b) irrespective of whether a language overtly displays the IPP effect. In Afrikaans, for instance, infinitives and particles are non–distinct and hence it cannot be concluded that the modal verb occurs in the IPP form. However, as the different word orders show, it is still necessary to distinguish this construction from others.

Before going into details about the distribution of verb clusters, some general points should be noted. First, of the six possible combinations involving three verbal elements, five orders are indeed possible. The 2–1–3 order, on the other hand, has not been attested in any of the constructions or languages and dialects in table 75.2 (it is found in extraposition contexts; however, many authors have argued that these constructions display different properties and have to be distinguished from the constructions in table 75.2; see, for instance, Rutten 1991, Robbers 1997, and Wurmbrand 2001). Furthermore, the 2–3–1 order is found only in the IPP construction.

Second, as is evident from table 75.2, verb–cluster reordering is not restricted to a particular type of construction (such as the IPP construction), but is found in all types of constructions. Since the fully ascending and descending orders do not necessarily involve reordering (i.e., the 1–2–3 and 3–2–1 orders could be treated as basic orders depending on whether one takes a language to follow the head–initial or head–final schema), we restrict our

attention for the moment to the 1–3–2, 3–1–2, and 2–3–1 orders, which clearly involve some sort of reordering under both the head-final and the head-initial approach. As the table shows, at least one language displays one or more of these orders in each construction: German/Austrian dialects and Swiss-German in the double-modal construction; all varieties of German in the auxiliary-modal construction; Afrikaans, all varieties of German, Swiss, and West Flemish in the IPP construction; Afrikaans, Dutch, German/Austrian dialects, Swiss, and West Flemish in the modal-auxiliary-participle construction; and Dutch and West Flemish in the double-participle construction. Thus, as mentioned before, since verb-cluster reordering is neither restricted to IPP environments nor necessary in IPP constructions, it cannot be assumed that a causal relation holds between these two properties. This point is particularly important for (Standard) German. As has been observed by many researchers, the IPP construction is special in German, since it involves obligatory reordering, which contrasts with the otherwise typical 3–2–1 order in that language. However, what has often been ignored (but see Kathol 1996, 1998a, 1998b for exceptions) is that the special reordering is *not* restricted to IPP constructions but is also found in auxiliary-modal constructions in which the 'auxiliary' is the future element *werden* 'will'. Importantly, these constructions are not IPP constructions, but involve an infinitive which is selected by the future element. Thus, the generalization regarding Standard German is that the 3–2–1 order is obligatory in all constructions except auxiliary-modal constructions. Thus, the 1–3–2 order cannot be attributed to the IPP property but has to be seen as a special property of auxiliary-modal constructions.

Table 75.2 Verb clusters with three verbal elements

Language	Mod–Mod–V Fin–Inf–Inf	Aux–Mod–V Fin–Inf–Inf	Aux–Mod–V Fin–IPP–Inf	Mod–Aux–V Fin–Inf–Part	Aux–Aux–V Fin–Part–Part
Afrikaans	1–2–3	1–2–3	2–3–1	1–3–2	N/A
Dutch	1–2–3	1–2–3	1–2–3	3–1–2[a] 1–2–3 3–1–2 1–3–2 [3–2–1]	?3–1–2 ?1–3–2 [?Others]
Frisian	3–2–1	3–2–1	3–2–1	3–2–1	3–2–1
German (Standard)	3–2–1	3–2–1 1–3–2	[1–2–3][b] 1–3–2	3–2–1	3–2–1
German and Austrian dialects	3–2–1 1–3–2	3–2–1 1–3–2 3–1–2	1–3–2 3–1–2 3–2–1 [1–2–3]	3–2–1 1–3–2	3–2–1
Swiss dialects	1–2–3 3–2–1 1–3–2 3–1–2	N/A	1–2–3 1–3–2 3–1–2	1–3–2 3–2–1 3–1–2	3–2–1
West Flemish	1–2–3		1–2–3[c] 2–3–1[c]	1–3–2 3–1–2	3–2–1 1–3–2

Notes:

Orders in brackets are attested but very restricted in the language for which they are listed and could not be verified; these orders will not be considered as possible orders for these languages, but they are listed in the table to indicate that a further refinement and dialect separation is necessary.

[a] 3–1–2 is only possible when 2 is a passive auxiliary.

[b] IPP is not obligatory; some speakers do not use IPP; 1–2–3 is mentioned in Hoekstra and Taanman (1996) and IJbema (1997) for certain constructions (perception verbs and aspectual auxiliaries) in West Frisian.

[c] 1–2–3 is obligatory when the auxiliary is in the past or has a negative marker attached; 2–3–1 is obligatory when the auxiliary is non-finite.

Sources: **Dutch: The 1–3–2 and 3–2–1 orders for the Mod–Aux–V construction are mentioned in Zwart (1996), IJbema (1997), and Robbers (1997); the authors note variation among Dutch speakers; the 3–2–1 order is possible in certain Dutch dialects (but very marked). Double-participle constructions involving *geworden* are generally considered marginal; for double-participle constructions involving *get*+ PART (i.e., 'has gotten PART'), the 1–3–2 order is mentioned in Robbers (1997: 124).**

Frisian: Quoted from De Haan (1993), Zwart (1996), and IJbema (1997); confirmed by Peter Ackema (p.c.).

German: The orders are the result of a literature survey and a questionnaire-based study conducted by the author in 1999–2000 (approx. 100 informants; see Wurmbrand 2000 for detailed results); the 1–3–2 order is documented for the double-modal construction in Den Besten and Edmondson (1983), Broekhuis (1992: 189), and Koopman (1999a), and confirmed by a subgroup of the informants of the questionnaire-based study; the 1–3–2 order is noted for the Mod–Aux–V construction in Zwart (1996) but confirmed by only very few of the

informants (mainly speakers from Vorarlberg); the 3–1–2 order is reported in Patocka (1997) as the unmarked order in Austrian German, which was robustly confirmed for both AUX–MOD–V constructions by the informants of the questionnaire-based study (the 3–1–2 order has not been tested for the other modal constructions); the 1–2–3 order for the IPP construction was accepted by only a very small group of informants and was rejected in most non-Allemanic dialects; a systematic documentation of the variation in the IPP construction is also available in Hsiao (1999).

Swiss: Schönenberger (p.c.), Haeberli (p.c.), Van Riemsdijk (p.c.), and five other consultants. The auxiliary *will* is not used in Swiss dialects and therefore this construction could not be tested. A systematic dialect characterization (and in particular, a survey of how the distinction between Swiss-1 and Swiss-2 in two-verb clusters compares to the options in three-verb clusters) is not available at this point.

Third, it is also obvious from the distribution in table 75.2 that verb-cluster formation cannot be seen as a simple rule or operation that arranges verbs in multiple-verb constructions according to some language-specific hierarchical schema (such as 'the lowest verb precedes/follows the n-highest verb'). Rather, the distribution of verbal elements is crucially dependent on the type of construction. This is most strikingly the case in West Flemish. West Flemish allows all five orders attested in verb clusters; however, the distribution of these orders is severely restricted by the type of construction: the 1–2–3 order is possible only in the double-modal construction and certain IPP constructions; the 1–3–2 order is possible only in participle constructions; the 3–1–2 order is possible only in the modal-auxiliary-participle construction; the 3–2–1 order is possible only in the double-auxiliary construction; and finally, the 2–3–1 order is restricted to IPP constructions. Thus, an account of the distribution of word orders in multiple-verb constructions has to take into account the language-specific and construction-specific nature of this phenomenon.

While the distribution in table 75.2 might look overwhelming at first sight, there are generalizations that emerge both within one language and across languages. In particular, the word-order patterns show interesting generalizations when the category of the elements involved is taken into consideration. This is most clearly the case in Dutch. Dutch verb clusters display a rigid 1–2–3 schema, with the exception that participles are free to occur anywhere in the cluster. That is, if 3 is a participle, it can occupy any position in the cluster, resulting in three possible word orders: {3}–1–{3}–2–{3}. We can also note that participles can always precede the auxiliary (with the possible exception of the passive auxiliary *werden* 'become' in Dutch); i.e., if 3 is a participle, the order 3 . . . 2 is possible (but not necessary) in all dialects; or in other words, there is no dialect that requires the auxiliary to precede the participle (in fact, Dutch is the only language that allows the participle to follow the auxiliary; cf. the 1–2–3 order in the modal-auxiliary-participle construction).

In the next section, the generalizations regarding the distribution of verb clusters in the languages/dialects mentioned will be fleshed out. The (descriptive) generalizations will be stated from both a head-final and a head-initial perspective in the framework of the analysis of Haegeman and Van Riemsdijk (1986).

2.4 Generalizations of the inversion patterns

One of the first works that takes into account the variation in the distribution of verb clusters across West Germanic is the reanalysis approach suggested by Haegeman and Van Riemsdijk (1986). The account consists of two parts. First, the authors propose that in certain constructions (namely, in restructuring constructions that show verb-cluster phenomena) the underlying structure can be 'reanalyzed'. Reanalysis is essentially a rebracketing procedure for syntactic structure which reduces the distance between the elements in a cluster and unifies elements that are further away in the basic structure. The second part of the analysis is the postulation of PF-inversion rules that specify which elements can, cannot, or have to invert in a reanalyzed structure. Thus, in contrast to most syntactic approaches to the verb-cluster phenomenon (see section 3), Haegeman and Van Riemsdijk suggest that reordering operations are not operations of syntax proper; rather, reordering operations are post-syntactic morpho-phonological operations (this view has recently been revived again by Wurmbrand 1999c, 2000, 2004). The inversion parameters suggested by Haegeman and Van Riemsdijk (1986) are summarized in (9). As can be seen, the rules consist of specifications regarding the complexity of the inverting elements (cf. (9a)), the category of the inverting elements (such as modal, auxiliary, etc.), a specification regarding (non-)optionality, and specifications regarding the node dominating the inverting elements (cf. (9d), which states that the node Vα that dominates the inverting elements has to or does not have to be the highest node in a verb cluster):

(9)

Inversion – main parameters (Haegeman and Van Riemsdijk (1986: 426)):

a. The non-head must be (non-)branching or need not be branching.

b. The head of V must be V–AUX or V–MOD or is unrestricted.

c. Inversion is optional or obligatory.

d. Vα is maximal or unrestricted.

Since the Haegeman and Van Riemsdijk system offers a straightforward way to formulate the conditions

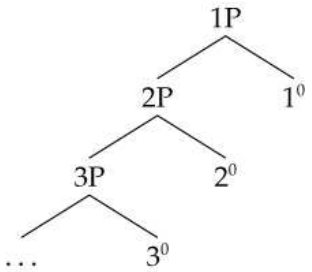
regulating verb-cluster formation in the different languages, it will be used here (in a slightly modified way) to illustrate the generalizations and the specifications necessary to capture the distribution of the verb clusters in tables 75.1 and 75.2. Whether the first step in a verb-cluster configuration – i.e., the step that creates mono-clausal structures – indeed involves reanalysis as Haegeman and Van Riemsdijk suggest, or any other mechanism that has been suggested to account for clause union or restructuring constructions (see section 4), will not be essential for the discussion here. Furthermore, although the Haegeman and Van Riemsdijk analysis is coached in a head-final approach, the inversion rules will be provided for both a head-final and a head-initial system. Note that the derivations suggested below will be preliminary and require certain revisions as we go on. However, this preliminary overview seems instructive as a first approximation to the question of how all the structures in the tables above can be derived.

The major idea of inversion is that under certain circumstances, two sister nodes are flipped with each other (see also Williams 1998, 1999, 2004 for a more recent implementation of this idea). Inversion in this sense is reminiscent of precedence constraints as developed in the HPSG framework by, for instance, Kathol (1996, 1998a, 1998b) and Meurers (1999), among many others. As illustrated in (10) and (11), inversion of sister nodes straightforwardly derives the orders 3–2–1, 1–2–3, 1–3–2, and 2–3–1 in three-verb clusters. To be more specific, under the head-final approach, the 3–2–1 order in (10a) is the basic structure which does not involve any inversion; the 1–3–2 order is derived by inverting the highest verb with its sister (cf. (10b)); the 2–3–1 order is derived by inverting the middle verb with its sister (cf. (10c)); and the 1–2–3 order is derived by inverting both the highest and the middle verb with their sisters (cf. (10d)). Similarly, under the head-initial approach, the 1–2–3 order in (11a) is the basic structure which lacks any inversion; the 2–3–1 order is derived by high inversion (cf. (11b)); the 1–3–2 order is derived by low inversion (cf. (11c)); and the 3–2–1 order is derived by both high and low inversion (cf. (11d)). Regarding the 3–1–2 order, however, simple inversion of sister nodes is not sufficient and both approaches have to make recourse to an additional operation. One option would be to assume that the lowest verb phrase undergoes some form of leftward movement prior to or independent of verb-cluster inversion. As illustrated in (10e), if this form of leftward movement is followed by high inversion, the 3–1–2 order is derived in a head-final structure. Similarly, in (11e), leftward movement of the lowest verb phrase yields the 3–1–2 order (in this approach, additional inversion would result again in the 3–2–1 order).[5]

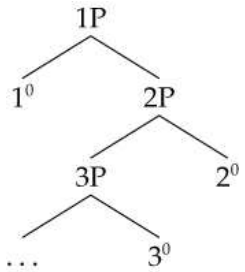
(10)

Head-final inversions:

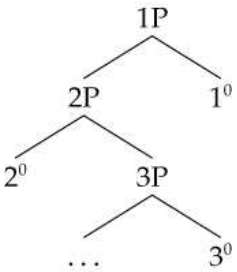
a. **No inversion:**



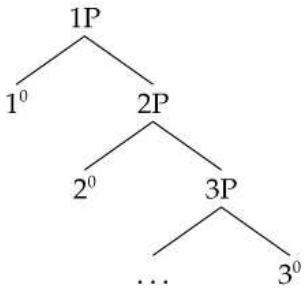
b. **High (=1–2) inversion:**



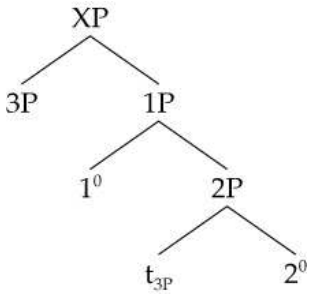
c. **Low (=2–3) inversion:**



d. **Two inversions:**



e. **Leftward movement of 3: and high inversion:**

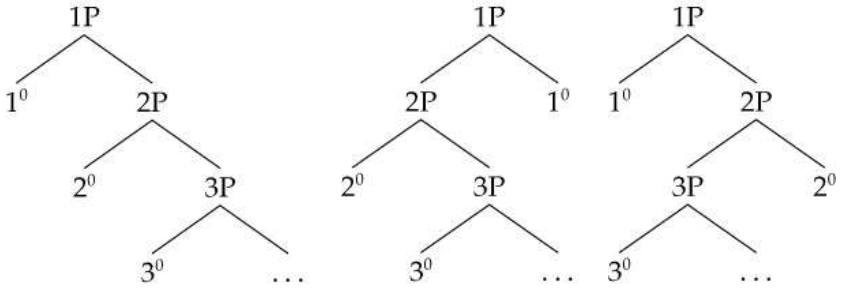


(11)

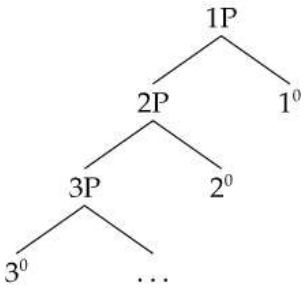
Head-initial inversions:

a. **No inversion:**

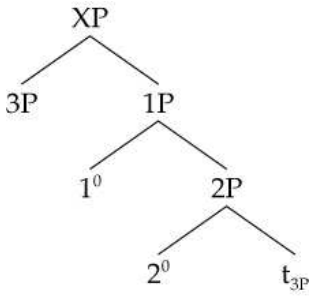
b. **High (=1–2) inversion:** c. **Low (=2–3) inversion:**



d. **Two inversions:**



e. **Leftward movement of 3:**



Importantly, if inversion under sisterhood and leftward movement of the lowest verb phrase are the only tools available to derive verb-cluster constructions (modulo object movement, etc.), the lack of the 2-1-3 order can be accounted for. To derive this order in the head-final approach, rightward movement of the lowest verb phrase would be necessary; to derive it in the head-initial approach, movement of 2 to the exclusion of 3 would be necessary.

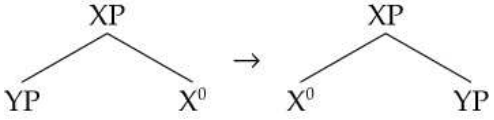
Armed with these tools, let us now turn to the generalizations and specifications required to account for the distribution of verb clusters in the languages mentioned in tables 75.1 and 75.2. Starting with the head-final approach, the inversion rule is given in (12) and the conditions under which inversion applies are listed in table 75.3 ("3-LEFT" refers to leftward movement of 3 as in (10e))[6].

Table 75.3 Inversion rules (head-final base)

Language	Inversion rules	Optionality	Othe
Afrikaans	X is a modal	Obligatory	• *Will*: modal • Passive participles: optional 3-LEFT
Dutch	A: Y is an infinitive	A: Obligatory	• Inversion is optional in finite 2-verb clusters
	B: Y is a participle	B: Optional	• Participles: optional 3-LEFT
Frisian	No inversion	–	–
German (Standard)	X is an auxiliary and Y is a modal	Obligatory	• *Will*: modal or auxiliary
German/Austrian dialects	Y is a non-main verb infinitive	Optional	• AUX-MOD-V: optional 3-LEFT
Swiss dialects	A: X is an auxiliary and Y is a modal	A: Obligatory	• Optional 3-LEFT
	B: Y is an infinitive	B: Optional	• 3-2 inversion only if 2-1 inversion
West Flemish	A: X is an operator	A: Obligatory	• Present: [±TENSE]
	(MOD, TENSE, NEG) and Y is an infinitive B: X and Y are auxiliaries	B: Optional	• MOD-AUX-V: optional 3-LEFT

(12)

Head-final inversion rule:



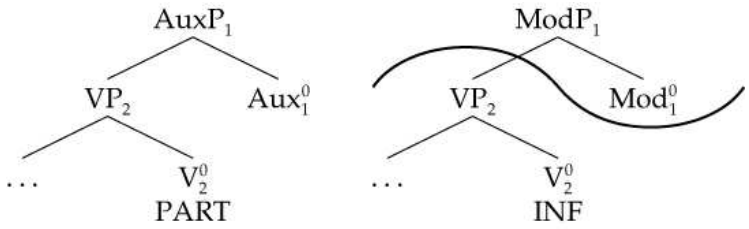
iff the conditions in table 75.3 hold.

An illustration of these inversion rules is provided in (13), which summarizes the application of the inversion rules in Afrikaans (all data are from Robbers 1997). The Afrikaans inversion rule is stated such that it applies obligatorily to modals and their complements.[7] Thus, in (13b, c, d, e, e′), inversion applies as indicated. Furthermore, it is assumed that the future 'auxiliary' is a modal in Afrikaans, which has been argued for independently by, for instance, Erb (2001). Thus, future constructions behave essentially like double-modal constructions. Finally, passive participles allow the special leftward movement (cf. (13e′)), in which case inversion between the modal and its complement does not include the lowest VP – resulting in the 3-1-2 order. Assuming that no other inversions are allowed, the rule specifications given in table 75.3 derive exactly the structures attested in Afrikaans and only those structures. An illustration of the inversion rules in the other languages can be found in the appendix to this chapter.

(13) **Afrikaans – head-final inversions:**

a.

AUX-PART (no inversion – 2-1): b. **MOD-INF (inversion – 1-2):**



a.

dat Jan Marie gesien het / *het gesien

that Jan Marie seen-2 has-1 / *has-1 seen-2

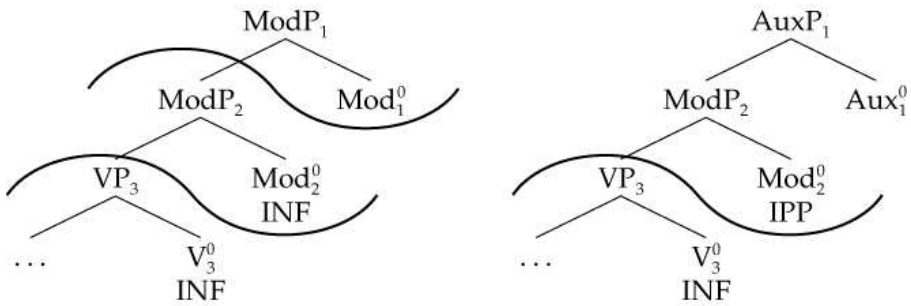
b.

dat Jan môre kan werk / *werk kan

that Jan tomorrow can-1 work-2 / *work-2 can-1

c.

MOD-MOD-V (2 inversions – 1-2-3): d. **AUX-MOD-V (1 inversion – 2-3-1):**



c.

dat Jan môre sal kan werk (*All others)

that Jan tomorrow will-1 can-2 work-3

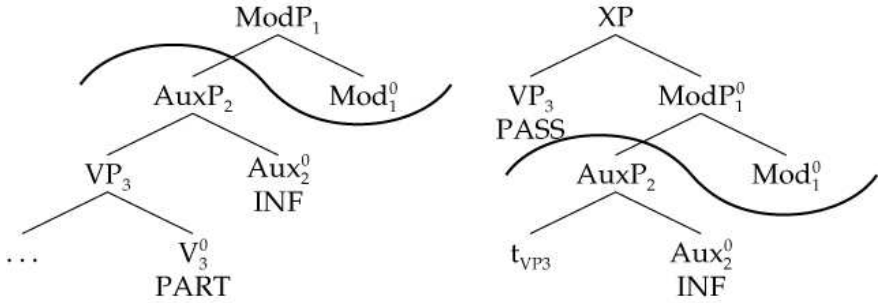
d.

dat Jan kon werk het (*All others)

that Jan could-2 work-3 has-1

e.

Mod-Aux-V (1 inversion – 1-3-2): e′. **Mod-Aux-V (1 inversion + 3-LEFT – 3-1-2):**



e.

dat Jan Marie kan gesien het (*All others)

that Jan Marie can-1 seen-3 have-2

dat Jan toe kon gevang word

that Jan then could-1 caught-3 be-2

e′.

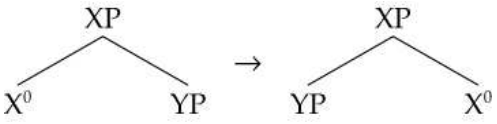
dat Jan toe gevang kon word

that Jan then caught-3 could-1 be-2

Turning to the head-initial approach, the inversion rule is given in (14) and the specifications necessary to derive the verb cluster patterns are listed in table 75.4.

(14)

Head-initial inversion rule:



iff the conditions in table 75.4 hold.

To illustrate these rules, consider again Afrikaans; the head-initial derivations are given in (15) (the derivations for the other languages can be verified in the appendix to this chapter). In Afrikaans, auxiliaries invert obligatorily with their sisters (thus (15a, d, e) involve inversions as indicated). Assuming that *will* is a modal again groups future constructions with double-modal constructions rather than with IPP constructions and no inversion takes place in (15b, c). Finally, passive participles again allow an optional leftward movement which results in the 3-1-2 order illustrated in (15e′). In principle, inversion would also take place in (15e′); however, since the complement of the auxiliary is a trace, inversion is vacuous. The rules suggested for Afrikaans thus again derive exactly the word orders found in verb clusters with two and three verbs in this language.

Table 75.4 Inversion rules (head-initial base)

Language	Inversion rules	Optionality	Other
Afrikaans	X is an auxiliary	Obligatory	• *Will*: modal • Passive participles: optional 3-LEFT
Dutch	A: Y is a participle B: X is finite and Y is a main verb	A: Optional B: Optional	• Participles: optional 3-LEFT
Frisian	X and Y are verbs	Obligatory	
German (Standard)	X and Y are verbs, except when Y is an auxiliary and Y is a modal[a]	Obligatory	• *Will*: modal or auxiliary
German/Austrian dialects	A: Y is a participle B: Y is a main verb C: Y is an infinitive	A: Obligatory B: Obligatory C: Optional	• Infinitives: optional 3-LEFT across a higher auxiliary
Swiss dialects	A: Y is a participle B: X is a modal	A: Obligatory B: Optional	• Optional 3-LEFT • 1-2 inversion only if 2-3 inversion
West Flemish	A: X is a [−TENSE] auxiliary B: Y is a main verb participle	Obligatory	• Present: [±TENSE] • NEG, PAST: [+TENSE] • Participles: optional 3-LEFT across a modal

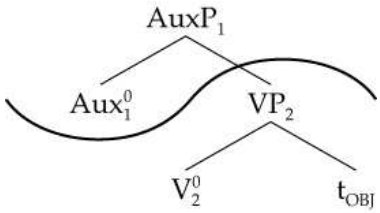
***Note*: To avoid the 'except' clause in the rule for German, one could state instead the following three obligatory**

rules: A: Y is a participle; B: Y is a main verb; C: X is a modal. These rules would guarantee inversion in all but auxiliary–modal constructions, but would also involve a significant amount of redundancy.

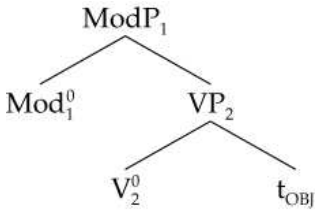
(15) **Afrikaans – head-initial inversions**:

a.

AUX-PART (inversion – 2–1):



b. **MOD-INF (no inversion – 1–2):**



a.

dat Jan Marie gesien het / *het gesien

that Jan Marie seen–2 has–1 / *has–1 seen–2

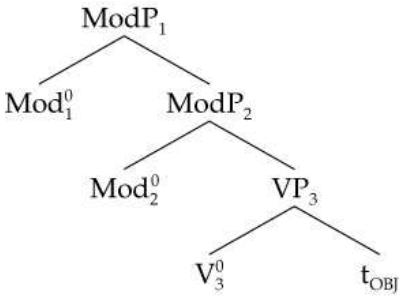
b.

dat Jan môre kan werk / *werk kan

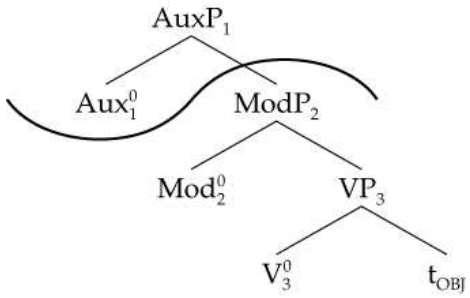
that Jan tomorrow can–1 work–2 / *work–2 can–1

c.

MOD-MOD-V (no inversion – 1–2–3):



d. **AUX-Mod-V (1 inversion – 2–3–1):**



c.

dat Jan môre sal kan werk (*All others)

that Jan tomorrow will–1 can–2 work–3

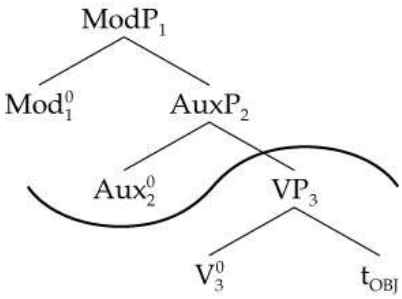
d.

dat Jan kon werk het (*All others)

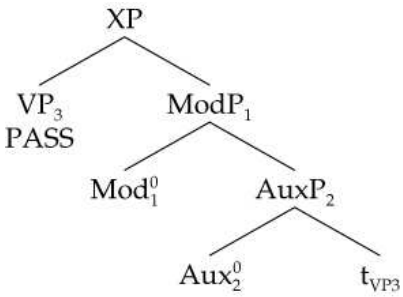
that Jan could–2 work–3 has–1

e.

MOD-AUX-V (1 inversion – 1–3–2):



e¢. **MOD-AUX-V (3-LEFT – 3–1–2):**



e.

dat Jan Marie kan gesien het (*All others)

that Jan Marie can–1 seen–3 have–2

dat Jan toe kon gevang word

that Jan then could–1 caught–3 be–2

e¢.

dat Jan toe gevang kon word

that Jan then caught-3 could-1 be-2

To conclude, a Haegeman and Van Riemsdijk-type approach to the verb cluster phenomenon has the advantage that language-specific and category-specific conditions as well as the notion of optionality can be built into the reordering rules, and hence, the varied distribution of verb clusters in tables 75.1 and 75.2 can straightforwardly be derived. However, one might object (as many researchers have) that this type of approach also has a number of disadvantages. In particular, the systems outlined above are unattractive for their arbitrariness, lack of motivation of the inversion rules, and lack of predictive power. What would be preferable is an explanatory account – i.e., an account that relates the reordering rules to other aspects of grammar or derives them from independent principles or constraints (while nevertheless keeping its empirical adequacy). The next section will address this issue, and in particular the question of whether such an explanatory account exists and what it must look like, in light of the distribution of verb clusters in the languages and constructions summarized in tables 75.1 and 75.2.

3 Deriving verb clusters

As noted above, the majority of analyses of the verb cluster phenomenon are based on the idea that verb-cluster reordering is a form of syntactic movement. This section addresses four major issues arising for such accounts:

(i) Are verb-cluster reordering operations best described as head-movement or as phrasal movement?

(ii) What kind of material can occur interspersed in a verb cluster (i.e., what is the distribution of so-called 'verb-projection-raising' constructions)?

(iii) What is the motivation for verb-cluster reordering?

(iv) Do verb clusters shed light on the directionality debate (i.e., does verb-cluster formation provide evidence for or against either a head-final or a head-initial approach)?

These issues will be discussed in turn in the next subsections.

3.1 Head-movement vs. phrasal movement

Before discussing some specific approaches to verb-cluster reordering, a more technical question that has been central to the discussions of verb-cluster formation from very early on will be addressed. To illustrate the issue, consider again a simple two-verb cluster such as the Dutch auxiliary-participle construction in (16) (repeated from (4)).

(16)

Dutch – auxiliary-participle construction:

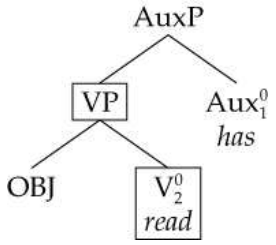
a. dat Jan het boek gelezen heeft
that Jan the book read (2) has (1)

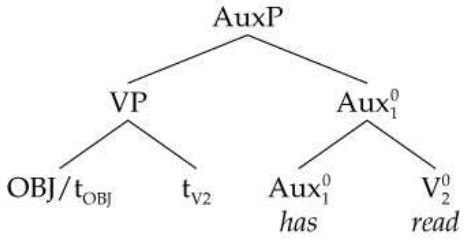
b. dat Jan het boek heeft gelezen
that Jan the book has (1) read (2)

As mentioned above, (16a) would count as the derived version under a head-initial base structure, whereas (16b) would be the derived version under a head-final base structure. Besides the issue of directionality, there are two options (for both the head-final and the head-initial structures) concerning the actual derivation of the non-basic examples in (16): head-movement vs. phrasal movement. The two options are illustrated in (17) and (18) for both approaches. The diagrams in (17a) and (18a) display the basic orders and indicate what categories can undergo movement to derive the non-basic orders. As shown, movement can apply either to the head V^0-2 or to the whole VP-2 (or a functional projection containing 2 but excluding 1 if one were to assume a more refined structure for these examples). The diagrams in (17b) and (18b) show the derivations with head-movement; the diagrams in (17c) and (18c) show the derivations with phrasal movement. Note that the object occurs to the left of the auxiliary in both examples in (16). To accommodate this fact, movement of the verb or the VP has to be preceded by leftward movement of the object (i.e., scrambling or object shift) in the head-initial structures (cf. (18b, c)) as well as the head-final structure involving VP-movement (cf. (17c)). Since reordering operations such as (17c) and (18b, c) apply to incomplete constituents, movement operations of this type have been dubbed 'remnant movement'

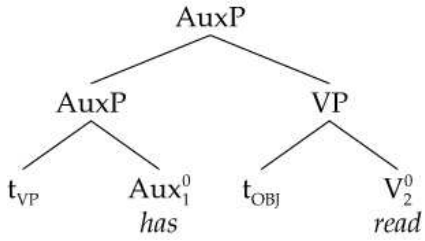
(17)

a. **Head-final structure:** b. **X^0-movement (head-final):**



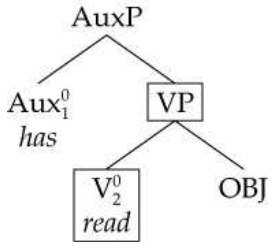


c. **XP-movement (head-final):**

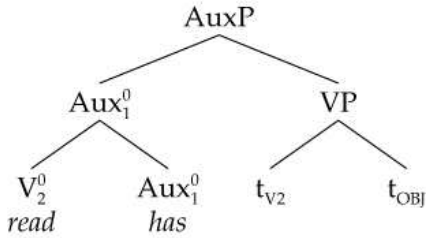


(18)

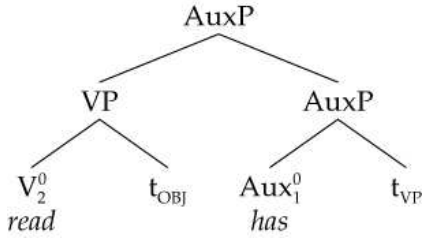
a. **Head-initial structure:**



b. **X0-movement (head-initial):**



c. **XP-movement (head-initial):**



In light of these options, the following questions arise: how can head-movement vs. phrasal movement structures be distinguished? Can verb clusters be derived solely by head-movement? Can verb clusters be derived solely by phrasal movement? The following subsections attempt to shed light on these questions.

3.1.1 Against an incorporation account

In this section, we will see that verb clusters cannot be seen as complex heads derived (exclusively) by head incorporation, but that (at least) certain constructions require a derivation involving phrasal movement or a non-incorporation analysis of head-movement (see below). Importantly, this conclusion will be based entirely on the mechanics of the derivations and will hold for both head-initial and head-final base structures.

To illustrate the basic movement operations necessary to derive verb clusters by head incorporation, we will look at the distribution of IPP constructions (repeated here in table 75.5). As pointed out in section 2.3, of the six possible orders, five are attested in the IPP construction.

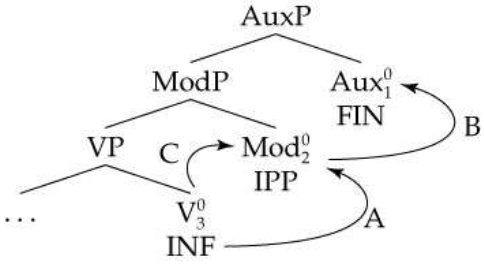
Table 75.5 West Germanic IPP construction

Language	3-2-1	3-1-2	1-2-3	1-3-2	2-3-1	2-1-3
Afrikaans	*	*	*	*	OK	*
Dutch	*	*	OK	*	*	*
Frisian	OK	*	*	*	*	*
German (Standard)	*	*	*	OK	*	*
German and Austrian dialects	OK	OK	*	OK	*	*
Swiss dialects	*	OK	OK	OK	*	*
West Flemish	*	*	OK	*	OK	*

Let us start with the head-final structure. To derive the five orders attested in West Germanic by head incorporation (again, the purpose of this section is merely to mechanically derive the different word orders; conditions attached to different orders will be ignored for this basic illustration), three movement operations are necessary (A, B, and C in the diagram in (19a)): movement of the lowest verb to the right of the higher verb (A), movement of the lowest verb to the left of the higher verb (C), and movement of the middle verb to the right of the highest verb (B). The reader can verify that the various combinations in (19b) yield exactly the five word orders attested (see, for instance, Evers 1975b and Den Besten and Edmondson 1983 for accounts similar to the one sketched):

(19)

a. **Head-final structure:**



b. **Possible derivations:**

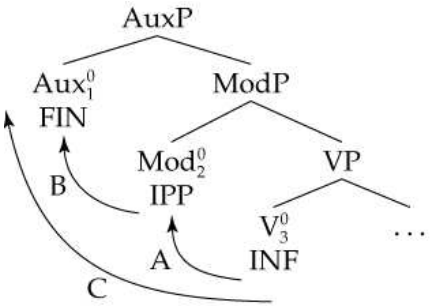
No overt movement:	3-2-1
Only A:	2-3-1
Only B:	3-1-2
Only C:	3-2-1 (vacuous)
A and B:	1-2-3
C and B:	1-3-2

The sixth order – the unattested 2-1-3 order – can be excluded by the assumption of (some version of) the Head Movement Constraint (HMC): in order to derive 2-1-3, the lowest verb 3 would have to move and adjoin to 1, skipping over 2 and hence causing an HMC violation.

Turning to the head-initial approach, again three movement operations are necessary: movement of the lowest verb to the left of the higher verb (A), movement of the lowest verb to the left of the highest verb (C; potentially with a stopover in 2), and movement of the middle verb to the left of the highest verb (B). These movement operations are illustrated in (20a) and the possible combinations are listed in (20b). Note that to derive the 2-3-1 order either movement C applies before movement B (i.e., movement C creates the complex head 3-1 to which 2 attaches afterwards), or movement B applies first (creating the complex 2-1) followed by movement C; however, 3 does not left-adjoin to the complex 2-1 but 'tucks in' between the two verbs (cf. Hsiao 1999, following Richards 1997, for an account along these lines):

(20)

a. **Head-initial structure:**



b. **Possible derivations:**

No overt movement:	1-2-3
Only A:	1-3-2
Only C:	3-1-2
A and B:	3-2-1
C and B:	2-3-1
B and C:	3-2-1
	2-3-1 ('tucking in')

Assuming a system that allows the derivations in (20), it is again straightforward to derive the five word orders found in West Germanic IPP constructions. To exclude the unattested 2-1-3 order under this approach, the following options come to mind. Since movement B has to be possible in principle (i.e., to derive the orders in which 2 precedes 1), one has to ask why a derivation that involves *only* movement B is prohibited. A way to approach this question would be to assume that movement from the middle of a verb cluster is excluded, or in other words, that only the lowest verb in a configuration can move (i.e., movement B would only be licensed after movement A or movement C has occurred). Note that in this case, the 2-3-1 order could only be derived by tucking in. Another option (Marcel den Dikken, p.c.) would be to see the impossibility of the 2-1-3 order as the result of a licensing failure of the lowest verb. Under the assumption that the lowest verb (V-3) has to move (either overtly or covertly) to the next higher verb (Mod-2), overt dislocation of Mod-2 could be seen as an obstruction to the licensing of V-3. That is, one could develop an account according to which (i) adjunction to traces is prohibited (i.e., V-3 cannot adjoin to the trace of Mod-2), and (ii) some locality condition excludes covert tucking in or covert adjunction of V-3 to Mod-2 when the latter is in a dislocated position (i.e., adjoined to Aux-1).

The systems outlined in (19) and (20) naturally raise a number of questions, depending on the type of syntactic

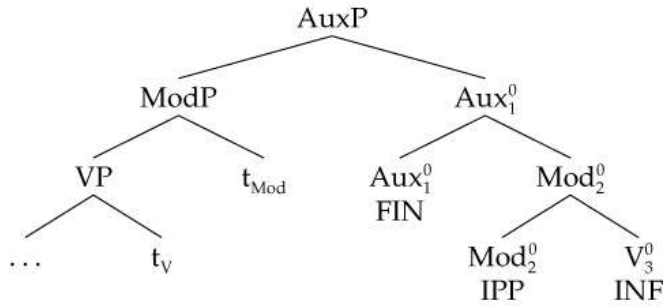
theory one assumes and the principles and conditions that hold in one's favorite framework. For example, if a syntactic theory has no room for head-movement (cf. Sportiche 1996a; Koopman 1999a; Koopman and Szabolcsi 2000), a proponent of such a system would obviously not consider any of the above derivations. If a system involves an assumption such as Kayne's (1994) Linear Correspondence Axiom (LCA), derivations involving a head-final structure and rightward movement (such as (19)) would not be an option in that framework. If (head-) adjunction has to be uniformly in one direction, movement C in (19) would be excluded. If a system does not tolerate a violation of the HMC or involves a notion such as 'Attract closest', movement C as depicted in (20) might be problematic.

Questions of this sort are doubtless important to keep in mind when developing an actual analysis of verb-cluster formation. However, since these types of questions are only valid in their particular frameworks, they do not seem to challenge analyses along the lines of (19) or (20) beyond the framework they are couched in, and hence they do not bear on the question of whether a (pure) head-movement approach is in principle an option to account for the distribution of verb clusters. There is, however, an empirical phenomenon that goes beyond theory-internal considerations. The empirical evidence that, as we will see, will argue strongly against a (pure) head-incorporation approach to verb-cluster formation has become known as the verb projection raising phenomenon (see Haegeman and Van Riemsdijk 1986, among many others). The argument against verb clusters as complexes of incorporated heads (whether head-initial or head-final) is straightforward. Under both approaches, it is predicted that in certain orders the verbs form a complex head, and hence these clusters should be impenetrable for XP-material. We will see that this prediction is not borne out and that hence head-incorporation derivations as outlined above are problematic (but see below for a different way to nevertheless make use of head-movement in verb clusters).

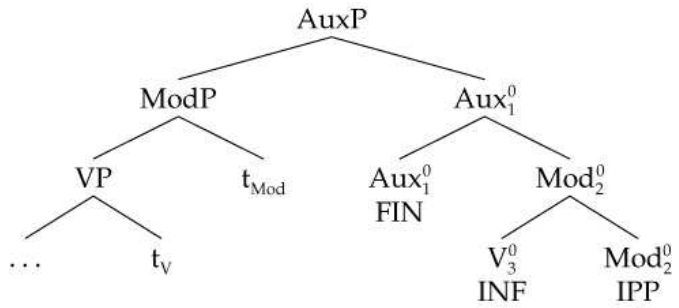
To begin with the head-final structure in (19), (21) shows in detail the structures for the 1-2-3 order ((21a)), the 1-3-2 order ((21b)), and the 2-3-1 order ((21c)). According to this approach, it should be impossible for XP-material to occur between 1 and 2, and 1 and 3 in (21a), between 1 and 3, and 3 and 2 in (21b), and between 2 and 3 in (21c):

(21)

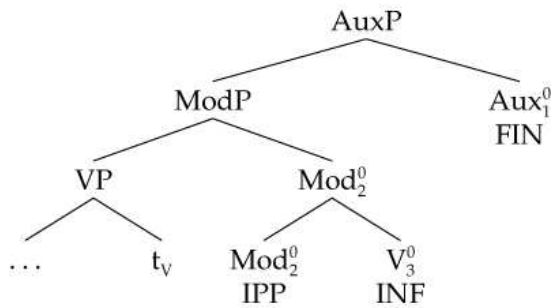
a. **1-2-3 order in head-final approach:**



b. **1-3-2 order in head-final approach:**



c. **2-3-1 order in head-final approach:**



The following data from Swiss-German, West Flemish, and German show that these predictions are not fulfilled in

all but one case (see also section 3.2 for a more detailed discussion of verb projection raising). The examples in (22) make the point for the 1–2–3 order; the examples in (23) represent the 1–3–2 order; and the example in (24) illustrates the problem in the 2–3–1 order. In more detail, in (22a) from Swiss-German (SG), a definite object occurs between 1 and 2, and in the Swiss example in (22b) and the West Flemish (WF) example in (22c), various XPs occur between 2 and 3.[8] Since the verb clusters in (22) are split up by material which is clearly phrasal, it seems unclear how these examples can be accommodated under a structure like (21a):

(22)

Verb projection raising (1–2–3):

a. Ob si hett **d Prüeffig** chöne besto. SG
whether she had (1) the exam can (2) pass (3)
'[Who knows] whether she would have been able to pass the exam.'

b. Ob si hett chöne **d Prüeffig** besto.
whether she had (1) can (2) the exam pass (3)
'[Who knows] whether she would have been able to pass the exam.'

c. da Valère oa willen **morgen no Gent** goan WF
that Valère had (1) want-ipp (2) tomorrow to Gent go (3)
'that Valère had wanted to go to Gent tomorrow'

(Haegeman 1995a: 72)

The same problem arises in the 1–3–2 order and the 2–3–1 order. In the German (GE) example in (23a) and the SG example in (23c), phrasal material appears between 1 and 3 in the 1–3–2 order (see also Den Besten and Broekhuis 1992 for further examples), and in the WF example in (24), both objects occur between 2 and 3 in the 2–3–1 order. The only case which indeed requires adjacency between elements of a cluster is illustrated in (23b) and (23d) (i.e., examples with elements between 3 and 2 in the 1–3–2 order). The generalization, which will be discussed in more detail in section 3.4.2, is that XP-material is allowed within a verb cluster (in certain languages and dialects) only if the intervening XPs precede the lowest verb. Thus, in the 1–3–2 order as well as in the 3–1–2 order, phrasal material cannot occur between 3 and 2 or between 1 and 2, respectively (examples for the latter claim will be provided in section 3.4.2).

(23)

Verb projection raising (1–3–2): GE

a. daß er das Buch hätte **genau** durchsehen sollen
that he the book had (1) carefully through-look (3) shall (2)
'that he should have looked through the book carefully'

(Zwart 1996)

b. *daß er das Buch hätte durchsehen **genau** sollen
that he the book had (1) through-look (3) carefully shall (2)
'that he should have looked through the book carefully'

c. Ob si hett **d Prüeffig** besto chöne. SG
whether she had (1) the exam pass (3) can (2)
'[Who knows] whether she would have been able to pass the exam.'

d. *Ob si hett besto **d Prüeffig** chöne.
whether she had (1) pass (3) the exam can (2)
'[Who knows] whether she would have been able to pass the exam.'

(24)

Verb projection raising (2–3–1):

da Valère willen [**Marie** dienen boek geven] eet WF
that Valère want-ipp (2) [Marie that book give] (3) has (1)
'that Valère has wanted to give Marie that book'

(Haegeman 1998c: 260)

Table 75.6 Two head-final approaches to (some) verb clusters in Dutch

Constructions	Mixed approach	Pure XP-movement approach
Auxiliary-participle construction	Optional X^0-movement	Optional movement of lowest VP
Try-infinitives	X^0 or XP-movement	Movement of VP or higher XP
Decide-infinitives	XP-movement	Movement of higher XP

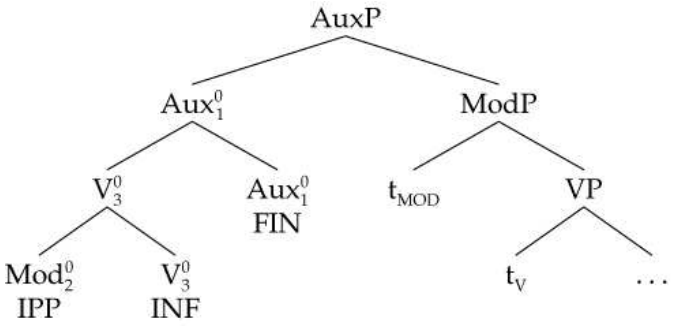
	X^0-movement impossible (HMC)	Movement of VP impossible
Particles	No movement	Optional movement Constraint: only string-vacuous movement
Idiomatic phrases	No movement	Obligatory movement Constraint: only string-vacuous movement

To conclude, it seems that the only way to maintain an incorporation analysis for the (grammatical) constructions in (22–24) would be to assume that the intervening material is X^0-incorporated in the verb clusters. This claim might be conceivable for certain small adverbs such as the one in (23a); however, it appears highly implausible for the definite objects and prepositional phrases. It can thus be concluded that in light of verb projection raising constructions, a pure incorporation account is insufficient to derive the full range of verb cluster constructions in the head-final approach.

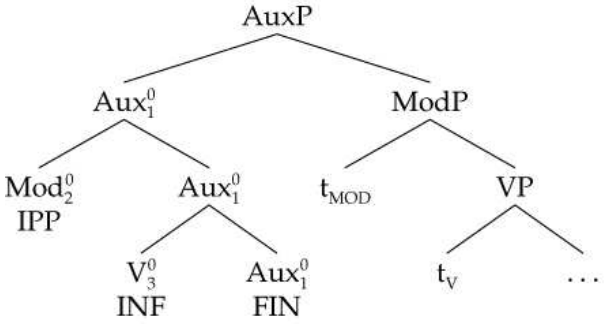
The same situation holds for the head-initial approach in (20); however, there is only one case which allows us to make the argument – the 2-3-1 order. To derive this order under a head-initial base structure by making use solely of head incorporation, two derivations have been suggested above (the two options are fleshed out in more detail in (25)). For the point to be made here, we do not have to decide between these two options, since under both the same prediction is made: 2 and 3 are part of a complex head, and hence, it should not be possible for phrasal material to occur between these two verbs. As we have seen above, this prediction is not borne out: examples such as the WF (24) show that 2 and 3 do not form a complex head, and hence a head-movement derivation as in (25) has to be excluded:

(25)

a. **2-3-1 order in head-initial approach (movement C before movement B):**



b. **2-3-1 order in head-initial approach (tucking in):**



In sum, the phenomenon of verb projection raising which is found in a subset of West Germanic languages and dialects poses a serious challenge for accounts that aim to derive verb clusters solely by head incorporation. This conclusion, however, does not force us to give up head-movement as a means to derive verb clusters altogether.[9] First, as many authors have suggested, verb-cluster formation can involve both types of movement – that is, certain configurations are derived by head-movement, others by phrasal movement (see Bennis and Hoekstra 1989, Haegeman 1990, 1992, 1994, 1998b, Rutten 1991, Broekhuis et al. 1995, Zwart 1996, and Den Dikken and Hoekstra 1997 for accounts that also involve head-movement derivations). Second, for both the head-final and the head-initial approach, there is in principle an option that maintains a pure head-movement account. The assumption necessary would be that the verbs of a cluster do not form a complex head with each other (i.e., the verbs do not incorporate into each other), but that head-movement targets different (non-overt) heads. That is, if for example in (21c), the lowest verb does not attach to the next higher verb but to a functional head between 2 and 1; or similarly, if in (25a), the modal (MOD–2) does not attach to the higher verb but to a functional head above the AuxP; verb-cluster movement could again be analyzed as head-movement. One might object that these derivations involve violations of the HMC. However, as has been argued by Den Dikken and Hoekstra (1997), the problem arises only under the strict version of the HMC. If the locality conditions for head-movement – like A or A′-movement – are *relativized* (i.e., head-movement is not blocked by intervening heads in general, but only by

heads of the same type), skipping of certain heads becomes possible. Thus, while a general verb-to-verb incorporation account seems inadequate to capture the verb cluster phenomenon, a head-movement account is nevertheless conceivable assuming the relativized version of the HMC.

3.1.2 Phrasal movement derivations

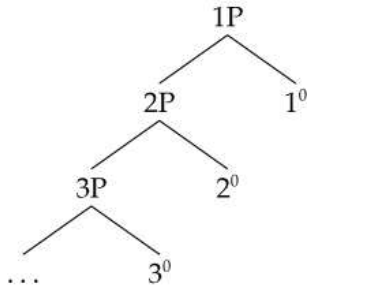
The second question regarding the head vs. phrasal movement debate is whether verb clusters can be derived solely by phrasal movement or whether certain constructions necessitate head-movement. Before laying out arguments that have been presented for head-movement in verb clusters (section 3.1.3), a quick overview of the different phrasal movement operations necessary to derive verb clusters in the head-initial and head-final approach will be provided. The purpose is to simply illustrate the basic derivations and to show that none of the orders poses an a priori challenge for phrasal movement accounts.

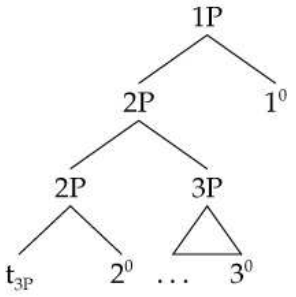
To begin with the head-final approach, the 3-2-1 order (cf. (26a)) is the underlying order and hence no movement is necessary (or all movements are covert). The 2-3-1 order (which is found in WF and Afrikaans) can be derived by movement of the lowest XP to the right of the middle XP (cf. (26b)). Movement of the middle XP to the right of the highest XP yields the 1-3-2 order as in (26c) (see Den Besten and Broekhuis 1992 for one of the first suggestions of this derivation). Movement of both lower XPs as in (26d) results in the 1-2-3 order. Finally, there are two options for deriving the 3-1-2 order which are illustrated in (26e, e′). The first option involves movement of the lowest XP to some specifier or adjoined position on the left, followed by rightward movement of the middle XP. The second option involves rightward movement of the lowest XP, followed by rightward movement of the lower XP-2 created by adjunction:

(26)

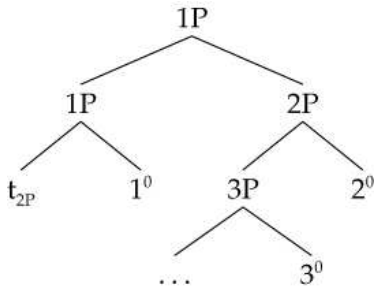
Head-final derivations:

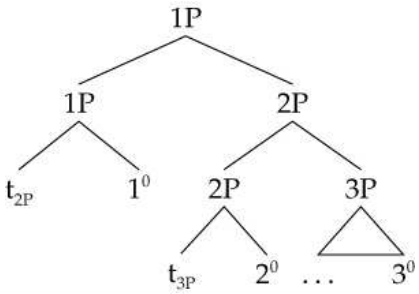
a. **3-2-1 – basic head-final structure:** b. **2-3-1 movement of lowest XP:**



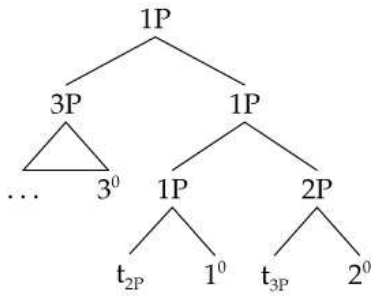


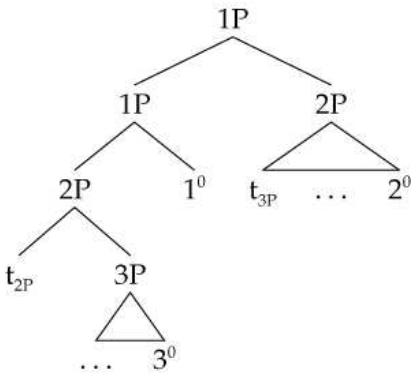
c. **1-3-2 – movement of middle XP:** d. **1-2-3 – movement of both lower XPs:**





e. **3-1-2 – movement of middle XP:** e¢. **3-1-2 – movement of both lower XPs:**





To exclude the unattested 2-1-3 order of the verb clusters in table 75.2 (i.e., constructions involving modal and auxiliary verbs; the situation is slightly more complex for *to*-infinitives), one can follow Haegeman (1992), who suggests that verb clusters of this type are subject to some form of Relativized Minimality. That is, if it is assumed that verb-cluster movement has to target the next higher XP and that intervening XPs (except adjunction

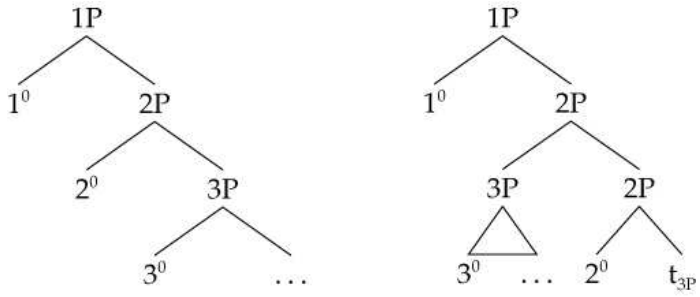
segments) cannot be skipped, movement of the lowest VP and adjunction to the highest XP by skipping the middle XP would be prohibited, and hence the 2-1-3 order could not be derived.

Under the head-initial approach, the 1-2-3 order is the basic order, which does not require any movement operations (cf. (27a)). To derive the 1-3-2 order, the lowest XP undergoes movement to left of the middle XP (cf. (27b)). Movement of the middle XP to the left of the highest XP yields the 2-3-1 order in (27c). Movement of both lower XPs results in the 3-2-1 order (cf. (27d)). Finally, the 3-1-2 order is derived by movement of the lowest XP to the left of the highest XP (whether it moves in one step or stops in the specifier of the middle XP is not crucial at this point; cf. (27e)):

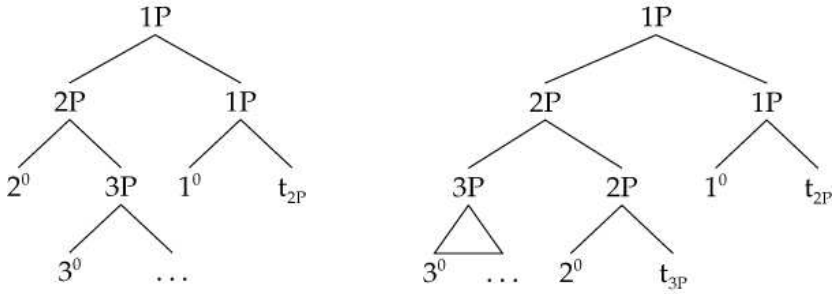
(27)

Head-initial derivations:

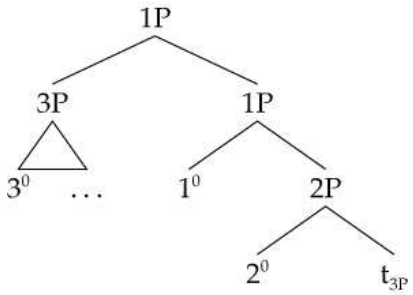
a. **1-2-3 - basic head-initial structure**: b. **1-3-2 - movement of lowest XP**:



c. **2-3-1 - movement of middle XP**: d. **3-2-1 - movement of both lower XPs**:



e. **3-1-2 - movement of lowest XP (above highest XP)**:



In order to block the 2-1-3 order, one could assume for instance that movement of the lowest XP targets the specifier position of the middle XP (and not, for instance, the specifier position of a functional projection between 1P and 2P). Since the lowest XP would then be part of the middle XP, movement of the latter would always carry along the lowest XP, and hence 2-1-3 could not be generated. Alternatively, one could assume that traces must be c-commanded by their antecedents (at surface structure). Thus, in a derivation where 3P moves to a position (whether adjoined or a specifier) above 2P (but below 1P) and 2P undergoes further movement to the left of 1P, the 2-1-3 order would be derived; however, the trace of 3P (which is contained in 2P) would not be c-commanded by the actual 3P anymore.

In contrast to (pure) head-movement approaches, the challenge for phrasal movement approaches is generally not that they are too restrictive but rather that they massively overgenerate. Thus, deriving verb projection raising configurations is trivial in the structures in (26) and (27). What is less clear, however, is how verb projection raising configurations can be excluded in languages that do not allow phrasal material between the elements of a cluster (see 3.2). As will be illustrated in more detail below, the way to achieve these restrictions in phrasal movement structures is by assuming additional (leftward) movement operations that (fully or partially) pre-empty the phrases that undergo verb-cluster movement (i.e., remnant movement instead of full phrasal movement has to become obligatory in certain languages and constructions).

To conclude, both head-final and head-initial approaches have the capacity to derive verb clusters via phrasal

movement operations (in terms of the mechanical derivation; nothing has been said so far about how the movement operations can be motivated and restricted).

3.1.3 Head- and/or phrasal movement accounts (head-final approach)

The question that will be addressed in this section is whether a pure phrasal movement approach is sufficient to derive verb clusters across West Germanic or whether there is reason to assume that certain constructions must involve head-movement. A number of interesting arguments have been put forward for the claim that certain (parts of) verb clusters are derived by head-movement. The arguments fall into two groups: arguments from locality and arguments from the size of the moved material. Let us begin with the first type of argument.

Under the standard assumption that head- and phrasal movement are subject to different locality domains (in the sense that only heads intervene in head-movement dependencies and only XPs intervene in phrasal movement dependencies), the lack vs. existence of certain locality effects can be taken as evidence for/against a particular type of movement. An elaborate instantiation of this argument can be found in Den Dikken and Hoekstra (1997). Den Dikken and Hoekstra investigate an interesting property found in Frisian verb clusters, namely the Participium Pro Infinitivo (PPI) effect. The Frisian PPI effect can be seen as the opposite of the IPP effect (which Frisian lacks, incidentally): as illustrated in (28), infinitives in certain environments can also be realized as participles:

(28)

Frisian – Participium Pro Infinitivo (PPI) effect:

a. Hy soe it dwaan/dien wollen ha.
he would it do-INF/do-PART want-PART have-INF
'He would have liked to do it.'

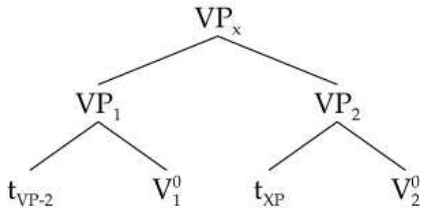
b. Hy soe it dien ha wolle /wollen.
he would it do-PART have-INF want-INF /want-PART
'He would like to have done it.'

The analysis suggested in Den Dikken and Hoekstra (1997), which crucially makes use of both head-movement and phrasal movement, not only derives the word orders in Frisian verb clusters but also accounts for the existence of the PPI effect and the distribution thereof. Although it is not possible to replicate the details of the analysis here, the conclusion is essentially that movement of participles (which is necessary to license both true and PPI participles) can skip intervening heads of the same type (i.e., heads with the same features), whereas movement of auxiliaries is blocked by intervening heads with the same features. Assuming a restrictive theory of movement, the authors conclude that participle movement is phrasal movement (hence not sensitive to intervening heads), whereas in the same language, movement of auxiliaries is head-movement (hence subject to the (relativized) HMC).

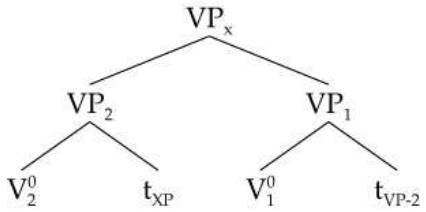
Before presenting the second type of argument for head-movement in verb clusters (the argument from the size of the moved material), it should be noted that there are certain phenomena – in particular, certain adjacency requirements – which will not be considered as arguments for head-movement here. As discussed in the previous section, a commonly accepted restriction for head-movement configurations is that a complex head cannot include phrasal material. Thus, if phrasal material can occur between two verbs, it can safely be concluded that these two verbs do not form a complex head (see the previous section for arguments along this line). However, the opposite does not hold. If a verb cluster disallows phrasal material between the verbs, it does not follow that the verb cluster has to be formed by head-movement. In other words, while it is true that a head-movement configuration entails adjacency between the elements involved, adjacency does not entail a head-movement configuration (for instance, Case adjacency in English does not entail that the verb and the object form a complex head). To illustrate the fallibility of arguments that are built on an adjacency requirement between the verbs of a cluster, let us assume a context in which the two verbs of a two-verb cluster cannot be separated by phrasal material. Under a head-movement derivation, this adjacency requirement follows directly from the derivation itself. However, under a phrasal movement derivation, it is also possible to derive this adjacency requirement. As shown in (29), adjacency can be created by remnant movement of the lower VP under both the head-final and the head-initial approach. The only assumptions necessary to enforce adjacency in these contexts are that movement of the VPs and XPs in (29) is obligatory, and that nothing can adjoin between the (originally) higher VP (labeled VP-1 in (29)) and the landing site of the lower VP (labeled VP-x):

(29)

a. **XP-movement (head-final):**



b. **XP-movement (head-initial):**

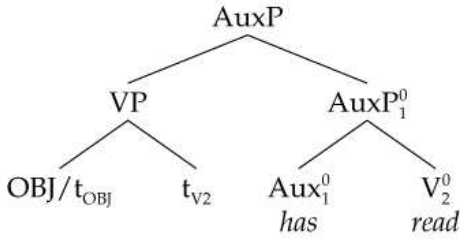


While these assumptions would of course have to be motivated, the possibility of deriving adjacency in phrasal movement constructions nevertheless shows that adjacency between elements in a verb cluster does not allow us to jump to the conclusion that the cluster has to involve head-movement. Adjacency requirements found in verb clusters will hence be ignored in this section.

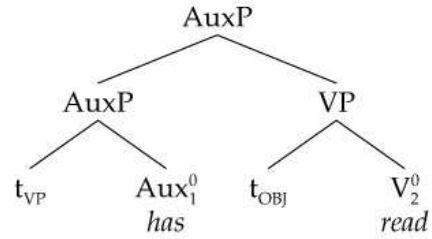
An important contribution to the issue of head vs. phrasal movement has been provided in Den Besten and Rutten (1989) (see also Rutten 1991; Den Besten and Broekhuis 1992; Broekhuis et al. 1995; and many others). As mentioned at the beginning of this section, a crucial difference between the head-movement structure in (17b) and the phrasal movement structure in (17c) (repeated below in (30a, b) is that in the latter a remnant constituent is moved – i.e., all but the verb has to have left the VP prior to verb-cluster movement. This difference leads to the following predictions. If the leftward movement step is prohibited (i.e., if a construction involves VP-internal elements that are not allowed to scramble/object shift), and a construction of the form OBJ-1-2 is well-formed, the derivation can only involve head-movement. If, on the other hand, leftward movement of (certain) VP-internal XPs is prohibited and a construction of the form OBJ-1-2 is ungrammatical in these contexts (but well-formed when the VP contains movable XPs), the derivation can only involve phrasal movement. In what follows, we will see that in Dutch under certain assumptions, both predictions find an instantiation:

(30)

a. **X^0-movement (head-final):**



b. **XP-movement (head-final):**



Contexts that have been taken to involve elements that cannot undergo movement (but see below) are particle constructions such as *to call up* and (semi-)idiomatic expressions such as *to take into consideration*. As is illustrated in (31a, b), (non-idiomatic) objects are free to move to the left of adverbs such as *toen toch* (with some subtle differences in meaning). For material that is part of an idiomatic expression ((31c)) and particles ((31d)), on the other hand, this movement operation is prohibited (the position of the object has no influence on the ungrammaticality):

(31)

Dutch – particle and (semi-)idiomatic constructions:

a. dat Jan {dat aanbod} toen toch {dat aanbod} in overweging nam
that Jan {that offer} then ADV {that offer} in consideration took
'that Jan then did take that offer into consideration'

b. dat Marie {haar vader} toen toch {haar vader} op belde
that Marie {her father} then ADV {her father} up called
'that Marie then did call her father'

c. *dat Jan dat aanbod in overweging toen toch nam
that Jan that offer in consideration then ADV took
'that Jan then did take that offer into consideration'

d. *dat Marie haar vader op toen toch belde
that Marie her father up then ADV called
'that Marie then did call her father'

Assuming that adverbs such as *toen toch* mark the left edge of the VP, one can conclude (but see again below) that parts of idiomatic expressions and particles cannot leave the VP. These types of constructions thus offer contexts in which the two predictions mentioned above can be tested.

Let us first look at a situation where the constructions in (31) are embedded in a verb cluster (in particular an auxiliary-participle construction). In the 1-2 order (which is the relevant order for the head-final approach), idiomatic material can only appear to the (immediate) left of the auxiliary as in (32a), and can occur neither to the left of the VP-adverb (cf. (32c)) nor between the auxiliary and the participle (cf. (32e)). Particles, on the other hand, are also prohibited from occurring to the left of a VP-adverb (cf. (32d)), but they can appear either to the (immediate) left of the auxiliary as in (32b) or between the auxiliary and the participle as in (32f):

(32)

Dutch – particle and (semi-)idiomatic constructions in verb clusters:

a. dat Jan {dat aanbod} toen toch {dat aanbod} in overweging heeft genomen
that Jan {that offer} then ADV {that offer} in consideration has taken
'that Jan then HAS taken that offer into consideration'

b. dat Marie {haar vader} toen toch {haar vader} op heeft gebeld
that Marie {her father} then ADV {her father} up has called
'that Marie then HAS called her father'

c. *dat Jan dat aanbod in overweging toen toch heeft genomen
that Jan that offer in consideration then ADV has taken
'that Jan then has taken that offer into consideration'

d. *dat Marie haar vader op toen toch heeft gebeld
that Marie her father up then ADV has called
'that Marie then has called her father'

e. *dat Jan dat aanbod toen toch heeft in overweging genomen
that Jan that offer then ADV has in consideration taken
'that Jan then has taken that offer into consideration'

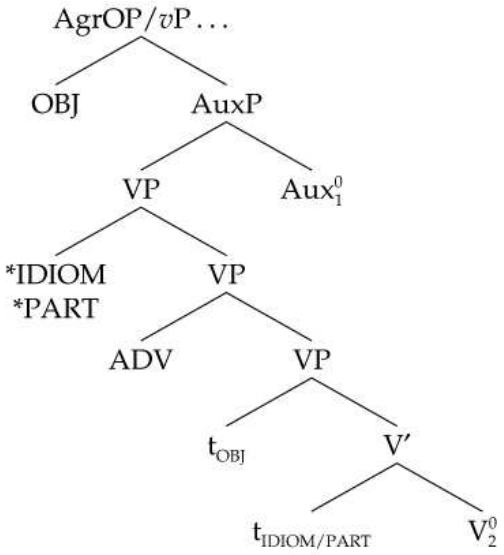
f. dat Marie {haar vader} toen toch {haar vader} heeft op gebeld
that Marie {her father} then ADV {her father} has up called
'that Marie then has called her father'

Under the assumption that parts of idiomatic expressions and particles cannot leave the VP, the distribution in (32) provides an argument for head-movement and against phrasal movement in this type of construction.

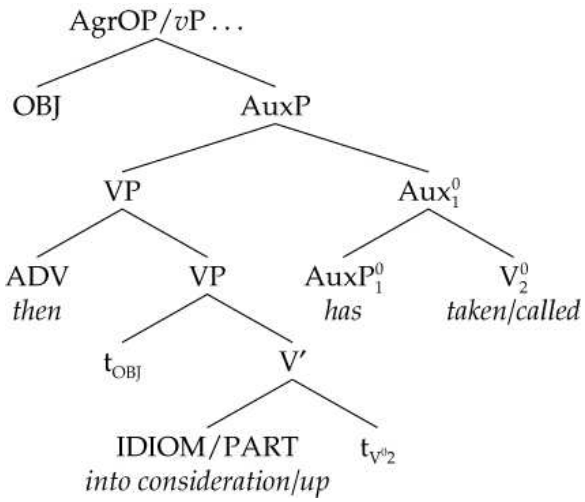
Let us start with (32c, d). The prohibition against movement of parts of idioms and particles (cf. (33a)) immediately accounts for the ungrammaticality of these examples (independent of the question of whether the lower verb has undergone head- or phrasal movement). Furthermore, assuming idioms and particles cannot leave the VP, remnant VP movement cannot be an option for (32a, b). If, on the other hand, the examples in (32a, b) involve head-movement as in (33b), idioms and particles can be stranded in the VP when the lower verb (head) moves and adjoins to the higher auxiliary. Finally, assuming that (at least in this language and construction) verb-cluster formation can only involve head-movement and phrasal movement is prohibited, (32e) is expected to be ungrammatical since in this case, the (remnant) VP has undergone movement. Similarly, (32f) can be accounted for if it is assumed that the particle and the verb form a complex head at the level where verb-cluster formation applies. That is, either particle constructions are base-generated X^0-elements (cf., for instance, Neeleman and Weerman 1993; Neeleman 1994a; and references therein) or involve incorporation of the particle into the verb (cf. for instance Den Dikken 1995c; Koopman 1995; among many others).[10] Under the assumptions mentioned, particle and (semi-)idiomatic constructions can thus be seen as an instantiation of the first prediction-verb-cluster formation in auxiliary-participle constructions (and the same holds for modal-infinitive constructions) can only involve head-movement in Dutch:

(33)

a. **Illicit particle/idiom movement:**



b. **No particle/idiom movement and X^0-movement:**



Before turning to an alternative analysis, cases instantiating the second prediction will be discussed. Dutch verb-cluster formation is found not only with auxiliary and modal constructions but also with certain infinitival constructions involving the infinitival marker *te* 'to'. As is shown in (34), the object appears to the left of the higher verb (i.e., the matrix verb), whereas the particles and idiomatic phrases occur between the two verbs. The grammaticality of (34a, b) thus contrasts sharply with the ungrammaticality of the auxiliary-participle construction in (32e). Under a head-final base structure, (34a, b) then lead to the conclusion that remnant XP-movement is possible in infinitival constructions involving matrix verbs such as *try* or *decide*:[11]

(34)

Dutch – particle and (semi-)idiomatic constructions in infinitival constructions:

a. dat Elsje de prijs probeerde [in ontvangst te nemen]-XP
that Elsje the award tried [in acceptance to take]-XP
'that Elsje tried to accept the award'

b. dat Elsje de prijs besloot [in ontvangst te nemen]-XP
that Elsje the award decided [in acceptance to take]-XP
'that Elsje decided to accept the award'

c. dat Elsje haar vader probeerde op te bellen
that Elsje her father tried up to call
'that Elsje tried to call her father'

d. dat Elsje haar vader besloot op te bellen
that Elsje her father decided up to call
'that Elsje decided to call her father'

To determine whether phrasal movement is possible or necessary, we must look again at contexts in which phrasal movement would be excluded. As above, the immovability of particles and parts of idiomatic expressions allows us to construct such a context. If these elements can occur to the left of the higher verb in the 1-2 order, the construction can only involve head-movement (again assuming that particles and idiom chunks cannot leave their base position); if these elements cannot occur to the left of the higher verb in the 1-2 order, head-movement is prohibited. Changing the examples in (34) along these lines reveals an interesting contrast, which is illustrated in (35):

(35)

Dutch – particle and (semi-)idiomatic constructions in infinitival constructions:

a. dat Elsje de prijs in ontvangst probeerde [te nemen]$_{1\text{-}X^0}$
that Elsje the award in acceptance tried [to take]$_{1\text{-}X^0}$
'that Elsje tried to accept the award'

b. *dat Elsje de prijs in ontvangst besloot [te nemen]$_{1\text{-}X^0}$
that Elsje the award in acceptance decided [to take]$_{1\text{-}X^0}$
'that Elsje decided to accept the award'

c. dat Elsje haar vader op probeerde [te bellen]$_{1\text{-}X^0}$
that Elsje her father up tried [to call]$_{1\text{-}X^0}$
'that Elsje tried to call her father'

d. *dat Elsje haar vader op besloot [te bellen]$_{1\text{-}X^0}$

that Elsje her father up decided [to call $]_{1-X^0}$
'that Elsje decided to call her father'

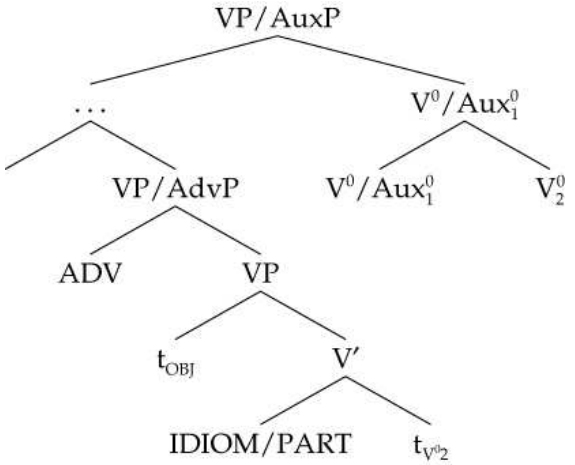
While *try*-constructions allow particles and idiomatic phrases to occur to the left of the higher verb, *decide*-constructions prohibit stranding of these elements. Assuming again that movement of particles and idiomatic phrases is excluded, one can conclude from the examples in (35) that head-movement is possible in *try*-constructions but not an option in *decide*-constructions. Thus, infinitives of the latter type instantiate the second prediction – verb-cluster formation in infinitival constructions of the *decide*-type can only involve phrasal movement in Dutch.

To recapitulate, the account sketched leads to the conclusion that there are three types of verb clusters: verb clusters that only allow head-movement (auxiliary-participle constructions), verb clusters that only allow phrasal movement (*decide*-type infinitives), and verb clusters that allow both head and phrasal movement (*try*-type infinitives). Although this account seems advantageous in that it allows us to develop criteria to distinguish between head and phrasal movement in verb clusters, one might object that the arguments presented in (31–35) are built on assumptions that are not necessarily generally shared (such as the immovability of particles and idiom chunks), and that a unified account (i.e., an analysis that employs only one type of movement in verb-cluster constructions) might be preferable. In the rest of this section, an outline of such an alternative analysis will be presented.

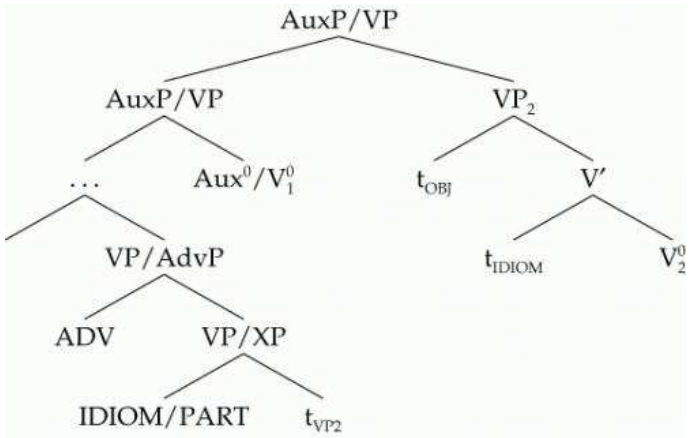
The crucial examples that led to the conclusion that certain constructions can only involve head-movement are (32a, b, e), (35a, c), and, under certain assumptions about the structure of particle verbs, (32f). The head-movement derivation suggested for these examples is repeated in (36a).[12] However, (36a) is not the only derivation for these examples; as shown in (36b), a phrasal movement account is conceivable as well. To be more specific, under a phrasal movement account, the idiomatic phrase or particle first moves out of the VP and (string-vacuously) adjoins to the VP (or it moves to a specifier of a functional projection between the adverb and the VP). The lowest VP can then undergo remnant XP-movement to the right, 'stranding' the particle or idiom chunk to the left of the higher verb:

(36)

a. **X^0-movement:**



b. **XP-movement:**



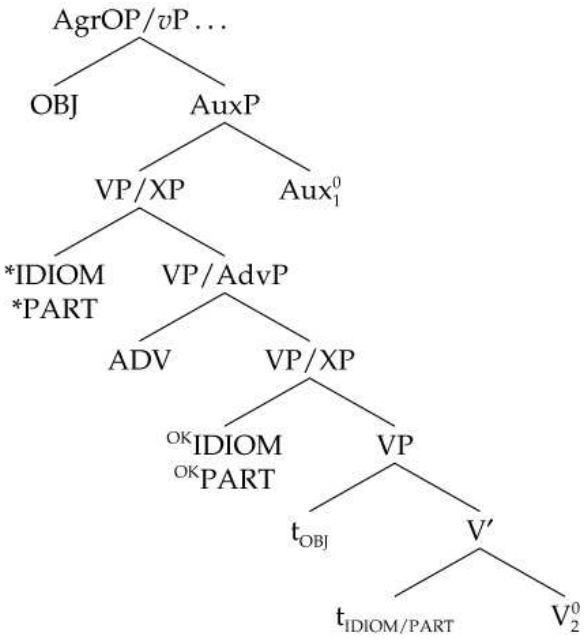
A derivation such as (36b) has been excluded above by the assumption that particles and parts of idioms cannot move out of the VP. The reason for this assumption was the ungrammaticality of the examples in (32c, d) and

(35b, d) – i.e., examples that show that particles and parts of idioms cannot occur to the left of VP-adverbs. In the previous account, this fact was seen as a direct consequence of the assumption that idiomatic phrases and particles are immobile – i.e., they cannot undergo any kind of movement. To accommodate these facts under a phrasal movement account such as the one outlined in (36b), on the other hand, it cannot be the case that movement of idiomatic phrases and particles is inherently blocked (otherwise the derivation in (36b) would be impossible). Rather it has to be assumed that particles and idiomatic phrases are able to move, although only as long as they do not cross any other material (see Den Besten and Broekhuis 1992 and Broekhuis et al. 1995 for claims along these lines).[13] Thus, short string-vacuous movement as in (36b) is licensed; however, movement across the adverb as in (32c, d) is ruled out (cf. (37)).

At this point, one has to ask why particle and idiom movement should be subject to such a restriction. However, note that the same question arises for the claim that particles and idiom chunks are immobile. A detailed motivation cannot be given here, but it seems that either assumption could be motivated by some syntactic or semantic adjacency requirement between the different parts of an idiomatic expression and between the particle and the verb:

(37)

Idiom/particle movement:



While an analysis along these lines accounts for the examples in (32a-d), it raises some questions concerning (32e) and examples involving *te*-infinitives. Starting with the former, the importance of (32e) (repeated as (38a)) and the examples in (38b-e) is that in auxiliary-participle constructions, no phrasal material can intervene between the auxiliary and the participle. This restriction follows straightforwardly in a head-movement approach. For the phrasal movement account in (36b) and (37), however, it would mean that objects and idioms (but not particles; cf. (32f)) not only can move out of the VP, but in fact must leave the VP obligatorily. Furthermore, it has to be ensured that only the lowest VP undergoes movement to the right in this construction:

(38)

Dutch – objects and (semi-)idiomatic constructions in two-verb clusters:

a. *dat Jan dat aanbod	toen toch	heeft	in overweging	genomen
that Jan that offer	then ADV	has	in consideration	taken
b. *dat Jan toen toch	een aanbod	heeft	in overweging	genomen
that Jan then ADV	an offer	has	in consideration	taken
c. *dat Jan toen toch	in overweging	heeft	een aanbod	genomen
that Jan then ADV	in consideration	has	an offer	taken
d. *dat Jan toen toch	heeft	een aanbod	in overweging	genomen
that Jan then ADV	has	an offer	in consideration	taken
e. *dat Jan dat aanbod	in overweging	heeft	toen toch	genomen
that Jan that offer	in consideration	has	then ADV	taken

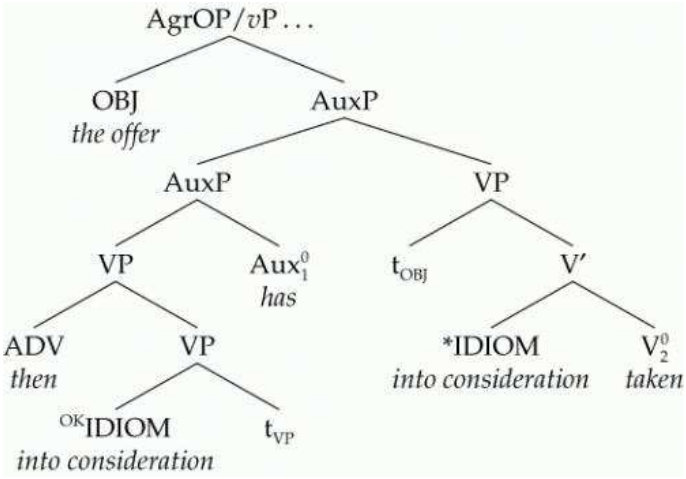
All intended: 'that Jan then HAS taken that/an offer into consideration'

Thus in sum, the assumptions necessary to account for the distribution of particles and idiomatic phrases in verb

clusters under a phrasal movement approach are as follows: (i) all VP-internal elements except particles are required to leave the VP; (ii) particles can move out of the VP; (iii) idiomatic phrases and particles can only move string-vacuously; and (iv) in auxiliary-participle constructions only the lowest VP can move to the right (cf. (39)):

(39)

XP-movement:



Note that this analysis has a direct consequence for the structure of examples such as the one in (40a), where both the object and the idiomatic phrase appear below the VP adverb. In the phrasal movement analysis just sketched, both the object and the idiomatic phrase must have left the VP and attached *below* the VP adverb (as is evident from (40b), these movement operations can again not change the underlying order between the two phrases):

(40)

Dutch – objects and (semi-)idiomatic constructions in two-verb clusters:

a. dat Jan toen toch een aanbod in overweging heeft genomen
that Jan then ADV an offer in consideration has taken
'that Jan has taken an offer into consideration at that moment'

b. *dat Jan toen toch in overweging een aanbod heeft genomen
that Jan then ADV in consideration an offer has taken
'that Jan has taken an offer into consideration at that moment'

The second set of examples that requires some adjustment in a pure phrasal movement approach involves the examples in (35), schematically repeated in (41):

(41)

Dutch – particle and (semi-)idiomatic constructions in infinitival constructions:

a.	*that*	SUBJ	OBJ	*decided*	IDIOM/PART	*to* VERB
b.	*that*	SUBJ	OBJ	*tried*	IDIOM/PART	*to* VERB
c.	**that*	SUBJ	OBJ	IDIOM/PART	*decided*	*to* VERB
d.	*that*	SUBJ	OBJ	IDIOM/PART	*tried*	*to* VERB

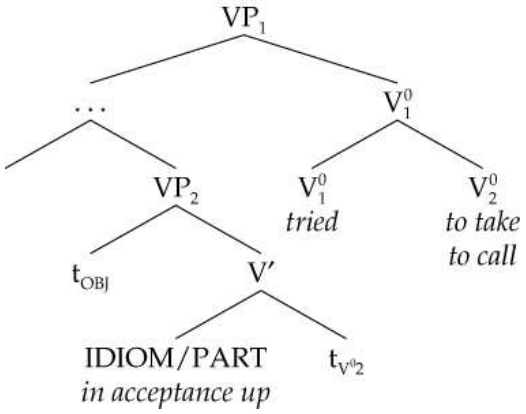
As has been laid out above, an account that makes use of head and phrasal movement offers a straightforward explanation for the distribution in (41): *try*-infinitives allow both head-movement and phrasal movement, whereas *decide*-infinitives permit only phrasal movement.

An interesting question is why only certain infinitival constructions permit head-movement. Without going into detail at this point (see section 4), a common feature of most approaches to this problem is the claim that *try* and *decide* infinitives represent two different types of infinitival constructions. While *try*-infinitives are in some sense deficient (i.e., they either lack certain functional projections or involve projections that are or become ineffective by various mechanisms), *decide*-infinitives are made of more 'solid' material (i.e., projections that make them less transparent and hence block certain operations). To be more concrete, one can assume (as many authors have) that *try*-type infinitives are transparent in that they do not involve categories or features that would block head-movement (it is not crucial for the point to be made here whether *try*-infinitives simply lack offending projections or whether the projections are present but somehow rendered invisible by the time verb-cluster formation takes place). An illustration is given in (42a) vs. (42b). Assuming that *decide*-infinitives involve more (operative) structure than *try*-infinitives, the prohibition of head-movement in the former can be reduced to some version of the HMC. That is, if *decide*-infinitives but not *try*-infinitives include a projection which is simply labeled XP for

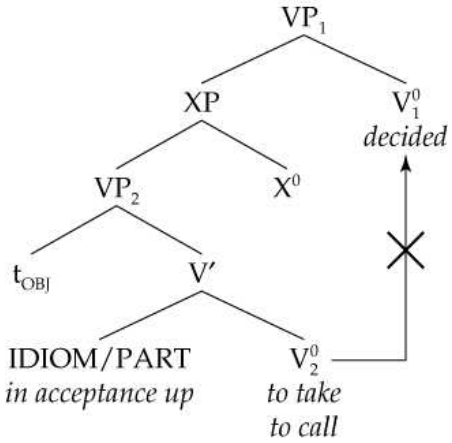
now, the intervening head X^0 would block head-movement across it in (42b) but not in (42a). On the other hand, no problem arises for phrasal movement in *decide*-infinitives – depending on the position of the object, either the XP or the lower VP can undergo movement to the right in (42b):[14]

(42)

a. **X^0-movement – *try*-infinitive:**



b. **X^0-movement – *decide*-infinitive:**



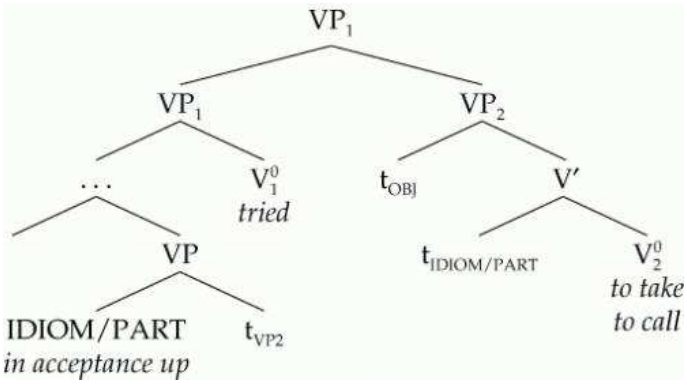
The question then of course is what kind of element X is and why it is present or active in one construction but not in the other. As will be shown in section 4.4, a likely candidate for X is tense, since the two types of infinitival constructions differ in their tense properties. In particular, we will see that *decide*-infinitives contribute independent tense information, whereas *try*-infinitives lack any independent tense interpretation (see also Guéron and Hoekstra 1988, Bok-Bennema and Kampers-Manhe 1994, Wurmbrand 1997, 1998a, 1998c, 2001, and Gonçalves 1998, among others, for the claim that certain infinitives lack tense or are tense-deficient).

Returning to the account that employs only phrasal movement to derive verb clusters (as outlined in (36b), (37), and (39)), the derivation of (41d) (i.e., a *try*-infinitive with a stranded particle or idiomatic phrase) is straightforward. As before, the idiomatic phrase leaves the VP, and the lowest VP undergoes movement to the right (cf. (43a)). To account for the difference between auxiliary-participle constructions and *try*-infinitives (i.e., the contrast between (32e) and (41b)) in the mixed account, it has been suggested that the former allow only head-movement, whereas the latter allow head or phrasal movement. A similar distinction can be made in the pure phrasal movement approach. While auxiliary-participle constructions permit only movement of the lowest VP, *try*-infinitives allow movement of higher VPs/XPs as well. Thus, in (41b), the idiomatic phrase again leaves the VP; however, what moves to the right is not the lowest VP but the VP/XP dominating the idiom.[15]

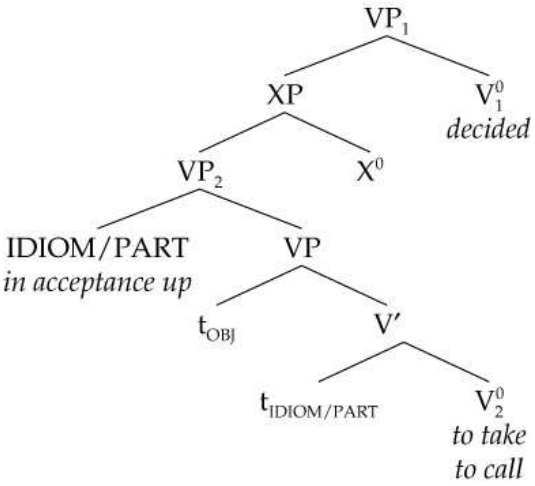
Turning lastly to *decide*-infinitives, the assumption necessary is that in contrast to *try*-infinitives only the higher VPs/XPs can undergo rightward movement. Thus, depending again on the derived position of the object, either the XP or the VP-2 in (43b) moves to the right, but movement of the lowest VP is prohibited. While under the mixed account, the more restricted behavior of *decide*-infinitives could be derived from the structure of these infinitives (i.e., the presence of X^0, which blocks head-movement), it is not clear that the presence vs. absence of functional projections in the infinitive should have an effect on the possibility vs. impossibility of movement of the lowest VP in the pure phrasal movement approach. All else being equal, considerations of parsimony would seem to favor the mixed account sketched above; however, the ultimate decision between the two approaches evidently depends on the framework used:

(43)

a. **XP-movement – *try*-infinitive:**



b. **XP-movement – *decide*-infinitive:**



To conclude, if it is assumed that idiomatic phrases and particles are immobile, the distribution of these elements in Dutch verb clusters leads to the conclusion that both head- and phrasal movement are necessary to derive verb clusters under a head-final base structure. If it is assumed that idiomatic phrases and particles are not immobile per se but subject to a vacuous movement constraint, a pure phrasal movement approach can in principle be maintained. Table 75.6 summarizes the constructions discussed and the assumptions necessary to account for the distribution of these constructions in the mixed account and in a pure phrasal movement approach.

3.2 Verb projection raising

This section focuses on the distribution of non-verbal elements (such as objects, particles, and prepositional phrases) in verb-cluster constructions. A phenomenon that has interesting repercussions for a number of issues arising in the verb-cluster debate is that of verb projection raising, illustrated in (44) from WF, Afrikaans (AF), and SG. What is crucial in these constructions is that phrasal material appears between the verbs of a cluster:[16]

(44)

Verb projection raising – 1 – [. . . 2]:

a. da Valère wilt vele boeken lezen WF
that Valère wants many books read
'that Valère wants to read many books' (Haegeman 1998c: 261)

b. da Jan . . . {da boek} wilt {da boek} vuor Marie kopen
that Jan . . . {that book} wants {that book} for Marie buy
'that Jan wants to buy that book for Marie' (Haegeman 1992: 148)

c. as hulle daar moet goeie onderwys gee AF
if they there must good education give
'if they must provide a good education there' (Robbers 1997: 76)

d. das si am Grendel wöt sini velore chlaue zruggeh SG
that she to-the Grendel wants his lost paw back-give
'that she wants to return the lost paw to Grendel'

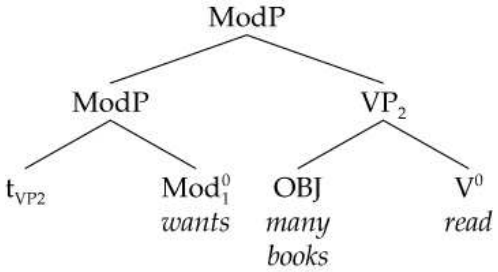
To derive these configurations under the head-final approach, the entire lower VP moves to the right of the modal verb (i.e., the object remains inside the VP as in (45a)). Equivalently, it could be assumed (see, for instance, Van

den Wyngaerd 1989b) that the object moves to a functional projection outside the VP (e.g., SpecAgrOP) and that this functional projection rather than the VP undergoes movement to the right. To derive the examples in (44) under a head-initial approach, no verb or verb phrase movement takes place; the only movement operation necessary is object movement to a functional projection between the modal and the main verb (as in (45b)):

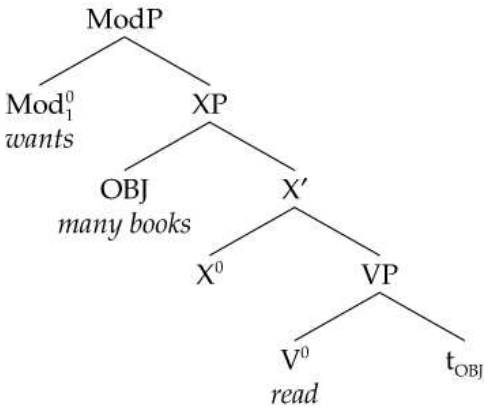
(45)

Verb projection raising – 1 – [. . . 2] (= (44a)):

a. **Head-final base**:



b. **Head-initial base**:



Note that verb projection raising is not an obligatory phenomenon (except for certain elements; see below). In particular, in all of the above examples, the objects can also precede the higher verb. For the head-final approach, this means that the object can move out of the VP prior to VP movement in (45a) (or, under the AgrOP-movement analysis, one has to allow for either AgrOP movement or VP movement). For the head-initial approach, these facts indicate that the object can move (further) to a functional projection above the higher verb. Thus, either approach has to involve some notion of optionality – in head-final approaches, optionality comes in as a choice between overt and covert movement of the object or a choice between two (or more) categories that can undergo verb projection raising (i.e., VP or AgrOP); in head-initial approaches, optionality comes in as an option for the ordering of functional projections (i.e., whether XP is below or above ModP in (45b)).

Looking across the West Germanic languages/dialects, there are some interesting restrictions and cross-linguistic generalizations regarding what elements can, cannot, or must intervene between the verbs of a verb cluster. First, verb projection raising is not possible in all West Germanic languages/dialects. Examples such as the verb projection raising ones in (44), for instance, are ungrammatical in Dutch (i.e., while Dutch allows the 1–2 order in these clusters, the object has to precede the higher verb). Second, we find that among the languages allowing verb projection raising structures, the types of elements that can occur inside a cluster are not the same across these languages. Although the distribution shows some degree of variation, there is also an interesting generalization that emerges. As can be seen in the summary in table 75.7 (illustrations will be provided below), the 'bigger' or the more 'independent' an element is, the less likely it is to be licensed as part of a verb cluster. Furthermore, if a language allows verb projection raising with elements from a certain category in table 75.7, it also allows verb projection raising with the elements that are in columns further to the left – i.e., if 'bigger' elements can occur in a cluster, all 'smaller' elements are also allowed to occur between the verbs of a cluster.

Let us begin with the distribution of particles which are considered the 'smallest' category. The claim that these elements are small finds support in the assumption (which most researchers make in one form or another) that particles form a complex head (whether base-generated or derived) at some level with the verb they are associated with. Importantly for the present discussion, these elements can be part of verb clusters in all languages (cf. (46a–e)), and in fact, they must be part of the cluster and cannot be stranded in some of the languages (cf. the examples from AF, GE, and SG in (46a, c, d), respectively – DU = Dutch):[17]

Table 75.7 Verb projection raising (with modals, auxiliaries)

Language	Separable particles	Low adverbs, idioms, bare Ns	Indefinite objects, PPs	Definite objects
Afrikaans	Obligatory[a]	Possible	%Possible	Impossible
Dutch	Possible	Marginal[b]	Impossible	Impossible
German	Obligatory[a]	Possible	%Possible	Impossible
Swiss	Obligatory[a]	Possible	Possible	Possible
West Flemish	Possible	Possible	Possible	Possible

***Notes*: Adjustments**

[a]**Obligatory with 'idiomatic' particles (cf. Robbers 1997, citing le Roux 1988); 'transparent' particles are marginal in stranded position in Swiss and German (Wurmbrand 1999b).**

[b] **Only possible if element is morphologically not complex (cf. Neeleman 1994a).**

(46)

Particles in verb clusters:

a. Die bende sal ons {*aan} bly {aan} rand. AF
The gang will us {*on} remain {on} assault
'The gang will go on assaulting us.' (Robbers 1997: 61, fn. 14)

b. dat Jan zijn moeder {op} wil {op} bellen DU
that Jan his mother {up} wants {up} call
'that Jan wants to call his mother' (Neeleman 1994: 24)

c. dass er das Buch {*durch} hätte {durch} sehen sollen GE
that he the book {*through} had {through} look shall
'that he should have looked through the book'

d. dass er da Buech {*doere} het soele {doere} laese SG
that he the book {*through} has shall {through} read
'that he should have read (through) the book' (Schönenberger p.c.; Haeberli p.c.)

e. dan ze hem vu dienen cursus {in} moeten {in} schrijven WF
that they him for that course {in} must {in} write
'that they must register him for that course' (Rutten 1991: 60)

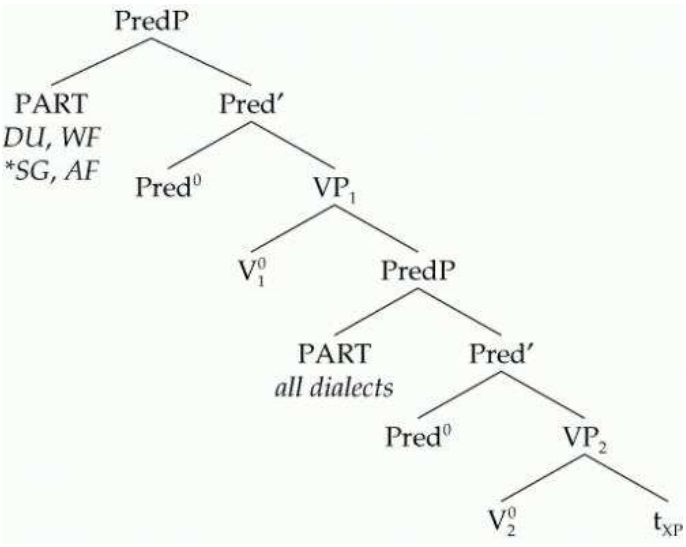
There are two basic ways to capture this distributional difference regarding particle placement. First, it has been assumed that the difference lies in the properties of the particles in the two language groups (i.e., DU and WF, on the one hand, and AF, GE, and SG, on the other hand). Second, it has been assumed that the difference lies in the properties of verb-cluster formation. Starting with the head-final approach, particle incorporation could be seen as obligatory in the non-stranding languages and optional (or optionally covert) in the stranding languages. Thus, independent of whether verb clusters are formed by head- or phrasal movement, in a language with obligatory overt incorporation of particles, particles will always be carried along with the verb or verb phrase, and hence the particle will show up next to the verb it is associated with. According to the second option, the difference between DU and WF, on the one hand, and AF, GE, and SG, on the other hand, would lie in a difference in the process of verb-cluster formation. If – as discussed in section 3.1.3 – it is assumed that particles are immobile, the difference could be seen as a contrast between the possibility (DU, etc.) vs. impossibility (GE, etc.) of head-movement to derive verb-cluster reordering (i.e., in the latter only phrasal movement is allowed, and hence stranding of the particles would be prohibited). Finally, under a pure phrasal movement approach to verb-cluster formation, it could be assumed that DU and WF allow leftward movement of particles prior to VP movement (and hence stranding of particles when the VP undergoes rightward movement), whereas particles cannot undergo phrasal movement in AF, GE, and SG. Turning to the head-initial approach, the most common assumption is that in AF, GE, and SG, the projection targeted by particles is directly above the phrase hosting the verb with which the particle is associated, whereas the landing site for particles can be higher up the tree in DU and WF.

Thus, to account for the properties of particle placement in West Germanic, both the head-final and the head-initial approach require certain language-specific assumptions. The ultimate goal is to derive these assumptions from other properties of grammar; however, at this stage, it seems that this goal has not been reached. While there are accounts (such as Zwart 1996; see section 3.4.1) that provide algorithms for why particles can target higher positions in certain languages, it is still an open question why this position is not available in other languages. To be more specific, the question is how differences such as the one illustrated in (47) can be motivated. Assuming for simplicity a head-initial structure (although the same question arises for the head-final approach), AF, DU, SG, and WF allow the basic 1–2 order in modal–infinitive constructions, and hence involve a structure without verb-cluster movement. However, since the languages show a difference regarding the position where particles can go (DU and WF allow the particles to precede the higher verb, whereas AF and SG require the particle to be next to the lower verb), it has to be assumed that the landing site of particles (PredP) is different in the two language groups (i.e., PredP is above or below the higher verb). While this assumption derives the correct word order, it should also be noted that an analysis along these lines is based on a stipulation. That is, the

stipulated ordering of functional projections gives us the right result, but the question as such remains: why can PredP be higher than VP-1 or why can particles move to a higher PredP in some languages but not in others?

(47)

Particle placement in 1-2 order (head-initial base):



Thus, what seems to be still called for is an account that does not simply restate the distribution of particles (and in fact of all elements in table 75.7, as we will see below) as assumptions about the ordering of syntactic projections, but that derives the variation from independent principles. More can be said about the intricacies of particle placement in West Germanic verb clusters, and some issues will be addressed in section 3.4; however, for the present discussion, the crucial observation is that particles are always allowed to interrupt a verb cluster (which, in the head-initial setting, could be seen as evidence for the presence of a PredP between the verbs of a cluster), but that particle placement is also driven by language-specific properties.

The next class of elements in table 75.7 consists of bare nouns, low adverbs, resultatives, and parts of idioms. Since the distribution of these elements is by and large the same in any given language, they will be considered together here (however, refinements are likely to be necessary). As is illustrated in (48), all languages allow these elements as parts of a verb cluster (modulo the restriction noted by Neeleman 1994a, namely that only morphologically non-complex elements are possible in DU; cf. the contrast between (48b′) and (48b″)). Furthermore, in contrast to particles, no language *requires* that these elements be part of the cluster:

(48)

Other 'small' elements in verb clusters:

a. dat hulle hier kom water drink het AF
that they here come water drink have
'that they have come here to drink water' (Robbers 1997: 75)

a′. Jy sal seker moet vinnig reageer.
You will certainly must quickly reply
'You will certainly have to reply quickly.' (Robbers 1997: 83)

a″. Jy sal dit moet in ag neem.
You will it must into consideration take
'You will have to take this into consideration.' (Robbers 1997: 73)

b. dat Jan de deur {groen} wil {groen} verven DU
that Jan the door {green} wants {green} paint
'that Jan wants to paint the door green' (Neeleman 1994a: 24)

b′. dat Jan de meloen {open} zal {open} snijden
that Jan the melon {open} will {open} cut
'that Jan will cut open the melon' (Neeleman 1994a: 237)

b″. dat Jan de meloen {helemaal open} zal {*helemaal open} snijden
that Jan the melon {all-the-way open} will {*all-the-way open} cut
'that Jan will cut the melon all the way open' (Neeleman 1994a: 237)

b‴. dat Jan de bloemen {water} heeft willen {?/*water} geven
that Jan the flowers {water} has want-ipp {?/*water} give

'that Jan wanted to water the flowers' (Veraart p.c.)

c. daß er vor der Abreise noch {Blumen} hätte {Blumen} gießen sollen GE
that he before the departure still {flowers} had {flowers} water shall
'that he should have watered the flowers before his departure'

c′. dass er das Buch {genau} hätte {genau} durchsehen sollen
that he the book {carefully} had {carefully} through-look shall
'that he should have looked through the book carefully'

c″. daß er dieses Faktum {in Betracht} hätte {in Betracht} ziehen müssen
that he this fact {in consideration} had {in consideration} take must
'that he should have taken this fact into consideration'

d. dass er vor de Abreis no {Blueme} het soele {Blueme} guesse SG
that he before the departure still {flowers} had shall {flowers} water
'that he should have watered the flowers before his departure'
(Schönenberger p.c.; Haeberli p.c.)

d′. dass er da Buech {gnau} het soele {gnau} doere laese
that he the book {carefully} had shall {carefully} through read
'that he should have read through the book carefully'
(Schönenberger p.c.; Haeberli p.c.)

d″. dass er das {i Betracht} het soele {i Betracht} zieh
that he that {in consideration} had shall {in consideration} take
'that he should have taken this into consideration'
(Schönenberger p.c.; Haeberli p.c.)

e. da Jan dat boek absoluut wilt thuis lezen WF
that Jan that book absolutely wants at-home read
'that Jan absolutely wants to read that book at home'
(Haegeman 1992: 190)

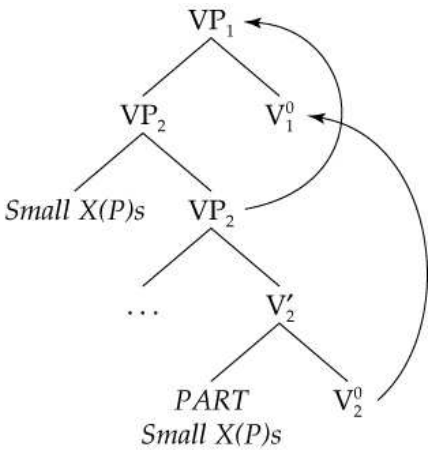
e′. da Valère oa willen morgen no Gent goan
that Valère had want-ipp tomorrow to Gent go
'that Valère had wanted to go to Gent tomorrow'
(Haegeman 1995a: 72)

The fact that the elements in (48) behave like particles in that they are allowed to split up a verb cluster (across West Germanic) could be seen as support for the claim that resultatives, bare nouns, idiom chunks, and perhaps certain adverbs share a common property with particles (e.g., they form a complex head with the verb as suggested by Neeleman 1994a, or they target the same functional projection – PredP in (45)). On the other hand, the fact that these elements do not have to be part of the verb cluster in any of the languages discussed shows that these elements also contrast with particles in some crucial respect (e.g., depending on one's analysis of particle constructions, the elements in (48) do not have to form a complex head with the verb, even in languages where particles are required to do so; or in the head-initial setting, the landing site of the elements in (48) can be further away from the verb than the one where particles must move to). The derivation of the word orders attested in verb clusters involving 'small' elements such as bare nouns, adverbs, etc., is fairly straightforward. The diagrams in (49) illustrate possible head-final and head-initial derivations and summarize the assumptions necessary to capture the distribution of particles and other small elements in verb clusters. As in the case of particles, an open question regarding the distribution of these elements is whether the assumptions in (49) can be related to other properties of the particular languages, or whether they simply constitute irreducible language-specific facts that do not follow from other conditions or constraints but that must be learned for each language:

(49)

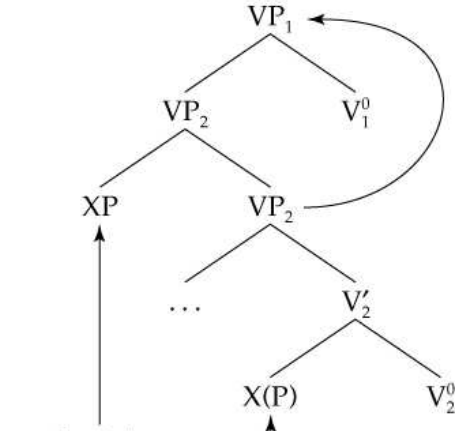
Verb projection raising with particles and other 'small' elements:

a. **Head-final base – mixed account:**



X⁰-movement: DU, WF
XP-movement: All others

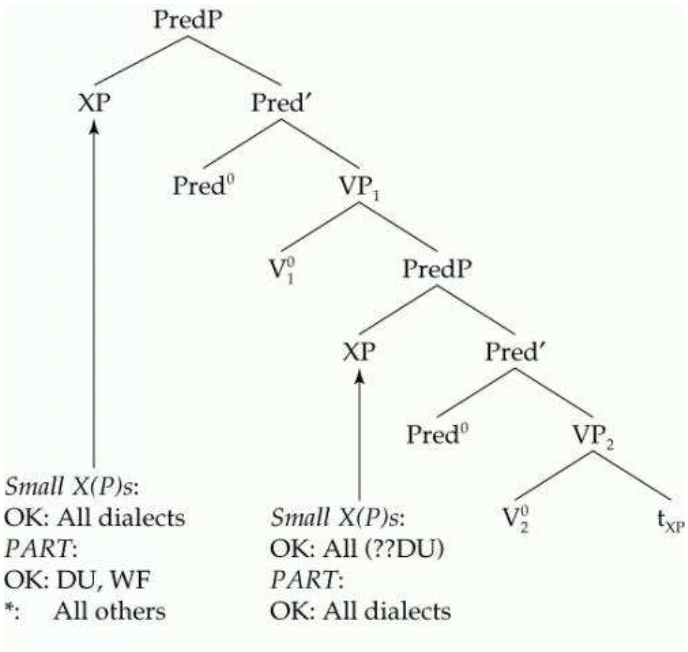
a¢. **Head-final base – XP-movement account**:



Small X(P)s:
OK: All dialects
PART:
OK: DU, WF
*: All others

Small X(P)s:
OK: All (??DU)
PART:
OK: All dialects

b. **Head-initial base**:



Small X(P)s:
OK: All dialects
PART:
OK: DU, WF
*: All others

Small X(P)s:
OK: All (??DU)
PART:
OK: All dialects

The final two categories that have to be distinguished in verb projection raising constructions (see again table 75.7) are indefinite (or weak) noun phrases and prepositional phrase, on the one hand, and definite or (strong) noun phrases on the other hand. While the phrases of the former type are allowed to occur within a verb cluster in SG, WF, and (at least for some speakers) in AF and GE, the latter are allowed only to separate the verbs of a cluster in SG and WF. The examples in (50) illustrate this last difference found among the West Germanic dialects regarding the kind of material allowed in verb projection raising configurations (further examples illustrating verb projection raising in GE can be found in Den Besten and Broekhuis 1992; Broekhuis 1992: 190):

(50)

DPs and PPs in verb clusters:

a. Dink jy ek sal kan in Pretoria bly? AF
Think you I will can in Pretoria stay
'Do you think I will be able to get a place to stay in Pretoria?'
(Robbers 1997: 82)

a′. %Ek sal nou kan twee boeke betaal.
I will now can two books pay
'I will now be able to pay for two books.' (Robbers 1997: 77)

a″. *Sy sal graag wil die boek lees.
she will gladly want the book read
'She would be happy to read the book.'
(Robbers 1997: 78; my paraphrase)

b. dat Jan {naar Wenen} heeft willen {*naar Wenen} gaan DU
that Jan {to Vienna} has want-ipp {*to Vienna} go
'that Jan wanted to go to Vienna' (Veraart p.c.)

b′. dat Jan {een huis} wil {*een huis} kopen
that Jan {a house} wants {*a house} buy
'that Jan wants to buy a house'
(Haegeman and Van Riemsdijk 1986: 419)

b″. dat Jan {het huis} wil {*het huis} kopen
that Jan {the house} wants {*the house} buy
'that Jan wants to buy the house' (Veraart p.c.)

c. %dass er nicht hätte nach Turkestan fahren sollen GE
that he not had to Turkestan go shall
'that he should not have gone to Turkestan'

c′. %dass er zumindest hätte einen Trostpreis gewinnen sollen
that he at least had a consolation prize win shall
'that he should at least have won a consolation prize'

c″. *dass er vor der Abreise hätte die Kakteen gießen sollen
that he before the departure had the cacti water shall
'that he should have watered the cacti before his departure'

d. dass er noed het soele noch Turkeschtan fahre SG
that he not had shall to Turkestan go
'that he should not have gone to Turkestan'
(Schönenberger p.c.; Haeberli p.c.)

d′. dass er vor de Abreis het sole pBlueme/t Rose guesse
that he before the departure had shall the-flowers/the roses water
'that he should have watered the flowers/roses before his departure'
(Schönenberger p.c.; Haeberli p.c.)

d″. dass er het soele da Buech gnau doerelaese
that he had shall the book carefully through-read
'that he should have read through the book carefully'
(Schönenberger p.c.; Haeberli p.c.)

e. da Jan . . . {da boek} wilt {da boek} vuor Marie kopen WF
that Jan . . . {that book} wants {that book} for Marie buy
'that Jan wants to buy that book for Marie' (Haegeman 1992: 148)

e′. da Valère wilt vele boeken lezen / een hus kopen
that Valère wants many books read / a house buy
'that Valère wants to read many books/buy a house'
(Haegeman 1998c: 261; Haegeman and Van Riemsdijk 1986: 419)

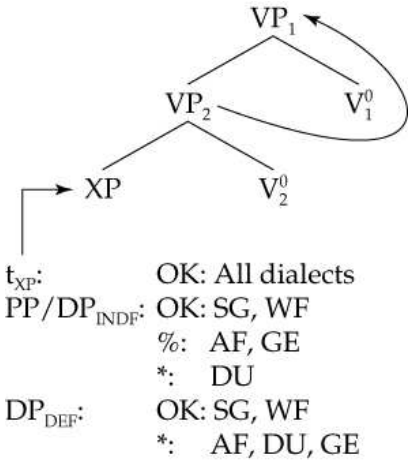
e″. da Valère willen [Marie dienen boek geven] eet
that Valère want-ipp [Marie that book give] has
'that Valère has wanted to give Marie that book'
(Haegeman 1998c: 260)

Under a head-final approach (cf. (51a)), definite objects must leave the VP prior to verb projection raising in AF, DU, and GE. For some AF and GE speakers, indefinite objects and prepositional phrases can remain inside the VP. Finally, in WF and SG, objects and prepositional phrases can be part of the projection that undergoes rightward movement. Under a head-initial approach (cf. (51b)), all XPs must leave the VP; indefinite objects and prepositional phrases can target a position lower than the higher verb in SG and WF, and in some AF and GE dialects. Definite objects can target the intermediate position in SG and WF, but they must move to a position higher than the highest verb in all other dialects:

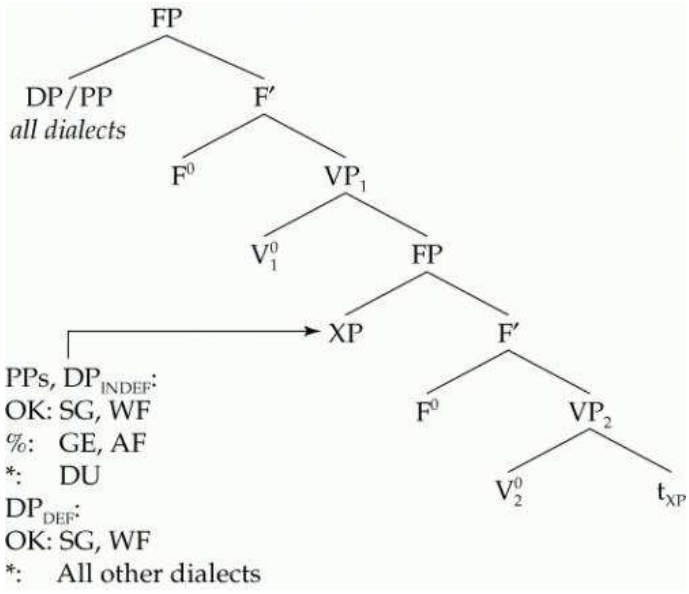
(51)

Verb projection raising with objects and prepositional phrases:

a. **Head-final base – XP-movement account:**



b. **Head-initial base:**



Parts of the above distribution of objects and prepositional phrases in verb clusters can be related to inherent differences between these elements. In particular, a frequent assumption is that definite objects are subject to different licensing conditions than indefinite objects (or more accurately, the conditions differ depending on whether an object represents old or new information). In more detail, it is commonly assumed that definite objects in contrast to indefinite objects must leave the VP for semantic reasons (see, for instance, Diesing 1990a, 1996, 1997; Bobaljik 1995; among many others). Thus, if it is assumed that definite objects are required to move

to a VP-external position (head-final approach) or that they must target a higher specifier than indefinite objects and prepositional phrases (head-initial approach), the difference encountered in AF and GE between definite and indefinite objects can be related to the semantic difference of the elements involved. The distribution of objects in verb clusters thus provides further evidence for this view. However, unfortunately, this semantic correlation captures only parts of the distribution. Further language-specific assumptions are again necessary to account, e.g., for the fact that definite objects can target the lower FP (in a structure like (51b)) in SG and WF, or the fact that the lower FP is unavailable for all objects in DU (and for some AF and GE speakers).

In conclusion, the verb projection raising phenomenon is not an absolute property of a language (i.e., languages do not simply allow or disallow verb projection raising structures), but the felicity of these structures depends crucially on the type of material that occurs between the verbs of a cluster. Comparing the composition of verb clusters across West Germanic, some interesting generalizations regarding the material that can occur interspersed in a verb cluster can be found. However, the distribution of verb projection raising material is also subject to language-specific properties that do not necessarily follow from other properties of grammar.

3.3 Motivation for verb-cluster movement

One of the biggest challenges verb clusters provide for syntactic theories is the fact that the orders found in verb clusters are to some extent arbitrary (though, as we have seen, there are some robust generalizations). Hence in order to develop an explanatory account for the facts noted that goes beyond the statements in tables 75.3 or 75.4, one has to find principles that motivate the verb-cluster reorderings found across languages and that exclude the structures that are unattested (both cross-linguistically and in any particular language). The issue of the motivation of verb-cluster movement has been approached by many researchers, and the general idea most analyses are built on is that verb-cluster movements are triggered by the presence of certain syntactic features or the needs of various elements to fulfill certain licensing conditions. If these features or conditions can be independently motivated, an account deriving the distribution of verb clusters by means of these features or licensing conditions would offer an insightful explanation for the phenomenon, and hence be clearly preferable to the descriptive accounts outlined in section 2.4.

This section will focus on the issue of the motivation of verb-cluster formation, and it will be shown that, while there are numerous ways to account for the distribution of verb clusters by the assumption of features that have to be checked or licensing conditions that have to be met, there nevertheless does not seem to be a principled way to motivate differences among languages. What we will see is that generally, these features or conditions are simply stated as being present in one language vs. absent in another, or weak in one language vs. strong in another, and moreover they are not related to any other property of the particular language (group) they are postulated for. Thus, many verb cluster triggers end up as 'parameters' that capture only the facts of verb-cluster reordering in one particular language. The conclusion will be that, although perhaps 'dressed' in a nicer way than the inversion rules in tables 75.3 or 75.4, assumptions along the lines of 'language A has feature X but language B does not have feature X', or 'feature X is strong in language A but weak in language B', are nevertheless arbitrary stipulations with little or no predictive power, and hence the postulation of these assumptions contributes little to the basic questions of how verb-cluster structures are motivated and why this phenomenon exists. It should be emphasized, however, that the aim of this perhaps slightly negative discussion is not to criticize any of the existing approaches to verb clusters, but rather to point out that there are issues that have not been settled yet and hence offer an interesting terrain for further research.

To illustrate the problem of motivating verb-cluster movements, it will suffice to look at the distribution of two-verb clusters. To recapitulate, in the head-final approach, it is assumed that the 1-2 order is derived by movement, whereas in the head-initial approach, the 2-1 order requires movement. Tables 75.8 and 75.9 summarize the distribution of two-verb clusters in the languages discussed and also list whether movement is necessary, possible, or impossible in each of the constructions (table 75.8 is from a head-final perspective, and table 75.9 is from a head-initial perspective).

Table 75.8 Five language types (two verbs): head-final derivations

Language	Order: AUX-PART	Derivation	Order: MOD-INF	Derivation
GE, Frisian	2-1	No movement	2-1	No ovement
DU (1 = non-FIN)	2-1/1-2	Optional movement	*2-1/1-2	Obligatory movement
Swiss-1	2-1	No movement	2-1/1-2	Optional movement
Swiss-2, DU (1 = FIN)	2-1/1-2	Optional movement	2-1/1-2	Optional movement
WF, AF	2-1	No movement	*2-1/1-2	Obligatory movement
Unattested	*2-1/1-2	Obligatory movement		
Unattested	2-1/1-2	Optional movement	2-1/*1-2	No ovement possible

Table 75.9 Five language types (two verbs): head-initial derivations

Language	Order: AUX-PART	Derivation	Order: MOD-INF	Derivation
GE, Frisian	2-1	Obligatory movement	2-1	Obligatory movement
DU (1 = non-FIN)	2-1/1-2	Optional movement	*2-1/1-2	No movement
Swiss-1	2-1	Obligatory movement	2-1/1-2	Optional movement
Swiss-2, DU (1 = FIN)	2-1/1-2	Optional movement	2-1/1-2	Optional movement
WF, AF	2-1	Obligatory movement	*2-1/1-2	No movement
Unattested	*2-1/1-2	No movement possible		
Unattested	2-1/1-2	Optional movement	2-1/*1-2	Obligatory movement

The descriptive accounts offered in section 2.4 derive this distribution by rules demanding, allowing, or prohibiting the reordering of the elements involved (e.g., the head-final settings specify that AF and WF require a shift between modals and their complements, whereas the head-initial settings specify that these two languages require a shift between certain auxiliaries and their complements). As noted, these rules are arbitrary and do not offer a way of accounting for the unattested orders. That is, nothing should prevent a rule that requires (head-final) or disallows (head-initial) inversion between auxiliaries and participles; or a rule that allows inversion between auxiliaries and participles but prohibits it (head-final) or requires it (head-initial) for modals and auxiliaries. The aim of an explanatory syntactic account is thus to (i) derive the distribution in tables 75.8 and 75.9 (i.e., account for what is possible *and* what is impossible), and (ii) motivate the operations by principles independently attested (either cross-linguistically or in the particular language). The next subsections summarize and evaluate three types of approaches to verb-cluster formation in light of these two criteria.

3.3.1 Overt vs. covert movement

A common way of encoding (word-order) differences between languages is to assume that movement of a particular type applies in all languages, but that languages differ as to whether a particular movement operation is overt or covert (see, for instance, Zwart 1996 for assumptions along these lines). To accommodate West Germanic two-verb clusters, one would then have to assume the following overt/covert settings (note that it does not matter for the discussion here if covert movement is seen as movement at LF or overt movement with pronunciation of the lower copy):

(52)

Overt/covert settings for two-verb clusters:

a. **Head-final structure:**

GE, Frisian:	Infinitives and participles move covertly
DU (1 = non-FIN):	Infinitives move overtly, participles overtly or covertly
DU, Swiss-2:	Infinitives and participles move overtly or covertly
Swiss-1:	Infinitives move overtly or covertly, participles covertly
WF, AF:	Infinitives move overtly, participles covertly

b. **Head-initial structure:**

GE, Frisian:	Infinitives and participles move overtly
DU (1 = non-FIN):	Infinitives move covertly, participles overtly or covertly
DU, Swiss-2:	Infinitives and participles move overtly or covertly
Swiss-1:	Infinitives move overtly or covertly, participles overtly
WF, AF:	Infinitives move covertly, participles overtly

While the settings in (52) derive the possible word orders in the languages listed, the question arises whether this approach goes beyond the descriptive accounts presented in section 2.4. It seems that the two criteria mentioned above for an explanatory account are both unfulfilled. First, although the overt/covert approach accounts for what is possible across the languages discussed, it does not account for what is impossible. That is, there is no reason why there should not be a language with the settings 'participles move overtly' or 'participles move overtly or covertly and infinitives move covertly' (head-final), or the settings 'participles move covertly' or 'participles move overtly or covertly and infinitives move overtly' (head-initial). Second, the overt/covert assumptions in (52) do not correlate with any other property found in the language(s) discussed but only serve the purpose of deriving the word orders in verb clusters – i.e., they are not independently motivated and as such are as good or bad as the inversion rules in tables 75.3 or 75.4.

3.3.2 Positional approach without covert movement

A different (more recent) approach to word-order variation is what will be called the 'positional' approach here. The core idea of positional analyses is that word-order differences are not the result of a difference in the timing of movement, but rather arise from different positions an element can occupy in different languages. This approach is a direct consequence of recent expansions of phrase structure (as, for instance, suggested by Rizzi 1997 or Cinque 1999) and the Minimalist idea that movement is triggered by the presence of features. In particular, the increase of the number of functional projections offers new landing sites for movement, and hence

ways to encode differences between languages without reference to an overt/covert distinction. The step from the traditional verb (projection) raising approach to an analysis of verb-cluster movement as movement to functional projections also (partially) solves a constant problem arising for V-to-V and VP-to-VP raising analyses – namely, the question of how movement can be motivated. In particular, head-movement (i.e., movement of a lexical head to another lexical head) has proven quite difficult to motivate since, as pointed out by Den Dikken (2000), lexical heads typically do not serve as attractors and the assumption of a featural deficiency is insufficient to account for the optionality of verb-cluster movement in many dialects.

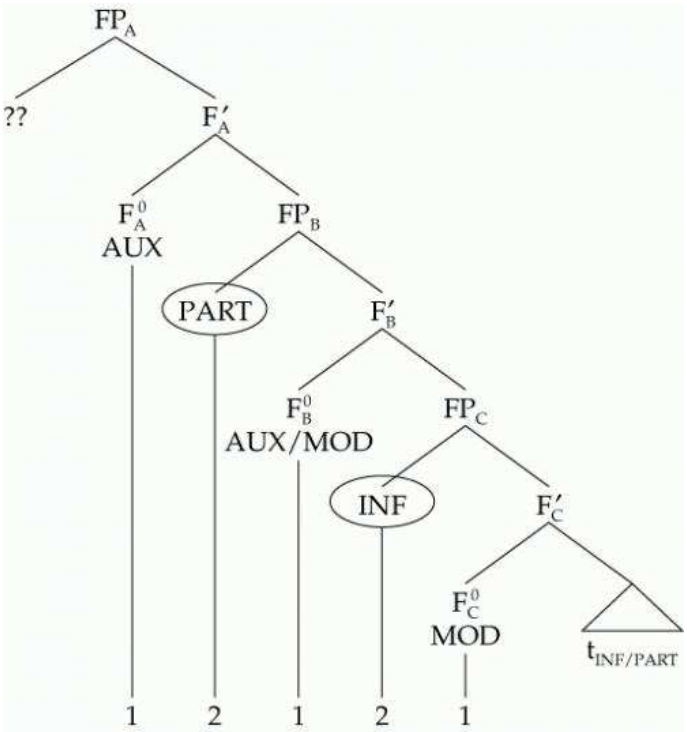
The idea that word-order variation is the result of different positions rather than an overt/covert distinction is reflected (fully or partly) in many recent analyses of verb clusters (see Haegeman 1995a, 1998b, 1998c; Den Dikken and Hoekstra 1997; Robbers 1997; Koopman and Szabolcsi 2000; among many others). The challenge of positional analyses is to avoid overgeneration and to limit the options offered by the (in principle unrestricted) number of functional projections (i.e., although the core idea of positional analyses is that certain elements can occur in different positions in different languages, it is not the case that they can occur just anywhere). The general approach to the overgeneralization problem is to assume that one of the elements in a two-verb cluster is fixed to one (derived) position, whereas the other element is arranged around it. Haegeman (1995a, 1998b, 1998c), for instance, assumes that the positions of the participle and the infinitive are fixed, whereas the positions of the auxiliary and the modal are variable. Robbers (1997) and Zwart (1996), on the other hand, assume that the position of the auxiliary is fixed, whereas the position of the participle is variable (Zwart's account also makes use of an overt/covert distinction).

Turning to two-verb clusters, a positional account is outlined in (53). As can be seen, three functional projections are necessary to account for the wordorder differences in the languages discussed. SpecFP(B) has been chosen as the designated position for participles, whereas SpecFP(C) is the position targeted by infinitives. That is, under a positional approach, participles (cross-linguistically) move to SpecFP(B) and infinitives move to SpecFP(C) in overt syntax. Modals and auxiliaries, on the other hand, are variable in that they can occur in F(A), F(B), or F(C). Thus, if the auxiliary occupies F(A), the 1-2 order is derived; if it occupies F(B) or F(C), the 2-1 order is derived. Similarly, if the modal is in F(A) or F(B), the 1-2 order is derived; if it is in F(C), the 2-1 order is derived (to limit the positions, it would be sufficient to assume that auxiliaries occupy either F(A) or F(B), whereas modals occupy either F(B) or F(C); cf. (53a)). The variation found across West Germanic can now be derived from the settings in (53b):

(53)

Positional analysis of two-verb clusters:

a. **Structure:**



b. **Settings:**

GE, Frisian:	AUX: F(B/C)	MOD: F(C)
DU (1=non-FIN):	AUX: F(A, B/C)	MOD: F(A/B)
DU, Swiss-2:	AUX: F(A, B/C)	MOD: F(A/B, C)
Swiss-1:	AUX: F(B/C)	MOD: F(A/B, C)

WF, AF: AUX: F(B/C) MOD: F(A/B)

This approach is appealing, since it reduces the variation found across languages to simple claims about the position of certain elements. Despite this, the question one has to ask is whether an account involving assumptions of the form in (53) is an explanatory account. That is, does this approach make any predictions about impossible combinations, and are the assumptions in (53) independently motivated? Unfortunately, it seems that the answers are again negative. First, it is not clear under this approach why certain combinations are unattested. In particular, there are no languages/dialects that require auxiliaries to occupy F(A) only; and there are no languages/dialects that allow auxiliaries in any position but require modals to occur in F(C). Regarding the former case, one might suggest that languages that allow auxiliaries only in F(A) and not in F(B) do not exist, since overt specifier–head configurations between elements that are in some checking relation (such as auxiliaries and participles) have to be at least possible in every language. However, this seems to be falsified by WF and AF, which allow modals only in F(A)/(B) and not in F(C) (i.e., an overt specifier–head configuration between two elements in a checking relation is *not* allowed in these languages). Thus, while the positional approach derives the possible orders, it does not provide any obvious way other than by stipulation to exclude the unattested configurations.

An answer to the second question of the explanatory value of positional approaches such as the one outlined above crucially depends on whether it is possible to assign a function or meaning to the functional projections in (53). As for F(B) and F(C), it could be assumed that these heads are the designated positions for auxiliaries (i.e., F (B) encodes, e.g., aspectual information) and modal verbs (i.e., F(C) encodes modality). Furthermore, the idea that these heads must enter into a checking relation (i.e., in particular a specifier–head relation) with a participle (SpecF(B)) or an infinitive (SpecF(C)) is a fairly standard assumption in theories that define licensing as checking in specifier–head configurations. A question, however, arises regarding the highest projection F(A): what type of information or feature is expressed by this projection? It is not obvious what the answer to this question is. A similar concern arises for F(B). Assuming that F(C) represents the base position for modals, one has to ask why modals can or must move further to F(B) in certain languages.

This question becomes an even more important issue if we look more closely at the way positional analyses (in particular, pure surface positional analyses that dispense with covert movement) handle optionality. Although positional analyses are built on the claim that certain elements can occur in different positions (both within one language and across languages), on closer inspection, this optionality seems in fact to be inherently inconsistent with a pure positional approach. To illustrate this problem, a concrete example will be examined in more detail. As we have seen above, in DU and Swiss-2, modals and auxiliaries can occur in any of the functional heads postulated (i.e., they can either precede or follow the participle and infinitive). There are two ways to derive this optionality. First, it can be assumed that modals and auxiliaries do not have universally designated positions but are inserted in different positions in different languages and/or constructions. Second, modals and auxiliaries are base-generated (universally) in designated positions (i.e., modals in F(C) and auxiliaries in F(B)) and undergo further movement in some languages. Regarding the first option, it should be noted that this does not provide a way to relate the assumption about where elements are inserted in a particular language to any other property (even the idea that the functional projections in (53) are related to notions such as aspect or modality would be given up in this approach). Thus, since this option is entirely descriptive, in that it simply states the order of elements in a clause, it lacks any explanatory value and hence does not provide any insight into the distribution of verbal elements.

According to the second option, modals and auxiliaries are inserted universally in the lower positions; in DU and Swiss-2, however, these elements have a choice of moving on or remaining in their base positions. Since in a pure positional account no covert movement is available, it must be the case that all licensing/checking requirements are met in surface positions. For DU and Swiss-2 modals and auxiliaries, this means that since these elements can stay in the lower positions (i.e., in F(C) or F(B), in the 2–1 orders), they must also be licensed in the lower positions (otherwise, the 2–1 orders should be ungrammatical, given that covert movement is unavailable). However, if this is the case, a serious question arises for the orders that involve movement. What triggers this movement? The conclusion one must draw is that this movement must be untriggered and cannot be caused by any licensing/checking requirement. If there were such a requirement, it would not be met in the case where movement does not occur (again, since this approach rejects covert movement). Thus, under these premises, movement as in DU or Swiss would have to be movement that is not motivated by any syntactic licensing requirement. The only way licensing could be built into such an approach is if it is assumed that the 1–2 order and the 2–1 order involve crucially different features or properties that must be licensed in different positions. However, the works on verb clusters seem to agree that apart from word order there is no difference between examples showing the 1–2 order and those showing the 2–1 order (furthermore, this claim would lead one to conclude that the constructions corresponding to *John must leave* are entirely different constructions in WF and GE, despite the fact that they mean the same).

To conclude, a positional approach that is based on the claims that (i) there is no covert movement, and (ii) movement is motivated by feature checking, leads to a paradox that can only be solved by giving up one of the two assumptions. If the second assumption is given up – i.e., if movement is not considered to be motivated – the assumptions in (53) reduce to stipulations about whether certain elements can or cannot precede other elements.

Hence, an account along these lines would not go beyond simple descriptive statements about the word order in verb clusters, and therefore cannot be seen as superior to the descriptive accounts outlined in section 2.4. The second option – i.e., a positional account that allows covert movement – seems more promising, and will therefore be discussed in some more detail in the next subsection.

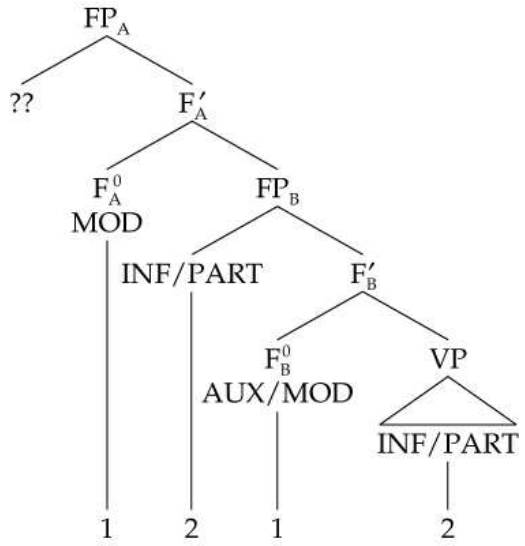
3.3.3 Positional approach with covert movement

In a combined positional and overt/covert account, the minimal structure for two-verb clusters would be as in (54). In (54), auxiliaries occur in F(B), infinitives and participles move overtly or covertly to SpecFP(B), and modals can occupy either F(A) or F(B). Thus, if VP-movement is covert, the 1-2 orders are derived; if VP-movement is overt, the 2-1 order is derived in the auxiliary-participle construction, and either the 1-2 or the 2-1 order in the modal-infinitive construction, depending on the position of the modal. The settings necessary to account for the distribution of two-verb clusters in the languages discussed are listed in (54b):

(54)

Positional analysis of two-verb clusters and covert movment:

a. **Structure:**



b. **Settings:**

GE, Frisian:	MOD in F(B); overt movement
DU (1 = non-FIN):	Non-fin MOD in F(A); overt/covert
DU, Swiss-2:	MOD in F(A) or F(B); overt or covert movement
Swiss-1:	MOD in F(A) or F(B); overt movement
WF, AF:	MOD in F(A); overt movement

As these settings show, the advantage of a combined positional and overt/covert system over an account as outlined in section 3.3.1 (i.e., an account that makes use of only the overt/covert distinction to account for differences between constructions and languages) is that a single overt/covert setting is sufficient in (54) for all constructions (and languages), and no construction-specific stipulations are necessary to derive differences between auxiliary-participle constructions and modal-infinitive constructions. Nevertheless, the system in (54) involves two types of parameters that have to be set for each language: an option between overt and covert movement and an option between two positions for modals. The two positions for modals are essential to account, for instance, for the difference between GE and WF. In both languages, overt VP movement takes place, which guarantees that auxiliary-participle constructions appear in the 2-1 order. However, to derive the 1-2 order in modal-infinitive constructions in WF and AF but not in GE (by keeping the claim that VP movement is overt in these languages; if it were overt for participles but covert for infinitives in WF and AF, we would end up again with a system such as the one in (52)), two positions for modals are necessary.

To return to the major question of this section, we now have to ask again whether a system such as (54) meets the criteria of an explanatory account. Let us first consider if a positional account involving overt and covert movement can exclude the unattested cases. In the scenario in (54), these would be languages with obligatory covert movement, and languages with overt or covert movement for participles but obligatorily covert movement for infinitives. Thus, to exclude these scenarios, all one has to do is to add a ban on obligatorily covert movement and a requirement that the overt/covert parameter is set uniformly for all constructions in one language. Thus, while these assumptions would have to be evaluated with respect to other constructions (in particular, they must be tested in three-verb clusters), it is important to note that this account appears to be the most successful one in providing a way to approach this overgeneralization problem.

Without engaging in an endless discussion of larger verb-cluster constructions, there are, however, two concerns that cast some doubt on the straightforwardness of the account outlined in (54). First, the system in (54) crucially relies on the assumption that cross-linguistically, auxiliaries occur in a fixed position, whereas modals and main verbs have a choice. It is not easy to see why there should be this distinction. In particular, the difference between modals and auxiliaries does not seem to follow from any obvious property of these elements, and hence one could easily imagine the opposite situation (it is also important to note in this respect that this difference between modals and auxiliaries is essential to exclude the impossible orders, as suggested above). The second question the account in (54) is faced with is whether the settings can be independently motivated or whether they only serve the purpose of deriving (two-)verb clusters. One way to motivate the two functional projections in (54) is to assume that FP(B) is the projection responsible for the licensing of auxiliaries (F(B)) and main verbs (SpecF(B)), whereas FP(A) is the projection responsible for the licensing of modals.[18] Under this assumption, modals which start out in F(B) or a lower VP move (overtly or covertly) to F(A) to check whatever 'modal' features have to be checked. Thus, in WF and AF, for instance, modals move overtly, whereas in GE and Frisian, they move covertly. However, assuming that much, a re-evaluation of the point that has been mentioned as an advantage of this system seems necessary. Although no construction-specific settings are necessary under this approach for auxiliaries, infinitives, and participles, and a general overt/covert setting is sufficient for VP movement, the distribution of modals does require additional assumptions. In particular, GE and Frisian require different timing settings for VP movement (which must be overt) and movement of modals (which must be covert). Thus, the claim that there is a uniform overt/covert setting should be qualified; in particular, different timing settings must be stipulated for modals, on the one hand, and main verbs, on the other hand. To conclude, although the system in (54) appears attractive in its restrictiveness, it nevertheless – like the other approaches sketched – involves crucial stipulations that do no more than state the orders of verbal elements in a cluster.

In sum, the discussion in this section has shown that to account for the distribution of West Germanic two-verb clusters, all three approaches outlined above must make crucial reference to category-specific assumptions (in terms of either the timing of movement or the position a particular category targets). In particular, what seems to be unavoidable is the assumption of two differences that so far have not been correlated with any other (universal or language-specific) property: (i) an overt vs. covert difference or different positions for different categories within one language (i.e., an element occurs in FP(A) vs. FP(B) depending on the category of the element, such as modal, auxiliary, etc.); and (ii) an overt vs. covert difference or different positions for elements of the same category in different languages (i.e., an element of a particular type occurs in FP(A) vs. FP(B) depending on the language). To conclude, while it is undoubtedly the case that descriptive accounts such as the ones presented in tables 75.3 and 75.4 are unattractive for their lack of explanatory value, it is not clear at the current stage of the research on verb clusters that it is trivial (or possible at all) to come up with an alternative that does not suffer from these very same inadequacies.

3.4 The issue of directionality

A central question in many works on West Germanic verb clusters is the question of whether a head-initial or head-final approach can be considered as superior (for works that directly address the issue of directionality see, for instance, Kaan 1992a, 1992b; Koster 1994; Den Dikken 1994, 1995d, 1996; Den Dikken and Hoekstra 1997; Zwart 1996; Robbers 1997; Haegeman 1998c; Koopman and Szabolcsi 2000; Ackema 2004). In this section, some of the issues and problems that have been raised in the discussions of the directionality issue will be highlighted.

As the illustrations of the various options to derive verb-cluster configurations have shown (see in particular section 3.1), the answer to the directionality question does not lie in success vs. failure of the (mechanical) derivation of verb-cluster patterns. Both a head-final and a head-initial approach have the tools to create the right word orders by movement. Rather, one has to look for an answer by considering questions of the explanatory value of the approaches under consideration. The common questions that have been raised in this respect are again the two questions utilized in the previous section. First, is one of the two approaches superior in that it not only accounts for what is possible but also accounts for what is impossible (universally and in any particular language)? Second, is one of the two accounts superior in that it not only provides possible derivations but also offers motivations for the operations postulated? The works cited above claim to have positive answers to these questions. Den Dikken (1994, 1995d, 1996) investigates the scope properties in WF verb clusters, and argues for the superiority of a head-initial approach. Zwart (1996) discusses the distribution of verb clusters in a number of West Germanic languages and dialects, and concludes that the variation found across West Germanic is best accounted for in a head-initial approach. The same conclusion is reached by Robbers (1997) for AF and by Haegeman (1998c) for WF. Since Zwart's analysis covers a range of languages and constructions, and the directionality issue appears to be the foremost goal of Zwart's contribution, it will be used here as a 'straw-man' for head-initial approaches. Zwart's contribution is also noteworthy in that it not only offers an analysis for various verb-cluster constructions, but also provides an explicit comparison between the head-final and the head-initial approach that takes into account the questions raised above. To present the directionality debate, Zwart's analysis and critique of head-final approaches will be summarized first (section 3.4.1). Section 3.4.2 will then provide a discussion and comparison of the head-initial approach with a head-final approach. The conclusion will be that certain questions pointed out by Zwart are important challenges – not, as Zwart concludes, solely for head-final approaches, but rather for accounts of verb clusters in general.

3.4.1 Zwart (1996)

The constructions Zwart concentrates on and provides an analysis for are the auxiliary–participle construction and the modal–auxiliary–participle construction (i.e., the constructions showing the greatest variability in DU; see table 75.2). The examples in (55–57) summarize the distribution of these verb clusters. To recapitulate, as is shown in (55), the order between the two verbs in an auxiliary–participle construction is free (but see Zwart for some remarks concerning dialect preferences). In modal–auxiliary–participle constructions (cf. (56)), the unmarked orders are 1–2–3 and 3–1–2, and some speakers also accept the 1–3–2 order. Furthermore, Zwart discusses the distribution of particles in these constructions. As is illustrated in (57), the generalizations regarding particle placement are: (i) the particle has to follow the object; and (ii) the particle has to precede the verb it is associated with:[19]

(55)

Auxiliary–participle construction (with particle verb):

a. dat Jan {*uit} het boek {uit} heeft {uit} gelezen (1–2)
that Jan {*out} the book {out} has {out} read
'that Jan has read/finished the book'

b. dat Jan {*uit} het boek {uit} gelezen {*uit} heeft (2–1)
that Jan {*out} the book {out} read {*out} has
'that Jan has read/finished the book'

(56)

Modal–auxiliary–participle construction:

a. dat Jan het boek moet hebben gelezen (1–2–3)
that Jan the book must have read
'that Jan must have read the book'

b. dat Jan het boek gelezen moet hebben (3–1–2)
that Jan the book read must have
'that Jan must have read the book'

c. %dat Jan het boek moet gelezen hebben (1–3–2)
that Jan the book must read have
'that Jan must have read the book'

d. *All others (some dialects marginally allow 3–2–1).

(57)

Modal–auxiliary–participle construction (with particles):

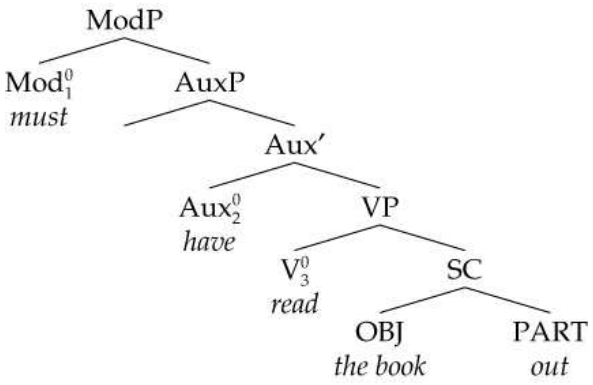
a. dat Jan {*uit} het boek {uit} moet {uit} hebben {uit} gelezen (1–2–3)
that Jan {*out} the book {out} must {out} have {out} read
'that Jan must have read/finished the book'

b. dat Jan {*uit} het boek {uit} gelezen {*uit} moet {*uit} hebben (3–1–2)
that Jan {*out} the book {out} read {*out} must {*out} have
'that Jan must have read/finished the book'

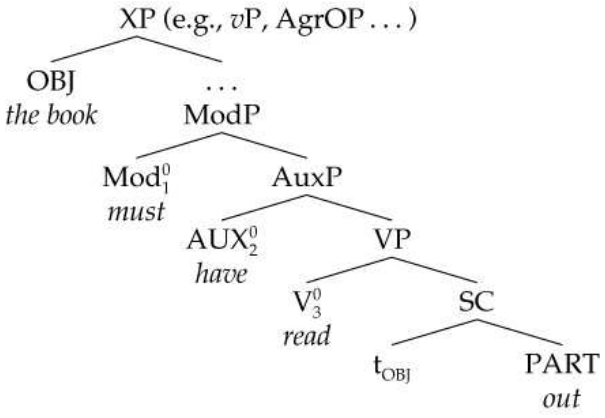
Let us now turn to Zwart's analysis of the clusters in (55–57). The core assumption in Zwart's approach is that – starting from a basic structure as in (58a) – a number of 'licensing' operations (i.e., movements to specifier positions of functional projections to check features) have to apply. First, the object obligatorily moves to an object licensing position (e.g., Spec AgrOP), which is the highest licensing position in the cluster (i.e., it is above the licensing positions of particles and participles, but lower than the licensing position of the subject; cf. (58b)). This is a fairly straightforward assumption, except that (in contrast to what is generally assumed for object shift in Germanic) this movement has to apply obligatorily for all objects (i.e., it is not sensitive to notions such as definiteness, old vs. new information, etc.):

(58)

a. **Base structure:**



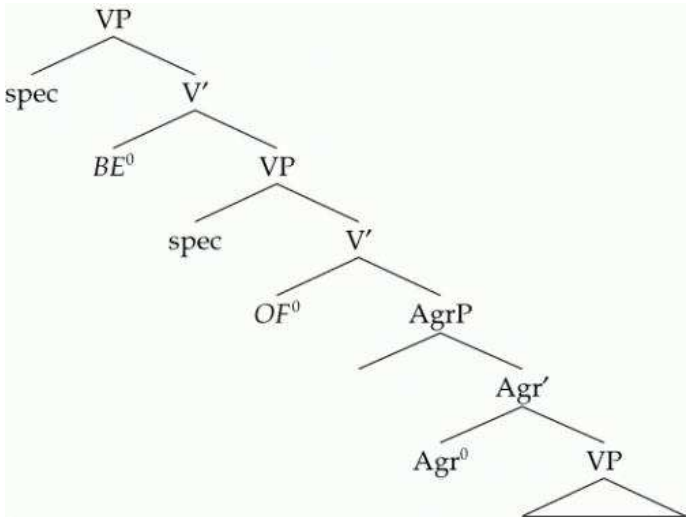
b. **Object movement**:



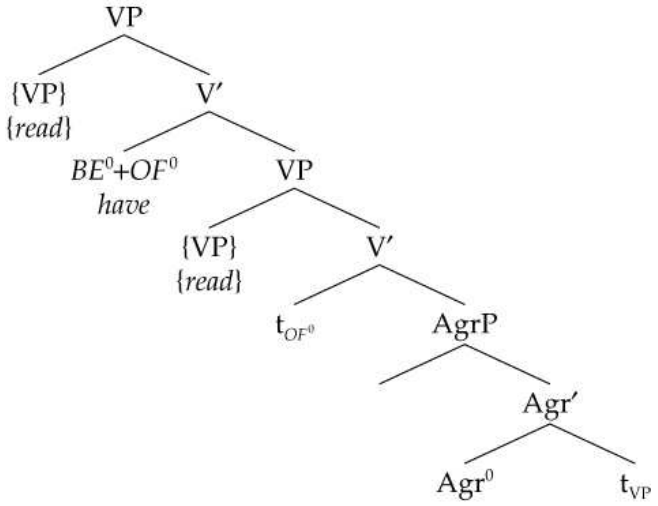
The second and most innovative licensing operation is the one that applies to participles. According to Zwart, participles also move obligatorily; however, they can move to one of two positions in DU. Following Kayne (1993), Zwart assumes that the auxiliary *have* is composed of two heads: *OF* and *BE* (cf. (59a)). The complement of *OF* is a small clause consisting of an AGR phrase, which in turn selects a lexical projection (an NP in *He has a book*, or a VP as in *He has read a book*). The derivation proceeds as follows. First, *OF* incorporates into *BE* and the complex *BE+OF* is pronounced as *have*. Second, the (remnant) VP (i.e., the participle) moves to either the specifier of *OF* or the specifier of *BE* (in DU).[20] Assuming that *have* is pronounced in the position of *BE*, the two orders in (55) are then the result not of movement vs. non-movement of participles, but rather of the two different landing sites for participle phrases (cf. (59b)):

(59)

a. **Complex *have***:



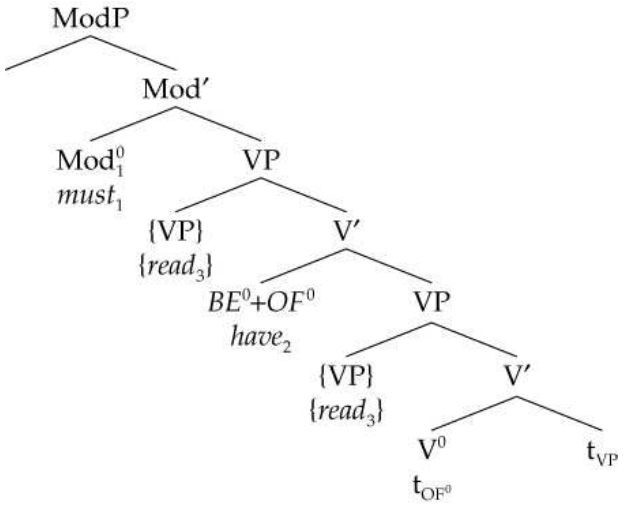
b. **Participle movement**:



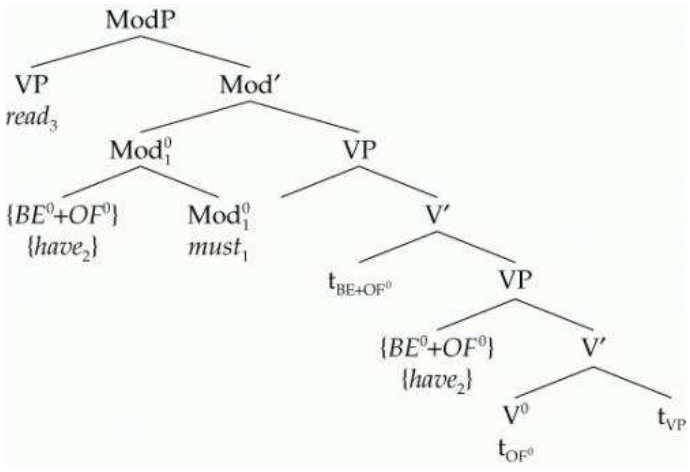
This analysis carries over straightforwardly to the 1–2–3 and 1–3–2 order in modal–auxiliary–participle constructions (cf. (60a); AgrP is ignored from now on since, it does not play a crucial role in the analysis). However, additional assumptions are necessary to account for the 3–1–2 order and to exclude the 2–1–3 and 2–3–1 orders (which do not occur for this construction in any of the West Germanic languages/dialects; see table 75.2). Regarding the 3–1–2 order, Zwart suggests that infinitives overtly or covertly adjoin to the selecting modal verbs, and that this mechanism of adjunction transfers the licensing ability of the adjoining element to the host head. Thus, in (60b), the infinitive auxiliary (i.e., the *BE+OF* complex) adjoins to the modal, and hence the modal becomes a licenser for participles. In DU, infinitive incorporation is covert, whereas in a language like GE, it is overt (but see below):

(60)

a. **Modal–auxiliary–participle construction – 1–2–3 and 1–3–2:**



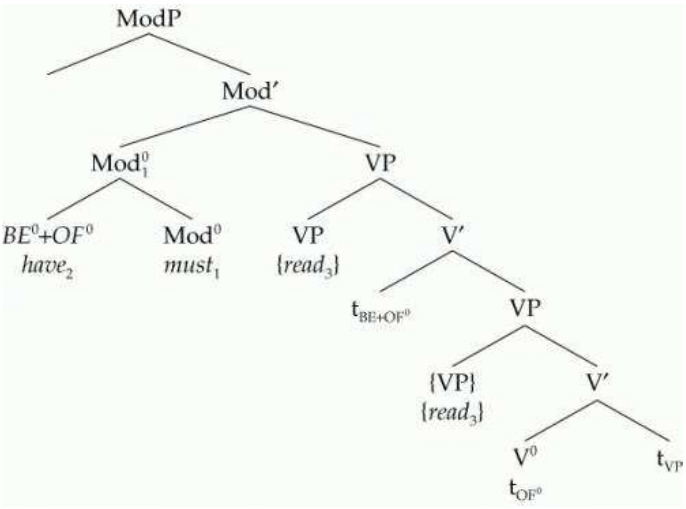
b. **Modal–auxiliary–participle construction – 3–1–2:**



Note that transferring the capacity to license participles to the modal head does not mean that the lower licensing positions are unavailable. Since Zwart treats incorporation of the infinitive into the modal head in (60b) as an obligatory process – i.e., it applies in all the constructions in (56) (but it is necessarily covert in DU) – the fact that participles can occur in the lower positions in (56a) and (56c) leads to the conclusion that covert incorporation simply increases the number of licensing positions (or in other words, covert incorporation extends the licensing domain but does not force a particular position where licensing has to take place). There is one exception, however: as Zwart notes, the lower specifiers become unavailable as licensing positions for participles when the auxiliary incorporates overtly. Thus, in all languages, it is the case that the participle has to precede the auxiliary when the auxiliary (overtly) precedes the modal. (61) illustrates the potential structure that is unattested across West Germanic and that is excluded in Zwart's account by the assumption that the licensing transfer is obligatory and licensing positions are deactivated when overt adjunction takes place:

(61)

Unattested 2–1–3:

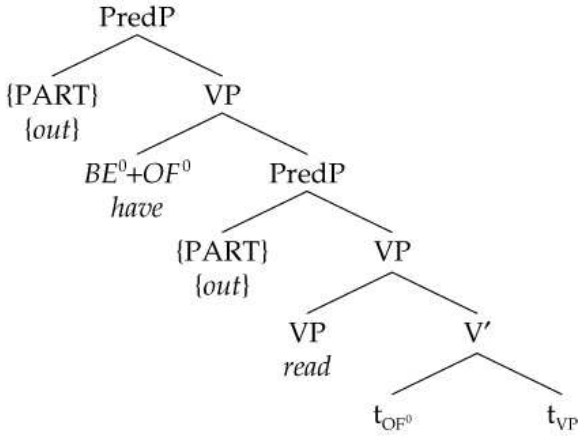


Finally, let us now turn to the third licensing operation: the licensing of particles. In the same spirit as above, Zwart assumes that particles obligatorily move to a particle-licensing position (e.g., PredP). The location of PredP is in principle flexible; however, it has to obey the following constraints: (i) it is lower than the object licensing position; and (ii) it is higher than the overt position of the verb with which the particle is associated. To be more specific, Zwart suggests that the PredP is projected above the projection that hosts the licensing verb. The licensing capacity can again be transferred. If the licensing verb is in a specifier position of an XP (as, e.g., the participle in (60)), the licensing capacity is transferred to the head X^0 of that projection (cf. the VP in SpecVP in (62a), which transfers the licensing capacity to (the trace of) *OF*^{0}). Further incorporation of X^0 into higher heads extends the domain where PredPs can be projected (i.e., incorporation of *OF* into *BE* in (62a) allows the projection of PredP above the VP headed by *OF+BE*). Similarly, if *OF+BE* incorporates (overtly or covertly) into a higher head (e.g., a higher modal), PredP would be licensed above the XP hosting this higher head. In contrast, if the verb the particle is associated with moves overtly, PredP can only be generated above the XP hosting the (original) licensing verb. As shown in (62b), if the participle occurs in the higher specifier, PredP can only be projected above the VP hosting the participle – the lower position becomes unavailable. These assumptions thus account for the fact that particles can be further up the tree than the (overt position of the) verb they are associated with, but not further down:

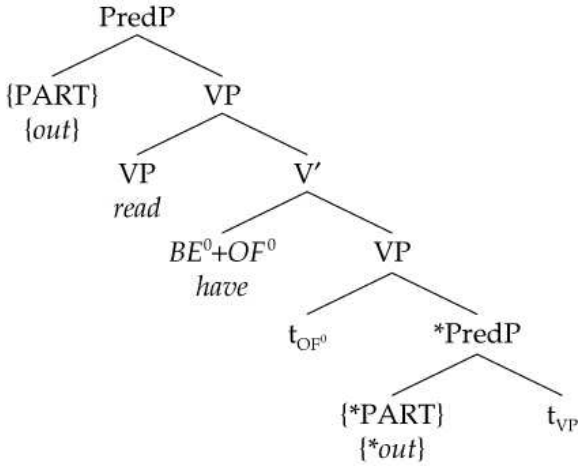
(62)

Particle licensing:

a. **Licensing transfer – licensing verb in lower position:**



b. **Licensing transfer – licensing verb in higher position:**



To conclude, the attractiveness of Zwart's account is that the system excludes the ungrammatical cases discussed and that the movement operations in verb clusters are motivated by (presumably universal) licensing conditions for the elements involved. It thus appears that the account meets both criteria mentioned at the beginning of this section that are necessary for it to qualify as an explanatory account. However, to conclude that the account is in fact superior, one has to go a step further – i.e., it has to be shown that alternative accounts lack these two properties. Zwart's contribution to this comparison is given in (63). (Note that Zwart does not present (63) as a critique of one particular analysis but rather as general weaknesses of head-final approaches. Thus, not all points necessarily apply to all head-final analyses.)

(63)

Zwart's critique of OV approaches (1996: 238ff.):

a. There is no consistent direction of adjunction, either across continental West Germanic dialects, or even within particular continental West Germanic dialects.

b. There is no fixed phrase-structure level of the category adjoined.

c. It is not clear what triggers the various movements, in the sense that there is no understanding how particular asymmetries are to be explained (for instance, the asymmetry between infinitives and participles, the former adjoining to the left and the latter to the right in a number of dialects (e.g., Luxemburgish)).

d. The parameterization makes no reference to the *timing* of the movements (i.e., either in overt syntax or in covert syntax), which is generally considered to be a major source of parametric variation (see, e.g., Chomsky 1993).

e. It is unclear why, in the Germanic SOV languages, multi-verb constructions show such a variety of word orders within the cluster, whereas in the Germanic SVO languages multi-verb constructions invariably show strictly 'ascending' orders.

f. It is unclear why certain phenomena (the IPP effect, verb projection raising) are sensitive to the surface order of the members of the verb cluster.

g. The analysis relies on a phrase structural split among the Germanic languages for which there is no independent empirical basis.

Before discussing these points in detail and evaluating the critique of head-final approaches Zwart has offered, it has to be noted that despite the straightforwardness of Zwart's system, there are also minor inconsistencies and empirical problems that should be taken into account when comparing Zwart's approach with an alternative head-

final approach (and in particular when evaluating the two approaches against the critique raised).

The first adjustment concerns the licensing of particles. The claim is that the overt position of the verb in which the capacity to license originates determines the range of licensing positions. Crucially, these licensing positions must be above the overt position of the licensing verb (see (62)). An immediate question that comes to mind is how these assumptions can account for the stranding of particles in verb-second configurations. That is, as shown in (64), particles must remain in sentence-final position when the main verb (i.e., the licensing verb) moves to second position. If it is indeed the overt position of the verb that counts, these facts are unexpected:

(64)

Verb-second:

a. dat Jan zijn moeder {op} belt
that Jan his mother {up} calls
'Jan calls his mother up'

b. Jan {*op} belt zijn moeder {op}
Jan {*up} calls his mother {up}
'Jan calls his mother up'

There are various ways to deal with this problem. One option would be to assume that verb-second movement of the verb is a type of A′-head-movement (along the lines of the relativized HMC suggested in Den Dikken and Hoekstra 1997) which does not affect the licensing of particles. A different solution would be to assume that particle licensing is not (directly) dependent on the verb the particle is associated with, but rather is subject to certain locality conditions on particle movement. In particular, all that seems necessary is to assume that the particle has to be able to c-command its trace in overt syntax (see Robbers 1997 for this suggestion). Thus, if the VP containing the trace of the particle moves to a position higher than the landing site of the particle, this condition cannot be met and the structures are excluded. If, however, only the verb moves to a position higher than the particle (as in (64b)), the particle continues to c-command its trace and the structures are licensed. The advantage of this account is that the vague notion of licensing 'transfer' could be dispensed with. In what follows, this revised account of particle placement will be used.

The second problem of Zwart's account is the claim that infinitives can only move covertly in DU (cf. (60); if overt movement were possible, the 3-2-1 order would be expected in (60), contrary to fact). While this assumption accounts for the orders in three-verb clusters, it does not suffice for two-verb clusters, which can involve the 2-1 order in modal-infinitive constructions (i.e., infinitives can move overtly in these constructions). Thus, an additional assumption is necessary to capture this fact. However, since the 2-1 order, which is only possible in finite two-verb clusters (Rutten 1991; Den Besten and Broekhuis 1992; Robbers 1997; Koopman and Szabolcsi 2000; among others), is considered to be a marked word order by some speakers (Marcel den Dikken, p.c.,) one might set this fact aside.

A third and important point concerns the mechanism of licensing transfer. Recall that Zwart claims that overt adjunction disables the licensing capacity of lower heads. This claim seems problematic for at least two reasons. First, this assumption does not hold generally in Zwart's system. In particular, there is an inconsistency between the loss of the licensing capacity in (61) – i.e., when the auxiliary overtly incorporates into the modal (lower licensing positions are lost) – and the retention of the licensing capacity in (59b) – i.e., when *OF* incorporates into *BE* and is pronounced in the higher position (lower licensing position is retained). Thus, the (already rather ad hoc) assumption that overt movement behaves crucially differently from covert movement appears even less justified, since it holds only for cases in which the auxiliary incorporates into the modal. Second, Zwart suggests that movement of the auxiliary as in (60b) may in fact be overt movement with obligatory pronunciation of the lower copy (in the spirit of the copy theory of movement; cf. Bobaljik 1995; Brody 1995b; Groat and O'Neil 1996; Pesetsky 1997). If this analysis were adopted, the consequence would be that the licensing capacity of various heads is in fact determined in the PF component. While a PF approach to verb-cluster formation is in principle an option that one might pursue to account for the distribution of verb clusters (see Wurmbrand 2000), the claim that PF choices have an influence on the syntactic licensing conditions would not be compatible with the system Zwart suggests. Since (i) there is no obvious reason why licensing should be subject to this overt/covert constraint, and (ii) it holds only for very specific cases in Zwart's system (note also the point above that suggested that this assumption should be dispensed with for the licensing of particles), it appears that this assumption does no more than restate that the 2-1-3 order is not possible.

Finally, a minor question which does not seem to be problematic for the account as it stands, but nevertheless has certain consequences which should be pointed out, concerns the derivation of one of the examples in (57a) (the relevant order is repeated below as (65a)). The claim is that in (65a), the licensing projection for the particle is projected between the VP headed by *BE* and the VP headed by *OF* (cf. (65b); note that participles have to move overtly in Zwart's analysis and hence the lowest position the participle can occur in is the specifier of *OF*). A similar case can be construed for modal-auxiliary-participle constructions. A question that comes up in this context is whether this intervening head is problematic for the incorporation of *OF* into *BE* or the auxiliary into the modal. A priori, nothing seems to exclude step-by-step incorporation; the only consequence that could affect the

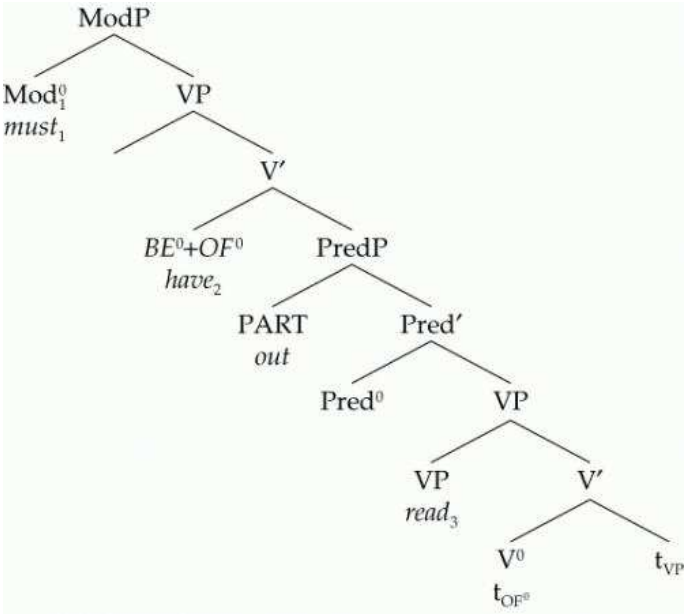
analysis is that in these cases, the specifier positions of the projections below and above PredP are not equidistant any more:

(65)

Modal-auxiliary-participle construction (with particles):

a. dat Jan het boek moet hebben uit gelezen (1-2-3)
that Jan the book must have out read
'that Jan must have read/finished the book'

b. ***OF-BE* incorporation:**



To conclude this overview of Zwart's analysis, the ingredients of the account are summarized in table 75.10 (including the assumptions that are necessary to accommodate the problems mentioned above). The table also distinguishes (as far as it is possible to determine) between assumptions or conditions that (presumably) hold universally and those that are language-specific.

3.4.2 The head-final and head-initial approach in comparison

To compare the head-initial analysis with a head-final analysis, an outline of an account of DU verb clusters based on a head-final structure will first be provided. The assumptions necessary for DU are: (i) particles do not move (or only move string-vacuously; see the discussion in section 3.1.3); (ii) participles move optionally to the right; (iii) infinitives move obligatorily to the right; (iv) verb-cluster movement can affect either minimal or maximal categories and is subject to a strict locality condition; and (v) objects move obligatorily to a specifier position. Point (v) will insure that objects are not part of the verb cluster (the position of objects will be ignored in the diagrams below). The examples in (55) (repeated here as (66)) are derived as follows. In (66b), no movement occurs; the elements appear in their base positions. The examples in (66a) are derived as in (67): the object leaves the VP; and then either the lower verb (as in (67a)) or the lower VP (as in (67b)) moves (optionally) to the right. Both movement operations yield the 1-2 order; however, in the first case, the particle is stranded (i.e., occurs to the left of the auxiliary), whereas it is carried along with the verb in the second case. The impossible positions of the particles in (66) follow from the assumption that particles do not move (either to the right or to the left):

Table 75.10 DU verb clusters in a head-initial account (Zwart 1996 revised)

Properties	Zwart's approach (revised)
Basic structure	• Universally VO
Size of moved categories	• X^0 and XP
Particles	• Licensed in SpecPredP (universal) • PredP is below AgrOP (universal?) • Licensing has to be overt (West Germanic) • Particle has to c-command its trace (universal?)
Participles	• Licensed by *OF* or *BE* (universal) • Licensing has to be overt (West Germanic; universal?) • Have to be licensed in the specifier position of the VP that includes the overt copy of the auxiliary

	• Exception: when *have* is pronounced in BE^0, the specifier of OF^0 is also a licensing position
Infinitives	• Licensed by modal (universal)
	• Covert X^0-adjunction (DU) • Exception: finite two-verb clusters (overt adjunction possible)
Objects	• Licensed in SpecAgrOP (universal)
	• Licensing has to be overt (West Germanic)
	• AgrOP is higher than all VPs/ModPs, etc. (DU)
*2-1-3 (MOD-AUX-V)	• Licensing conditions of participles
*2-1-3 (DU)	• No overt X^0-movement of infinitives (DU)
*2-3-1 (DU)	• No XP-movement of infinitives (DU)
Universal *2-1-3	• ?? No X^0-movement of 2 unless 3 moves as well

(66)

Auxiliary-participle construction (with particle verb):

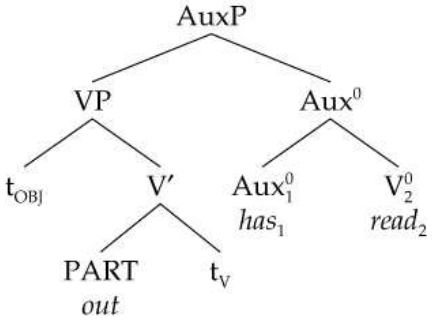
a. dat Jan {*uit} het boek {uit} heeft {uit} gelezen (1-2)
that Jan {*out} the book {out} has {out} read
'that Jan has read/finished the book'

b. dat Jan {*uit} het boek {uit} gelezen {*uit} heeft (2-1)
that Jan {*out} the book {out} read {*out} has
'that Jan has read/finished the book'

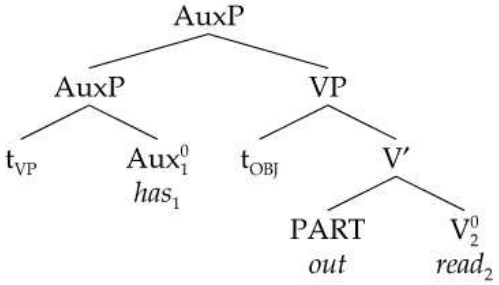
(67)

Two-verb cluster:

a. **Optional participle movement (X^0):**



b. **Optional participle movement (XP):**



The examples involving a modal-auxiliary-participle construction are repeated in (68). The 3-1-2 order is straightforwardly derived by X^0-movement of the infinitive. Given that particles do not move (or only move string-vacuously), it also follows that the only place the particle can occur is immediately preceding the lowest verb (cf. (69a)). Note that movement of 2 – i.e., the infinitive – is obligatory in DU; thus the order 3-2-1 is not possible. XP-movement of the infinitive would yield the 1-3-2 order, which is attested in certain dialects (cf. (56c)).[21] The more challenging constructions are the ones in (68a). There are four possible derivations: (i) two applications of X^0-movement, which yields the order 'particle-1-2-3'; (ii) two applications of XP-movement, which yields the order 1-2-particle-3; (iii) XP-movement of the higher verb and X^0-movement of the lower verb, which yields the order 1-particle-2-3; and (iv) X^0-movement of the higher verb and XP-movement of the lower verb, which yields the order 'particle-3-1-2'. These derivations are illustrated in (69b-e), respectively:

(68)

Modal-auxiliary-participle construction:

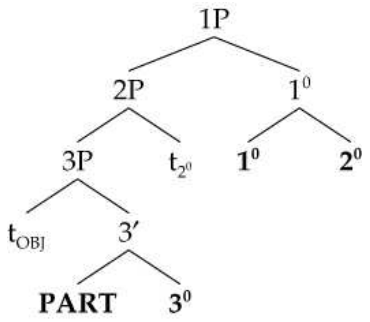
a. dat Jan {*uit} het boek {uit} moet {uit} hebben {uit} gelezen (1-2-3)
that Jan {*out} the book {out} must {out} have {out} read
'that Jan must have read/finished the book'

b. dat Jan {*uit} het boek {uit} gelezen {*uit} moet {*uit} hebben (3-1-2)
that Jan {*out} the book {out} read {*out} must {*out} have
'that Jan must have read/finished the book'

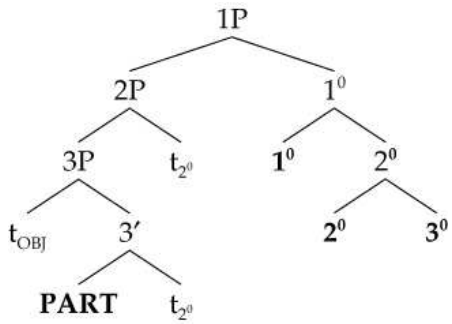
(69)

Modal-auxiliary-participle construction:

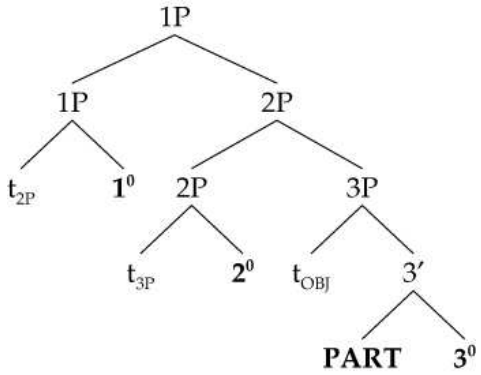
a. **Particle-3-1-2 - 1 X0-movement:**



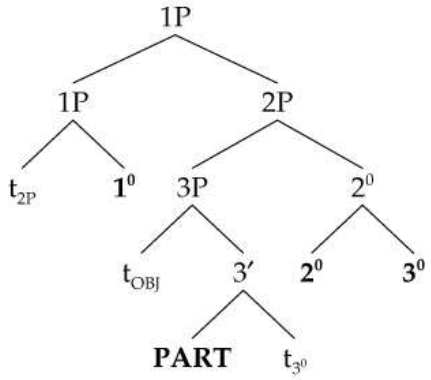
b. **Particle-1-2-3 - 2 X⁰-movements:**



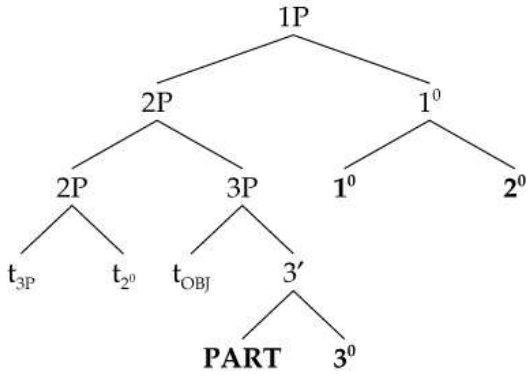
c. **1-2-particle-3 - 2 XP-movements**



d. **1-particle-2-3 - 1 X⁰. 1 XP-movement**



e. **Particle-3-1-2 - 1 X⁰. 1 XP-movement**



Note that under this analysis, the direction of adjunction is uniform (i.e., to the right). Thus, Zwart's first point of criticism in (63a) does not seem to be justified (furthermore, as we have seen in section 3.1.1, all other orders can also be derived by uniform right-adjunction in a head-final approach if reordering involves phrasal movement). To discuss the other points in (63), let us now compare the two approaches. The assumptions of the head-final approach are summarized in table 75.11, together with the assumptions of Zwart's account.

As can be seen in table 75.11, the two approaches both make use of head and phrasal movement, and both involve obligatory object movement. Hence, on these points, the accounts do not differ, and neither account can be seen as superior or more economical than the other.[22] Similarly, both accounts require a stipulation regarding finite two-verb clusters, and hence this point also does not enter into the comparison (however, see Koopman and Szabolcsi 2000 for an analysis that incorporates this fact). Regarding the other assumptions, a comparison is not an easy task (if possible at all); in particular, the analyses are based on underlying assumptions that are not shared by the proponents of the approaches that are compared. One such assumption is the claim that structures

have to be compatible with Kayne's (1994) LCA, which would prohibit head-final structures and rightward movement. Note, however, that the fact that Zwart's analysis conforms to the LCA, whereas head-final approaches obviously conflict with this view, does not demonstrate that this approach is superior. What Zwart's account demonstrates is that the facts can be described within a system invoking the LCA. If one is independently committed to that framework, then Zwart's approach shows the range of ancillary assumptions necessary to derive the facts. However, if one is not independently persuaded by the LCA (see, for instance, the works on scope by Büring and Hartmann 1996, 1997b and Fox and Nissenbaum 1999, which have shown that the LCA might be too strong), table 75.11 shows that Zwart's arguments alone are not persuasive on this matter.

Table 75.11 DU verb clusters: head-final vs. head-initial approach

Properties	OV approach	Zwart's approach (revised)
Basic structure	• Directionality	• Universally VO
Size of moved categories	• X^0 and XP	• X^0 and XP
Particles	• Do not move or only move string-vacuously	• Licensed in SpecPredP (universal) • PredP is below AgrOP (universal?) • Licensing has to be overt (West Germanic) • Particle has to c-command its trace (universal?)
Participles	• Move optionally	• Licensed by *OF* or *BE* (universal) • Licensing has to be overt (West Germanic; universal?) • Have to be licensed in the specifier position of the VP that includes the overt copy of the auxiliary • Exception: when have is pronounced in BE^0, the specifier of OF^0 is also a licensing position
Infinitives	• Move obligatorily • Exception: finite two-verb clusters	• Licensed by modal (universal) • Covert X^0-adjunction (DU) • Exception: finite two-verb clusters (overt adjunction possible)
Objects	• Move obligatorily (e.g., SpecAgrOP)	• Licensed in SpecAgrOP (universal) • Licensing has to be overt (West Germanic) • AgrOP is higher than all VPs/ModPs, etc. (DU)
*2-1-3 (MOD-AUX-V)	• Locality condition on verb-cluster movement	• Licensing conditions of participles
*2-1-3 (DU)	• Locality condition on verb-cluster movement	• No overt X^0-movement of infinitives (DU)
*2-3-1 (DU)	• Infinitives move obligatorily in DU	• No XP-movement of infinitives (DU)
universal *2-1-3	• Locality condition on verb-cluster movement	• ?? No X^0-movement of 2 unless 3 moves as well

Similarly, the claim that the uniformity of structures presents an advantage under a head-initial approach has to be balanced against the non-uniformity of overt vs. covert settings. To give an example, under an approach involving directionality, languages have to set the directionality parameter but do not have to involve any settings, for instance, for particles (particles do not move, and hence they occur to the right of the verb in English, whereas they occur to the left of the verb in GE and DU). Under an approach involving a uniform base, languages do not have to set any directionality parameter, but they have to involve an overt vs. covert setting for particles (in English, particles do not move or move covertly, whereas in GE and DU, they obligatorily move overtly). Since the overt/covert settings are arbitrary, the directionality differences found between 'head-final' and 'head-initial' languages are as stipulated in the head-initial approach as they are in the head-final approach (i.e., there is no deep reason for the claim that movement is overt in GE and DU, whereas it is covert in English – as there is no reason for the claim that GE and DU are head-final). Thus, while the idea of a uniform base structure is certainly attractive, it does not solve the problem that languages are different; it simply shifts the burden of explanation to a different area. In other words, at the stage of our current understanding, under both the head-initial and the head-final approach, these directionality differences among languages have to be represented somewhere in the system as stipulations – i.e., as irreducible facts about languages that cannot be explained but simply must be learned. However, importantly, neither approach appears to be superior with respect to the way it handles these facts.

The final two points to be considered in this section are the two by now familiar questions of whether either approach is superior in motivating the operations suggested, and whether either approach is superior in providing an account of the impossibility of certain structures. To begin with the latter, the head-final approach can account for the fact that the 2-1-3 order is not found cross-linguistically by the assumption that verb-cluster movement,

as in table 75.2, is strictly local and cannot skip intervening heads or projections (cf. Haegeman 1992; see section 3.1.1). Under the head-initial approach, it is less clear how this fact can be accommodated. While Zwart suggests a way to exclude the 2-1-3 order in DU and in modal-auxiliary-participle constructions in general (however, see the discussion at the end of the previous section regarding Zwart's account of participle licensing, which the account of the prohibition of the 2-1-3 order is crucially based on), this account does not carry over to other languages, and in particular to languages that allow or require overt movement of infinitives. As noted in table 75.11, this order can only be excluded if the system includes an assumption such as 'X^0-movement of 2 is only possible if 3 moves as well', which is of course possible, but is unmotivated in that it a priori does not follow from any other property of grammar (such as locality).

Finally, to compare the approaches with respect to the motivation of the operations again proves a rather delicate issue. While proponents of head-initial approaches often claim that movement to specifiers is per se more motivated than rightward movement (which, like V-to-V movement, has no apparent motivation), this claim is also subject to debate. As discussed in section 3.3, it is in principle correct that feature-driven movement to specifier positions is motivated in that it has a definable cause – the presence of features that have to be checked. However, one also has to ask whether the features themselves are motivated. If the features triggering movement are not motivated by any other syntactic or semantic property and are only postulated for the constructions or languages they are needed for, they boil down to simple 'word-order' features, which can hardly be claimed to be motivated (see also Koopman 1984 for this point). Thus, feature checking or movement to specifier positions per se does not solve the motivation problem; it simply shifts the burden of explanation from the question of how movement is motivated to the question of how particular features are motivated (including distinctions such as weak vs. strong features). Regarding the current comparison of the head-final and the head-initial approach in table 75.11, one has to conclude that both approaches require language-specific and category-specific assumptions that are not motivated by other properties of grammar or the particular language. To give a concrete example, the claims that infinitives undergo covert X^0-movement whereas participles undergo overt phrasal movement (head-initial approach), or the claim that participles move optionally whereas infinitives move obligatorily (head-final approach), simply serve the purpose of deriving the order of verb clusters and do not correlate with other properties of these elements. While under the head-initial approach the movement operations are triggered by the need to check certain features, the assumption of licensing projections and features which are only evidenced by word-order properties, in conjunction with the arbitrary overt/covert or weak/strong distinction, suffers from the same arbitrariness and lack of motivation as the assumptions in the head-final approach. In other words, the stipulated licensing operations simply mask the fact that at the core of any account of the distribution of verb clusters are language-specific stipulations. In this sense, the head-initial approach cannot be seen as superior to the head-final approach – both types of accounts have to invoke crucial assumptions that only target the word order in verb clusters. While most researchers will undoubtedly find one type of 'arbitrariness' more attractive (or perhaps less bothersome) than the other, this preference is not sufficient to establish the superiority of either the head-final or the head-initial approach.

4 Restructuring

4.1 The verb raising-restructuring connection

In an extensive study of infinitives, Gunnar Bech (1955) developed one of the first characterizations of infinitival complements in GE. Bech showed that infinitives fall into two classes: infinitives that form an independent clausal domain and infinitives that do not exhibit clausal behavior. He labeled the former class *kohärente Infinitive* 'coherent infinitives', the latter *inkohärente Infinitive* 'incoherent infinitives'. The first study of the two classes of infinitives in a generative framework was provided by Evers (1975a, 1975b). Evers observed that the split among infinitival constructions in DU and GE correlates with a reordering process of the verbal elements in an infinitival construction. He proposed that this reordering is the result of a process of verb raising which applies in certain infinitival clauses but not in others. Evers's analysis – which laid the groundwork for most later analyses of clause structure in GE and DU – is the first work that builds on the correlation between mono-clausality and verb movement. In particular, he suggests a structure pruning principle which applies to the S-node of infinitives that have lost their head (i.e., by movement of the embedded verb to the higher clause). The formulation of Evers's Guillotine Principle is given in (70):[23]

(70)

Guillotine/S-pruning Principle (Evers 1975a: 147):
An S that has lost its head (i.e., its V-constituent) does not survive.

Thus, in Evers's account, verb raising – i.e., the formation of a complex verb consisting of the matrix verb and the infinitive – creates a sentence that has lost its head, and therefore the S-node cannot survive and is deleted.

At the same time, Aissen and Perlmutter (1976) and Rizzi (1976) observed that in Italian and Spanish, certain infinitives lack clausal properties.[24] That is, while in most cases infinitives constitute a boundary for processes that are restricted to apply within one clause (such as clitic climbing, passive), certain infinitives are transparent for the same processes. Aissen and Perlmutter suggest that certain infinitives undergo a process of 'clause union'

with the matrix clause and hence cease to function as independent clauses. Similarly, Rizzi proposes that what is special about infinitives lacking clausal properties is that they have undergone a process of 'restructuring'. In Rizzi's analysis, like Evers's, the close relation between clause union or restructuring and some form of verb-complex formation is essential. In particular, Rizzi suggests that restructuring is an optional rule according to which the embedded infinitive and the matrix verb are reanalyzed as one complex verb. This process of restructuring then again transforms a bi-clausal structure into a mono-clausal one. In contrast to DU, however, the claim that the verbs in a restructuring construction form a complex head is less straightforward for Italian. While the verb cluster in DU cannot be separated by any elements other than particles, suggesting that there is indeed a very tight (e.g., head-to-head) relation between the verbal elements, phrasal elements which cannot be argued to be incorporated into the verbs may intervene between the matrix verb and the infinitive in Italian. As Rizzi notes, clitic climbing (cf. (71a)), object preposing (cf. (71b)), and auxiliary switch (cf. (71c)) are possible in cases where adverbs show up between the two verbs. Rizzi therefore suggests that "Restructuring creates a syntactic constituent 'verbal complex', and that this constituent cannot be simply a V. . . . Italian syntax makes use of a syntactic category, distinct from V, dominating non-lexical verbal compounds" (Rizzi 1982a: 38):

(71)

Italian – verb raising and adjacency (Rizzi 1982a: 38):

a. Lo verrò subito a scrivere.
   it-cl I-will-come at-once to write
   'I will come to write it at once.'

b. Gli stessi errori si continuano stupidamente a commettere.
   the same errors SI continue-3PL stupidly to make
   'People continue to make the same errors in a stupid way.'

c. Maria è dovuta immediatamente tornare a casa
   Maria is must immediately return at home
   'Maria has had to come home immediately.'

Since head raising creates X0 categories rather than X′ categories, it is not clear how Rizzi's syntactic complex verb could be implemented in a more recent Government and Binding- or Minimalist-style analysis of head-movement. To account for the discontinuity of the two verbs found in Romance restructuring infinitives (while keeping Rizzi's assumption that the infinitive and the matrix verb form a complex head), two types of analyses have been proposed: excorporation and covert movement. The first approach (see Den Dikken 1990; Roberts 1991a; Guasti 1992, 1993, 1997) is based on examples such as the one in (72) from Italian, in which a matrix causative and an embedded verb precede a floating quantifier associated with the matrix subject. Under the assumption that the floating quantifier originates in a position above the base position of the causative, the example in (72a) provides evidence for overt movement of the infinitive to the matrix predicate and further overt movement of both verbs to the left of the floating quantifier. Assuming the infinitive incorporates into the higher verb and the complex verb then undergoes further movement to the left, (72b) can then be taken to show that the matrix verb excorporates from the complex head:[25]

(72)

Italian – causative constructions (Guasti 1997: 136):

a. I professori facevano commentare tutti quel libro a Ugo.
   the professors make comment all that book to Ugo
   'The professors all made Ugo comment on that book.' (my paraphrase)

b. I professori non fanno più commentare tutti quel libro a Ugo.
   the professors NEG make anymore comment all that book to Ugo
   'All the professors do not make Ugo comment on that book any more.'

The second type of analysis is based on the idea that restructuring constructions involve *covert* head-movement (the major approaches are summarized in section 4.3.2). The main reason for the assumption of covert verb raising is theory-internal. In approaches where it is assumed that restructuring infinitives are full clauses (see section 4.3.2), a mechanism is required to unite the matrix and the embedded clause in order to create the clause-union effects. Since head-movement is a standard tool to deactivate projections or barriers (see, for instance, Chomsky 1986a; Baker 1988a) this process has thus proven useful in the context of restructuring constructions to achieve the lack of clause-boundedness effects. A further reason that has been given repeatedly to motivate verb raising in restructuring constructions is the observation that the infinitival tense is deficient in these constructions (tense deficiency can be observed, for instance, from the impossibility of temporal modification of the embedded event in a restructuring infinitive, or from the fact that the embedded event has to be interpreted as simultaneous with the time of the matrix event). On the basis of this observation, Guéron and Hoekstra (1988) and Bennis and Hoekstra (1989) suggest that verbs have to be in a local relation with a tense head, which is generally achieved via movement of the verb to the closest tense head. What is special about restructuring constructions is that the infinitival tense head is deficient and thus not capable of licensing the

infinitival verb. Hence, the verb (or the infinitival tense) has to move to the matrix clause.

It is important to note that both reasons – the deactivation of barriers and the need to be tense licensed – for a special verb raising operation in restructuring constructions apply only in so-called 'bi-clausal' approaches to restructuring (i.e., in analyses in which the infinitival complement has a clausal status at D-structure). For approaches that treat restructuring infinitives as non-clausal (e.g., VP) predicates throughout the derivation, the issue of covert verb raising reduces to 'normal' verb raising in a simple clause, and no special restructuring verb raising has to be assumed. The two types of approaches and the issue of verb raising in restructuring constructions will be discussed in more detail in section 4.3.

Besides the questions of whether and how verb raising applies in restructuring infinitives, the study of restructuring/clause union has yielded many interesting and important observations regarding clause structure, the nature of verbal categories, and general issues of the organization of grammar. Three of the main research questions that have been addressed are: (i) the determination and characterization of the class of restructuring infinitives; (ii) the structure of restructuring infinitives; and (iii) the motivation for restructuring or clause union. The next sections give an overview of the major insights and analyses.

4.2 The class of restructuring predicates

In most studies on restructuring, it has been noted that the class of restructuring predicates varies across languages and also shows some variation among speakers of one language. As shown in Wurmbrand (2001), large parts of this variation can be accounted for if infinitival constructions are not simply divided into restructuring vs. non-restructuring infinitives, but involve a finer-grained classification. For instance, it is shown there that GE distinguishes between four classes of infinitival constructions, each with its own syntactic and semantic properties. While passive and non-focus scrambling pick out one class of infinitival constructions, pronoun fronting and focus scrambling pick out a different class. Similarly, in DU, remnant extraposition singles out a different class of predicates than verb raising (both in their original senses) and the IPP effect.

Despite the existence of these subgroupings and the variation encountered, one can nevertheless observe a certain semantic cohesion to the classes of restructuring predicates. Table 75.12 lists different classes of infinitival-taking predicates according to their 'degree of restructuring'. As the table shows, restructuring is determined on a scale rather than by a rigid binary distinction (both within one language and cross-linguistically). That is, if a language exhibits restructuring effects with a predicate lower down in the list in table 75.12, all predicates above that predicate can also function as restructuring predicates (however, the opposite does not hold). Infinitives selected by modal verbs (*must*, *may*, *can*, *want*, etc.) motion verbs (*come*, *go*, *return*), aspectual verbs (*begin*, *continue*, *finish*), and causative verbs (*let*, *make*) are typically among the class of restructuring verbs. Verbs like *try*, *manage*, and *dare* are also core restructuring verbs, although in fewer languages (e.g., they are typical restructuring verbs in GE and DU, but only marginally allow restructuring in Romance). Going further down the list, irrealis and implicative constructions show some restructuring effects, although much less so (again both within one language and across languages) than the predicates listed in the higher rows of table 75.12. Finally, propositional and factive constructions generally prohibit any restructuring properties. While the scale in table 75.12 provides a first approximation to the classification of infinitival constructions, a cross-linguistic study of the subgroupings (in particular the determination of how far down different restructuring properties are licensed in different languages) is still outstanding.

Table 75.12 The grades of restructuring

Type of verb	Grade of restructuring	Degree of restructuring
Modal verbs	Generally among restructuring predicates	Highest
Aspectual verbs	Generally among restructuring predicates	↓
Motion verbs	Generally among restructuring predicates	
Causatives	Generally among restructuring predicates	
try, *manage*, *dare*	Some degree of restructuring (some languages)	
(Other) irrealis, implicative verbs	Minimal degree of restructuring (some languages)	
Propositional verbs	Generally not among restructuring predicates	
Factive verbs	Generally not among restructuring predicates	Lowest

The fact that the class of restructuring predicates shows semantic cohesion as well as variation and apparent arbitrariness is reflected in the general tension between two basic directions authors take regarding the question of how the class of restructuring predicates is determined. One type of approach considers the regularities of the class of restructuring predicates as the basic cases of restructuring, and language and speaker variation are assigned a special status or set aside. According to this view, restructuring is motivated through a semantic (and/or thematic) property found among the class of restructuring verbs. Another type of approach treats restructuring as a language-specific and irregular phenomenon, and the cohesion among the class of restructuring predicates is considered as an accident. According to this view, restructuring is generally considered

as a lexical property that is assigned (arbitrarily) to a subclass of infinitive-taking verbs and parametrically restricted to certain languages. The major references addressing the question of whether restructuring is (mainly) a lexical/syntactic or (mainly) a semantic phenomenon are summarized in table 75.13.[26]

Table 75.13 Syntactic vs. semantic approaches to restructuring

Restructuring	References
Lexically/syntactically determined	Aissen and Perlmutter 1976, 1983; Di Sciullo and Williams 1987; Fanselow 1989; Kayne 1989b, 1990, 1991; Sternefeld 1990; Rutten 1991; Roberts 1993b, 1997b; Grewendorf and Sabel 1994; Sabel 1996b; Kiss 1995; Meurers 1999
Semantically/thematically determined	Strozer 1976; Luján 1980; Napoli 1981; Zagona 1982; Picallo 1985, 1990; Rochette 1988, 1990a, 1999; Rosen 1989, 1990; Rosengren 1992; Cinque 1997a, 1997b, 2004; Roberts 1997b; Wurmbrand 1997, 1998a, 1998c, 2001

As is often the case, it seems that the truth lies somewhere in between. While the class of restructuring predicates displays a certain degree of uniformity regarding the semantic properties of the predicates involved, the semantics of a configuration alone does not seem to be sufficient to determine whether a construction allows or disallows restructuring. Rather, syntactic and language-specific factors have to be taken into account to successfully characterize the restructuring phenomenon.

4.3 The structure of restructuring infinitives

Central to most works on restructuring is the question of what the structure of a restructuring infinitive is. The various approaches fall into two general groups, which are labeled here as mono-clausal vs. bi-clausal approaches. According to mono-clausal approaches, a sentence with a restructuring infinitive is a single clause throughout the derivation and a restructuring infinitive never constitutes an independent clausal domain. According to bi-clausal approaches, the clause-union effect is attained derivationally. Restructuring infinitives and non-restructuring infinitives start out with the same syntactic structure; however, a further application of restructuring (to be made precise below) alters the structure and/or properties of restructuring infinitives in a way that ultimately renders the clause boundaries ineffective. The advantage of mono-clausal approaches is that no mechanism of restructuring is necessary and that no additional language- or construction-specific assumptions have to be made to account for the transparency of restructuring infinitives. Since there is no representation or stage of the derivation in which a sentence with a restructuring verb consists of two clauses, the issue of unifying the clauses does not arise. The challenge for approaches of this sort is to motivate the existence of different initial structures for infinitival complements. The main motivation for bi-clausal approaches is the idea of uniformity of phrase structure; i.e., (control) infinitives project a TP, CP, etc., irrespective of the syntactic or semantic content of these projections. The challenge for approaches of this sort is to provide evidence for the initial clausal structure of restructuring infinitives and to characterize and motivate the operation of restructuring.

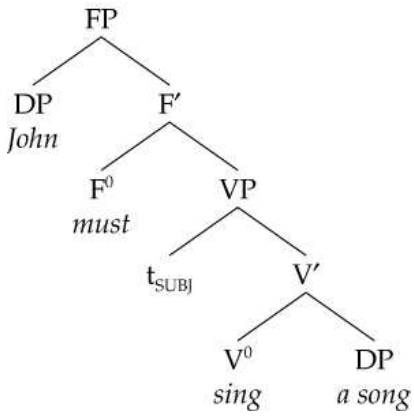
4.3.1 Mono-clausal approaches

The essential claim of mono-clausal approaches is that non-restructuring infinitives are generated as clausal complements, whereas restructuring infinitives are smaller categories (typically it is assumed that they are VP complements, as in (73)). Importantly, a restructuring infinitive is not derived from a non-restructuring infinitive in these approaches:

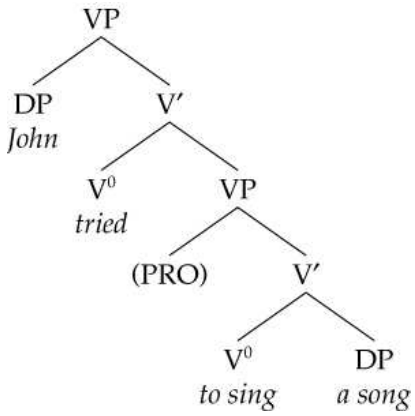
(73)

Mono-clausal approaches:

a. **Functional restructuring:**



b. **Lexical restructuring:**



The main questions raised and addressed by mono-clausal approaches are whether restructuring verbs are lexical

or functional categories, whether there is an embedded infinitival (PRO) subject, and how the difference between VP infinitives (restructuring) and CP/IP infinitives (non-restructuring) is motivated. Regarding the first question, Cinque (1997a, 1997b, 2004) argues that all restructuring configurations are of the form in (73a). In Wurmbrand (2001), on the other hand, evidence from GE is provided for the claim that a structure such as (73a) is inadequate to capture all restructuring constructions, and that certain predicates cannot be treated as raising predicates but are best analyzed as lexical categories combining with VP complements, as in (73b). The arguments provided come from systematic differences between lexical and functional predicates regarding their thematic properties, scope properties, and syntactic properties such as extraposition and the IPP phenomenon.

The second question – whether restructuring constructions and infinitival constructions in general include an embedded PRO subject – has been a long-standing issue in both the syntactic and the semantic literature. The perhaps more common approach is that control infinitives are clauses (CPs) syntactically and propositions semantically, since the infinitival complements are interpreted with an infinitival subject. This view, however, is not the only way to approach this question. In particular, considering the semantic properties of different infinitival constructions, many works have shown that a uniform treatment of all control infinitives seems untenable. Rochette (1988), for instance, proposes that the size of an infinitive corresponds to its semantic category: CP infinitives denote *propositions*, IP infinitives denote *events*, and subjectless VP infinitives denote *actions*. In standard Lexical Functional Grammar (LFG), control infinitives are considered as subjectless VPs in syntax and propositions in semantics (cf. Bresnan 1982b). Similarly, Chierchia (1984a, 1984b, 1989) and Chierchia and Jacobson (1986) argue that control infinitives are properties – i.e., subjectless predicates – in syntax and semantics and become associated with a subject later on in context by means of a semantic control principle. On the basis of Chierchia's work, Wurmbrand (2001, 2002) shows that this semantic view receives additional support from the syntactic properties of these constructions. In particular, the A-movement and binding properties of restructuring infinitives in GE strongly suggest that no embedded subject is present to block movement and to bind embedded anaphors.

The last question – the motivation for two distinct structures of infinitival constructions – is indirectly connected to the second question. Following the idea that structure and meaning are closely related (i.e., that syntactic structure translates directly into the meaning of a construction), the different sizes of restructuring infinitives and non-restructuring infinitives simply reflect the different semantic properties of these constructions. For instance, as mentioned in section 4.1, many researchers agree that restructuring infinitives are tense deficient, and hence this property motivates the lack of a TP. Similarly, restructuring infinitives are often considered as subjectless predicates semantically (see the references in the previous paragraph), which, assuming again that semantic properties of this sort are reflected in the syntactic structure, would mean that the infinitive is represented by a VP-type complement rather than an IP or a CP. Table 75.14 presents a selective summary of mono-clausal approaches.

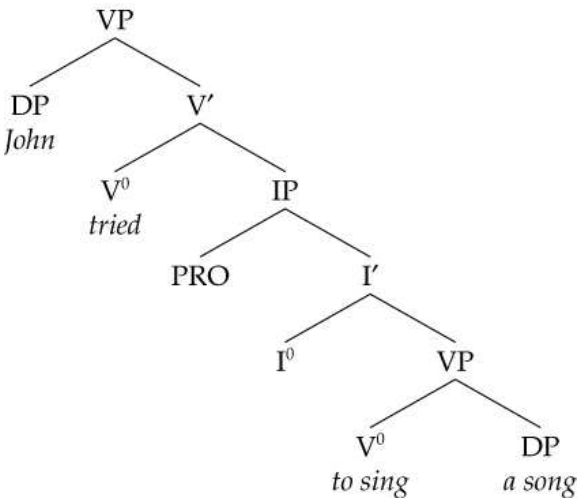
Before turning to bi-clausal approaches, it should be mentioned for completeness that there are also approaches that are somewhere in between mono-clausal and bi-clausal approaches. A number of works develop what one might want to call a reduced clausal approach (cf. Tappe 1984; Fanselow 1989; Li 1990a; Rooryck 1994a; and in some sense Wurmbrand 2001). The basic idea of this approach is that a sentence with a restructuring infinitive essentially involves a bi-clausal structure; however, restructuring infinitives nevertheless differ from non-restructuring infinitives in the size of the infinitival complement. In particular, it is assumed that restructuring infinitives lack a CP boundary (cf. (74)):

Table 75.14 Mono-clausal approaches

Property	References
Restructuring infinitives are base-generated VPs	Strozer 1976, 1981; Zagona 1982; Cremers 1983; Chierchia 1984a, 1984b,1989; Picallo 1985, 1990; Haider 1986a, 1986b, 1991b, 1991c, 1993; Di Sciullo and Williams 1987; Rochette 1988, 1990a, 1999; Rosen 1989, 1990; Moore 1990, 1994; Rutten 1991 (some infinitives); Rosengren 1992; Broekhuis et al. 1995 (some infinitives); Cinque 1997a, 1997b, 2004; Wurmbrand 1998a, 1998c, 2001

(74)

Reduced clausal approach:



4.3.2 Bi-clausal approaches

The central idea of bi-clausal approaches is that restructuring infinitives start out as clausal (CP) complements and that the clausal status of restructuring infinitives is altered by one or more of the following mechanisms: structure-changing operations, head-movement, or topicalization. According to the first set of approaches, restructuring infinitives involve a special structure-changing process that transforms or reanalyzes a CP complement into a VP complement. Evers (1975a) suggests a pruning principle, Rizzi (1978, 1982a) postulates a restructuring rule, Haegeman and Van Riemsdijk (1986) assume a reanalysis process, and Von Stechow (1990) speculates that restructuring infinitives might be created by deletion of the CP and IP nodes.[27] The common property of these approaches (see also table 75.15) is that restructuring infinitives start out as sentential complements, then get reanalyzed or lose various projections in the course of the derivation, and finally end up as VP complements. Arguments generally raised against structure-changing processes of this sort are that they cause a violation of the Projection Principle (Chomsky 1981, 1982, 1986b) and that they are to a large degree arbitrary rules.

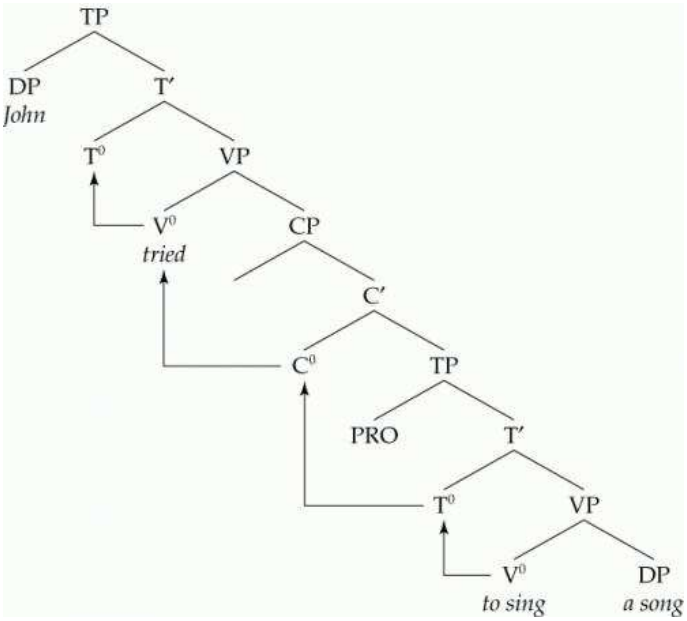
The second (and predominant) mechanism to derive clause union is head-movement such as verb raising. The variety of head-movement analyses share one common property and assumption: it is assumed that some verbal head of the infinitive moves (overtly or covertly) to the matrix predicate (cf. (75)), and that this movement renders the infinitive transparent, either for government by the matrix verb (cf. Evers 1975a, 1975b; Rizzi 1978, 1982a; Baker 1988a) or for further movement of other elements from the infinitive (such as DPs, clitics):

Table 75.15 Structure-changing approaches

Restructuring infinitives	References
Clauses that lose their clausal status	Evers 1975a, 1975b, 1986, 1988, 1990; Aissen and Perlmutter 1976, 1983; Rizzi 1976, 1978, 1982a; Hoekstra 1984a; Grewendorf 1987, 1988; Von Stechow 1990
Reanalysis, multidimensional structures	Manzini 1983b; Haegeman and Van Riemsdijk 1986; Di Sciullo and Williams 1987; Goodall 1987b, 1991; Von Stechow and Sternefeld 1988

(75)

Head movement approaches:



As mentioned above, since overt verb raising raises serious empirical questions, many authors thus claim that some form of covert or abstract head-movement applies to restructuring infinitives. One set of approaches assumes that head-movement in restructuring infinitives does not apply in overt syntax but takes place in the covert component (i.e., as LF-incorporation of the infinitive; cf. Sternefeld 1990; Grewendorf and Sabel 1994; Gonçalves 1998). The second set of approaches assumes that head-movement in restructuring infinitives does take place in overt syntax, but that for various reasons, this movement is not reflected in the (phonological) output of the structure. First, adopting a version of the copy theory of movement in which either copy may be accessible to PF or LF, Roberts (1997b) suggests that head-movement applies overtly, but that in the phonological component, the tail rather than the head of the chain is pronounced. Second, many authors assume that the head that undergoes movement is not the actual infinitival verb but rather the (abstract) infinitival tense or Agr-node. This form of overt (though abstract) head-movement thus creates a complex head in restructuring constructions but at the same time leaves behind the infinitival verb (cf. Kayne 1989b, 1990, 1991; Roberts 1993b; Bok-Bennema and Kampers-Manhe 1994; Rooryck 1994a; Sabel 1996b; Terzi 1996a). Finally, there are approaches that assume that overt head-movement of the infinitive takes place, followed by further excorporation of the higher verb (cf. Roberts 1991a; Guasti 1992, 1993, 1997). The major head-movement approaches are listed in table 75.16.

Table 75.16 Head-movement approaches

Mechanisms	References
Overt verb (infinitive) raising; or formation of a complex V	Evers 1975a, 1975b; Rizzi 1978, 1982a; Haider 1986a, 1986b, 1991b, 1991c, 1993; Prinzhorn 1987, 1990; Sternefeld 1990; Rutten 1991; Guasti 1992, 1993, 1996b, 1997
Covert verb (infinitive) raising	Grewendorf and Sabel 1994; Gonçalves 1998
Overt verb raising + pronunciation of lower copy	Roberts 1997b
Overt raising of embedded T/INFL (without the infinitive)	Kayne 1989b, 1990, 1991; Roberts 1993b; Bok-Bennema and Kampers-Manhe 1994; Terzi 1996a
AgrS+T raising	Rooryck 1994a
Covert AgrO-raising	Sabel 1996b

A general question head-movement approaches are faced with is how deficient projections are licensed. If there are no relevant properties or features, the building of vacuous structure would be prohibited according to many syntactic theories. Thus, assuming that verb raising is triggered by the need to check features and the infinitival tense head is incapable of doing so, the tense head presumably lacks tense features, and a different reason has to be found for the presence of a TP.

Apart from this problem of how the presence of a featureless projection can be motivated in a restrictive theory of syntax, head-movement approaches that consider the lack of tense as the trigger for restructuring are faced with a number of other questions. For instance, if head-movement takes place covertly (i.e., if the infinitive only becomes transparent at LF), one might wonder how overt restructuring properties such as clitic climbing, long object movement, or auxiliary switch are licensed. Roberts (1997b) notes this problem and hence suggests the

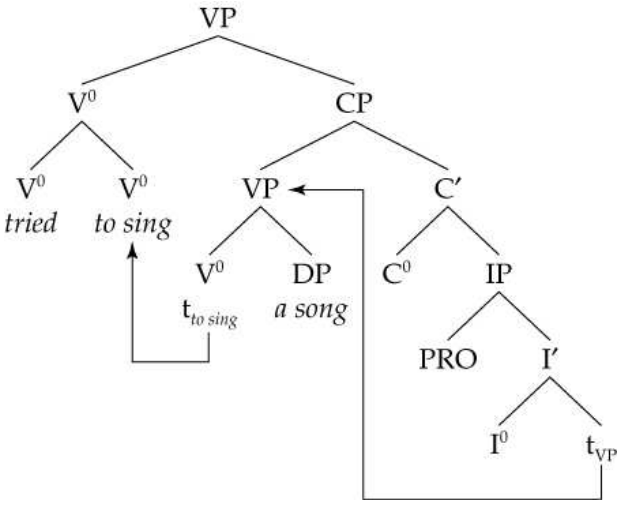
modification to covert movement described above, namely that verb raising is always overt, but that languages pick different copies for pronunciation. A further question concerns an asymmetry found in many languages between V-to-T movement in finite clauses and V-to-T movement in restructuring infinitives. Most authors assume that in Italian, (short) verb movement takes place overtly (cf. Kayne 1989b; Belletti 1990). In particular, it is claimed that the ordering of verbs and adverbs indicates that short overt verb movement applies in finite clauses as well as in infinitives (and crucially, in restructuring as well as non-restructuring infinitives). Since, according to head-movement approaches, infinitival T in restructuring infinitives is deficient and hence cannot check features, this short overt movement of the infinitival verb in a restructuring infinitive has to target a functional head other than T (in order to avoid the rather unattractive claim that the tense head in a restructuring infinitive, despite being unable to license the infinitive, nevertheless attracts it). An interesting question for these approaches is then why finite verbs undergo overt movement to T, whereas the non-finite verb in a restructuring infinitive – which by assumption also has to move to the finite T of the higher predicate – can move to some infinitival head overtly, but can only undergo covert movement to the matrix T. While these questions are not insurmountable, they seem to point to the special nature of head-movement in restructuring infinitives.

Finally, the most serious problem for the claim that the lack of tense is the trigger for restructuring is that this claim appears to be too strong. In Wurmbrand (2001), it is shown that not all tenseless infinitives are restructuring infinitives. While the lack of tense is indeed a necessary condition for restructuring, it is not a sufficient one; to qualify as a restructuring infinitive, other properties have to be met as well. Thus, the question arising for head-movement approaches is how restructuring can be excluded in certain tenseless infinitives (and – depending on the answer to this question – how the embedded verb can be tense licensed in a tenseless non-restructuring infinitive). To accommodate these problems, one might suggest that restructuring infinitives are [+tense deficient], whereas non-restructuring infinitives (whether tenseless or tensed) are [−tense deficient]. Note however, that this modification seems to defeat the original idea that head-movement is motivated by the tense properties – that is, it essentially dissociates head-movement from the actual tense properties of a construction, and hence the notion of 'tense deficiency' is reduced to a lexical diacritic marking restructuring (as, for instance, suggested by Sabel 1996b). Thus, it appears that one is forced to conclude that head-movement is not motivated by the tense properties of infinitival constructions, but that the sole purpose of head-movement in restructuring infinitives is to derive restructuring in a bi-clausal structure.

The final mechanism to derive clause union goes back to Burzio (1986), who suggested that the CP boundary of a restructuring infinitive is bypassed by moving the embedded verb phrase to the matrix clause (this approach can thus be seen as the ancestor of the more recent remnant movement approaches to restructuring by Hinterhölzl 1997, 1998, 1999 and Koopman and Szabolcsi 2000). Furthermore, Baker (1988a), Sternefeld (1990), Grewendorf and Sabel (1994), and Sabel (1996b) pursue a mixed head-movement plus topicalization approach. In these approaches, it is assumed that head-movement is required in restructuring constructions; however, it cannot proceed through the embedded C^0. Rather, head-movement applies after the embedded VP or AgrOP has undergone topicalization to the embedded SpecCP (cf. (76) for a simplified structure). Questions arising for this approach are mainly questions about the motivation of these topicalization operations:

(76)

Topicalization plus head-movement:



4.4 The motivation for restructuring

The last question addressed briefly in this overview is why certain infinitives but not others trigger restructuring. Some approaches to this question have already been touched upon in passing in the previous sections. For instance, many mono-clausal approaches involve the assumption that restructuring verbs are auxiliary-like in that they are less thematic than full verbs, are part of the functional structure of the clause, or are simple predicates

semantically that correspond to VPs or similar projections syntactically (see table 75.17 for references). In bi-clausal approaches, the question has to be asked in a slightly different way, namely why restructuring mechanisms (such as reanalysis, deletion of projections, head-movement, topicalization, etc.) can apply in only a subgroup of infinitival constructions. As mentioned, a common view that occurs throughout the works on restructuring is that restructuring verbs or restructuring infinitives are in some way or another deficient, and hence either lack certain projections (mono-clausal approaches) or require support from the matrix clause, which, for instance, can be achieved by head-movement. Li (1990a), for instance, assumes that restructuring infinitives involve a deficient 'dummy' INFL; Sternefeld (1990) argues that restructuring infinitives lack an embedded complementizer position, whereas non-restructuring infinitives involve a complementizer (which can be empty); and many researchers follow the idea that restructuring infinitives are deficient for tense. Table 75.17 summarizes some of the major proposals that suggest motivations for restructuring.

Table 75.17 Motivation for restructuring

Motivation	References
Restructuring verbs are not (fully thematic) lexical verbs	Strozer 1976; Napoli 1981; Zagona 1982; Picallo 1985, 1990; Prinzhorn 1987, 1990; Rochette 1988, 1990a, 1999; Rosen 1989, 1990; Rutten 1991; Cinque 1997a, 1997b, 2004; Roberts 1997b(but see note 26)
Restructuring involves argument or event structure unification	Napoli 1981; Rochette 1988, 1990a, 1999; Rosen 1989, 1990; Rosengren 1992; Haider 1993; Kiss 1995
Restructuring infinitives are tense deficient	Guéron and Hoekstra 1988; Rochette 1988, 1990a, 1999; Bennis and Hoekstra 1989; Rutten 1991; Broekhuis 1992; Guasti 1992, 1993, 1996b, 1997; Roberts 1993b, 1997b; Bok-Bennema and Kampers-Manhe 1994; Haegeman 1994; Rooryck 1994a; Wurmbrand 1997, 1998a, 1998c, 2001; Gonçalves 1998

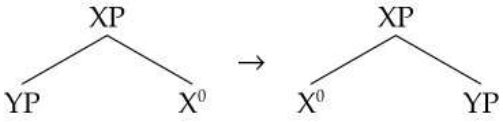
While the semantic properties allow us to make important generalizations about the nature and class of restructuring infinitives, it also has to be emphasized again that this is only a part of the picture. In particular, many differences among languages in the distribution of restructuring classes do not easily fall out from the semantic properties, and it is essential to take into account syntactic properties and other language-specific properties as well. However, as this short summary will hopefully have shown, while many important observations have been made regarding the syntactic and semantic properties of restructuring infinitives, there are also many questions that are still open, and hence the issue of restructuring provides an interesting and potentially very fruitful area for further research.

5 Appendix

5.1 Head-final derivations (inversion)

(77)

Head-final inversion rule:



iff the conditions in table 75.18 hold.

Table 75.18 Inversion rules (head-final base)

Language	Inversion rules	Optionality	Other
AF	X is a modal	Obligatory	• *Will*: modal • Passive participles: optional 3-LEFT
DU	A: Y is an infinitive	A: Obligatory	• Inversion is optional in finite 2-verb clusters
	B: Y is a participle	B: Optional	• Participles: optional 3-LEFT
Frisian	No inversion	–	–
GE (Standard)	X is an auxiliary and Y is a modal	Obligatory	• *Will*: modal or auxiliary
GE/Austrian dialects	Y is a non-main verb infinitive	Optional	• AUX-MOD-V: optional 3-LEFT
Swiss dialects	A: X is an auxiliary and Y is a modal	A: Obligatory	• Optional 3-LEFT

	B: Y is an infinitive	B: Optional	• 3–2 inversion only if 2–1 inversion
WF	A: X is an operator (MOD, TENSE, NEG) and Y is an infinitive	A: Obligatory	• Present: [±TENSE]
	B: X and Y are auxiliaries	B: Optional	• MOD–AUX–V: optional 3–LEFT

(78) **DU – head-final inversions** (data from Rutten 1991; Zwart 1996; Robbers 1997):

a.

AUX–PART (optional inversion of participle (B)):

dat Jan het boek gelezen heeft /heeft gelezen (2–1/1–2)

that Jan the book read–2 has–1 /has–1 read–2

b.

MOD–INF (optional inversion in finite 2–verb clusters (A; special)):

dat Jan het boek lezen kan /kan lezen (2–1/1–2)

that Jan the book read–2 can–1 /can–1 read–2

c.

MOD–MOD–V (obligatory inversions of infinitives (A)):

dat Jan morgen zal/moet kunnen werken (1–2–3)

that Jan tomorrow will/must–1 can–2 work–3 (*All others)

d.

AUX–Mod–V (obligatory inversions of infinitives (A; IPP = infinitive)):

dat Jan het boek heeft kunnen lezen (1–2–3)

that Jan the book has–1 can–2 read–3 (*All others)

e.

MOD–AUX–V (optional inversion of participle (B); obligatory inversion of infinitive (A); optional 3–LEFT):

dat	Jan	Marie	kan	hebben	gezien (1–2–3)
that	Jan	Marie	can–1	have–2	seen–3
dat	Jan	Marie	kan	gezien	hebben (1–3–2)
that	Jan	Marie	can–1	seen–3	have–2
dat	Jan	Marie	gezien	can	hebben (3–1–2)
that	Jan	Marie	seen–3	can–1	have–2

(79) **GE (Standard) – head-final inversions:**

a.

AUX–PART (no inversion (PART is not a modal)):

weil er das Buch gekauft hat /*hat gekauft (2–1/*1–2)

since he the book bought–2 has–1 /*has–1 bought–2

a¢.

AUX–INF (no inversion (INF is not a modal)):

weil er das Buch kaufen wird /*wird kaufen (2–1/*1–2)

since he the book buy–2 will–1 /*will–1 buy–2

b.

MOD–INF (no inversion (INF is not a modal)):

weil er das Buch kaufen muß /*muß kaufen (2–1/*1–2)

since he the book buy–2 must–1 /*must–1 buy–2

c.

MOD–MOD–V (no inversions (MODs are not auxiliaries)):

weil er es kaufen können will (3–2–1)

since he it buy–3 can–2 wants–1 (*All others)

weil er es kaufen können wird (3–2–1)

since he it buy–3 can–2 will–1 (*will* = modal)

d.

AUX–Mod–V (obligatory inversion of AUX and MOD):

weil er es hat kaufen können (1–3–2)

since he it has–1 buy–3 can–2 (*All others)

weil er es wird kaufen können (1–3–2)
since he it will–1 buy–3 can–2 (*will* = auxiliary)

e.
MOD–AUX–V (no inversions (V/AUX are not modals)):
weil er es gekauft haben muß (3–2–1)
since he it bought–3 have–2 must–1 (*All others)

f.
AUX–AUX–V (no inversions (V/AUX are not modals)):
weil es gekauft worden ist (3–2–1)
since it bought–3 been–2 is–1 (*All others)

(80) **GE/Austrian (dialects) – head–final inversions:**

a.
AUX–PART (no inversion):
weil er das Buch gekauft hat /*hat gekauft (2–1/*1–2)
since he the book bought–2 has–1 /*has–1 bought–2

a¢.
AUX–INF (no inversion (INF is main verb)):
weil er das Buch kaufen wird /*wird kaufen (2–1/*1–2)
since he the book buy–2 will–1 /*will–1 buy–2

b.
MOD–INF (no inversion (INF is main verb)):
weil er das Buch kaufen muß /*muß kaufen (2–1/*1–2)
since he the book buy–2 must–1 /*must–1 buy–2

c.
MOD–MOD–V (optional inversion of infinitive; no main verb inversion; no 3–LEFT environment):

weil	er	es	kaufen	können	will (No inversions: 3–2–1)
since	he	it	buy–3	can–2	wants–1
weil	er	es	will	kaufen	können (Inversion: 1–3–2)
since	he	it	wants–1	buy–3	can–2

d.
AUX–Mod–V (optional inversion of infinitive; optional 3–LEFT; no main verb inversion):

weil	er	es	hat	kaufen	können (Inversion: 1–3–2)
since	he	it	has–1	buy–3	can–2
weil	er	es	wird	kaufen	können (Inversion: 1–3–2)
since	he	it	will–1	buy–3	can–2
weil	er	es	kaufen	können	hat (No inversions: 3–2–1)
since	he	it	buy–3	can–2	has–1
weil	er	es	kaufen	können	wird (No inversions: 3–2–1)
since	he	it	buy–3	can–2	will–1
weil	er	es	kaufen	hat	können (3–LEFT and inversion: 3–1–2)
since	he	it	buy–3	has–1	can–2
weil	er	es	kaufen	wird	können (3–LEFT and inversion: 3–1–2)
since	he	it	buy–3	will–1	can–2

e.
MOD–AUX–V (optional inversion of infinitive; no 3–LEFT environment):

weil	er	es	gekauft	haben	muß (3–2–1)
since	he	it	bought–3	have–2	must–1
weil	er	es	muß	gekauft	haben (Inversion: 1–3–2)
since	he	it	must–1	bought–3	have–2

f.
AUX–AUX–V (no inversions):
weil es gekauft worden ist (3–2–1)
since it bought–3 been–2 is–1 (*All others)

(81) **SG (dialects) – head–final inversions** (data from Schönenberger 1995, p.c.; Hsiao 1999; Haeberli p.c.):[28]

a.
AUX-PART (no inversion (PART is not a modal or an infinitive)):
das t chatz fisch gässe hät /*hät gässe (2-1/*1-2)
that the cat fish eaten-2 has-1 /*has-1 eaten-2

b.
MOD-INF (optional inversion (B)):
das t chatz fisch ässe mues /mues ässe (2-1/1-2)
that the cat fish eat-2 must-1 /must-1 eat-2

c.
MOD-MOD-V (optional inversion of infinitives (B); optional 3-LEFT):
das er . . . wil chöne vorsinge (2 inversions: 1-2-3)
that he . . . wants-1 can-2 sing-3
das er . . . wil vorsinge chöne (1 inversion: 1-3-2)
that he . . . wants-1 sing-3 can-2
das er . . . vorsinge wil chöne (3-LEFT and inversion: 3-1-2)
that he . . . sing-3 wants-1 can-2
das er . . . vorsinge chöne wil (No inversion: 3-2-1)
that he . . . sing-3 can-2 wants-1

d.
AUX-Mod-V (obligatory inversion of AUX/MOD (A); optional inversion of infinitive (B); optional 3-LEFT):

das	de Jonas	hät	müese	schwimme (A and B: 1-2-3)
that	the Jonas	has-1	must-2	swim-3
das	de Jonas	hät	schwimme	müese (A: 1-3-2)
that	the Jonas	has-1	swim-3	must-2
das	de Jonas	schwimme	hät	müese (3-LEFT and A: 3-1-2)
that	the Jonas	swim-3	has-1	must-2

e.
MOD-AUX-V (optional inversion of infinitive (B); optional 3-LEFT):
wil er si mues gsee ha (B: 1-3-2)
since he her must-1 seen-3 have-2
wil er si gsee ha mues (No inversions: 3-2-1)
since he her seen-3 have-2 must-1
wil er si gsee mues ha (3-LEFT: 3-1-2)
since he her seen-3 must-1 have-2

f.
AUX-AUX-V (no inversions (3-LEFT also yields 3-2-1)):
das de Hans gwäält worde isch (No inversions: 3-2-1)
that the Hans elected-3 been-2 is-1

(82) **WF - head-final inversions** (data from Haegeman 1994: 511, 517, 1995a: 59, 1998c, p.c.):

a.
AUX-PART (no inversion):
da Valère dienen boek gelezen oat /*oa gelezen (2-1/*1-2)
that Valère that book read-2 had-1 /*had-1 read-2

b.
MOD-INF (obligatory inversion with modal (= operator)):
da Valère dienen boek *kuopen wilt /wilt kuopen (1-2/*2-1)
that Valère this book *buy-2 wants-1 /wants-1 buy-2

c.
MOD-MOD-V (obligatory inversion with modals (= operator)):
dan ze dienen boek kosten willen kupen (1-2-3)
that they this book could-1 want-2 buy-3

d.
AUX-Mod-V (obligatory inversion with modal (= operator); obligatory inversion with AUX when operator (i.e., when [+TENSE/+NEG])):

da	Valère willen	Marie	dienen boek	geven	eet	(2–3–1)
that	Valère want–2	Marie	that book	give–3	has–1	
da	Valère ee	willen	Marie	dienen boek	geven	(1–2–3)
that	Valère has–1	want–2	Marie	that book	give–3	
da	Valère oa	willen	Marie	dienen boek	geven	(1–2–3)
that	Valère had–1	want–2	Marie	that book	give–3	
da	Valère nooit	en–ee	willen	Marie dienen boek	geven	(1–2–3)
that	Valère never	NEG–has–1	want–2	Marie that book	give–3	
?*da	Valère willen	Marie	dienen boek	geven	oat	(?*2–3–1)
that	Valère want–2	Marie	that book	give–3	had–1	

?*da Valère nooit willen Marie dienen boek geven en–eet (?*2–3–1)
that Valère never want–2 Marie that book give–3 NEG–has–1

e.

MOD–AUX–V (inversion with modal (= operator); optional 3–LEFT):

dat	Jan	. . .	moe	gezien	een (Inversion: 1–3–2)
that	Jan	. . .	must–1	seen–3	have–2
da	Jan	. . .	gezien	moet	een (3–LEFT: 3–1–2)
that	Jan	. . .	seen–3	must–1	have–2

f.

AUX–AUX–V (optional inversion of AUX&AUX):

da	Jan gekozen	geworden is	(No inversions: 3–2–1)
that	Jan elected–3	been–2	is–1
dat	Jan is	gekozen	geworden (Inversion: 1–3–2)
that	Jan is–1	elected–3	been–2

5.2 Head–initial derivations (inversion)

(83) **Head–initial inversion rule**:

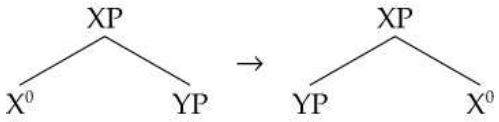


Table 75.19 Inversion rules (head–initial base)

Language	Inversion rules	Optionality	Other
AF	X is an auxiliary	Obligatory	• *Will*: modal • Passive participles: optional 3–LEFT
DU	A: Y is a participle B: X is finite and Y is a main verb	A: Optional B: Optional	• Participles: optional 3–LEFT
Frisian	X and Y are verbs	Obligatory	
GE (Standard)	X and Y are verbs, except when Y is an auxiliary and Y is a modal[a]	Obligatory	• *Will*: modal or auxiliary
GE/Austrian dialects	A: Y is a participle B: Y is a main verb C: Y is an infinitive	A: Obligatory B: Obligatory C: Optional	• Infinitives: optional 3–LEFT across a higher auxiliary
Swiss dialects	A: Y is a participle B: X is a modal	A: Obligatory B: Optional	• Optional 3–LEFT • 1–2 inversion only if 2–3 inversion
WF	A: X is a [–TENSE] auxiliary B: Y is a main verb participle	Obligatory	• Present: [±TENSE] • NEG, PAST: [+TENSE] • Participles: optional 3–LEFT across a modal

***Note*: To avoid the 'except' clause in the rule for GE, one could state instead the following three obligatory rules: A: Y is a participle; B: Y is a main verb; C: X is a modal. These rules would guarantee inversion in all**

but auxiliary–modal constructions, but would also involve a significant amount of redundancy.

iff the conditions in table 75.19 hold.

(84) **DU – head-initial inversions** (data from Rutten 1991; Zwart 1996; Robbers 1997):

a.

AUX–PART (optional inversion of participle (A) or main verb (B)):

dat Jan het boek gelezen heeft /heeft gelezen (2–1/1–2)

that Jan the book read–2 has–1 /has–1 read–2

b.

MOD–INF (optional inversion of main verb (B)):

dat Jan het boek lezen kan /kan lezen (2–1/1–2)

that Jan the book read–2 can–1 /can–1 read–2

c.

MOD–MOD–V (no inversions):

dat Jan morgen zal/moet kunnen werken (1–2–3)

that Jan tomorrow will/must–1 can–2 work–3 (*All others)

d.

AUX–Mod–V (no inversions (IPP = infinitive)):

dat Jan het boek heeft kunnen lezen (1–2–3)

that Jan the book has–1 can–2 read–3 (*All others)

e.

MOD–AUX–V (optional inversion of participle; optional 3–LEFT):

dat	Jan	Marie	kan	hebben	gezien (1–2–3)
that	Jan	Marie	can–1	have–2	seen–3
dat	Jan	Marie	kan	gezien	hebben (1–3–2)
that	Jan	Marie	can–1	seen–3	have–2
dat	Jan	Marie	gezien	can	hebben (3–1–2)
that	Jan	Marie	seen–3	can–1	have–2

(85) **GE (Standard) – head–initial inversions:**

a.

AUX–PART (obligatory inversion (PART is not a modal)):

weil er das Buch gekauft hat /*hat gekauft (2–1/*1–2)

since he the book bought–2 has–1 /*has–1 bought–2

a¢.

AUX–INF (obligatory inversion (INF is not a modal)):

weil er das Buch kaufen wird /*wird kaufen (2–1/*1–2)

since he the book buy–2 will–1 /*will–1 buy–2

b.

MOD–INF (obligatory inversion (INF is not a modal)):

weil er das Buch kaufen muß /*muß kaufen (2–1/*1–2)

since he the book buy–2 must–1 /*must–1 buy–2

c.

MOD–MOD–V (obligatory inversions (MODs are not auxiliaries)):

weil	er	es	kaufen	können	will (3–2–1)
since	he	it	buy–3	can–2	wants–1 (*All others)
weil	er	es	kaufen	können	wird (3–2–1)
since	he	it	buy–3	can–2	will–1 (*will* = modal)

d.

AUX–Mod–V (obligatory inversion of MOD and V; no inversion of AUX and MOD):

weil	er	es	hat	kaufen	können (1–3–2)
since	he	it	has–1	buy–3	can–2 (*All others)
weil	er	es	wird	kaufen	können (1–3–2)
since	he	it	will–1	buy–3	can–2 (*will* = auxiliary)

e.

MOD-AUX-V (obligatory inversions (V/AUX are not modals)):

weil	er	es	gekauft	haben	muß (3-2-1)
since	he	it	bought-3	have-2	must-1 (*All others)

f.

AUX-AUX-V (obligatory inversions (V/AUX are not modals)):

weil	es	gekauft	worden	ist (3-2-1)
since	it	bought-3	been-2	is-1 (*All others)

(86) **GE/Austrian (dialects) - head-initial inversions:**

a.

AUX-PART (obligatory inversion of main verbs (B) or obligatory inversion of participle (A)):

weil	er	das Buch	gekauft	hat	/*hat	gekauft (2-1/*1-2)
since	he	the book	bought-2	has-1	/*has-1	bought-2

a¢.

AUX-INF (obligatory inversion of main verbs (B)):

weil	er	das Buch	kaufen	wird	/*wird	kaufen (2-1/*1-2)
since	he	the book	buy-2	will-1	/*will-1	buy-2

b.

MOD-INF (obligatory inversion of main verbs (B)):

weil	er	das Buch	kaufen	muß	/*muß	kaufen (2-1/*1-2)
since	he	the book	buy-2	must-1	/*must-1	buy-2

c.

MOD-MOD-V (obligatory inversion of main verb (B); optional inversion of infinitive (C)):

weil	er	es	kaufen	können	will (3-2-1)
since	he	it	buy-3	can-2	wants-1
weil	er	es	will	kaufen	können (1-3-2)
since	he	it	wants-1	buy-3	can-2

d.

AUX-Mod-V (obligatory inversion of main verb (B); optional inversion of infinitive (C; IPP = infinitive); optional 3-LEFT across AUX):

weil	er	es	hat	kaufen	können (1-3-2)
since	he	it	has-1	buy-3	can-2
weil	er	es	wird	kaufen	können (1-3-2)
since	he	it	will-1	buy-3	can-2
weil	er	es	kaufen	können	hat (3-2-1)
since	he	it	buy-3	can-2	has-1
weil	er	es	kaufen	können	wird (3-2-1)
since	he	it	buy-3	can-2	will-1
weil	er	es	kaufen	hat	können (3-1-2)
since	he	it	buy-3	has-1	can-2
weil	er	es	kaufen	wird	können (3-1-2)
since	he	it	buy-3	will-1	can-2

e.

MOD-AUX-V (obligatory inversion of main verbs (B) or obligatory inversion of participle (A); optional inversion of infinitive (C)):

weil	er	es	gekauft	haben	muß (3-2-1)
since	he	it	bought-3	have-2	must-1
weil	er	es	muß	gekauft	haben (1-3-2)
since	he	it	must-1	bought-3	have-2

f.

AUX-AUX-V (obligatory inversions of participles (A)).

weil	es	gekauft	worden	ist (3-2-1)
since	it	bought-3	been-2	is-1 (*All others)

(87) **SG (dialects) - head-initial inversions** (data from Schönenberger 1995, p.c.; Hsiao 1999; Haeberli p.c.):[29]

a.
AUX-PART (obligatory inversion of participle (A)):
das t chatz fisch gässe hät /*hät gässe (2-1/*1-2)
that the cat fish eaten-2 has-1 /*has-1 eaten-2

b.
MOD-INF (optional inversion (B)):
das t chatz fisch ässe mues /mues ässe (2-1/1-2)
that the cat fish eat-2 must-1 /must-1 eat-2

c.
MOD-MOD-V (optional inversion with modals (B); optional 3-LEFT):
das er . . . wil chöne vorsinge (No inversions: 1-2-3)
that he . . . wants-1 can-2 sing-3
das er . . . wil vorsinge chöne (1 inversion: 1-3-2)
that he . . . wants-1 sing-3 can-2
das er . . . vorsinge wil chöne (3-LEFT: 3-1-2)
that he . . . sing-3 wants-1 can-2
das er . . . vorsinge chöne wil (2 inversions B: 3-2-1)
that he . . . sing-3 can-2 wants-1

d.
AUX-Mod-V (optional inversion with modal (B); optional 3-LEFT):
das de Jonas hät müese schwimme (No inversions: 1-2-3)
that the Jonas has-1 must-2 swim-3
das de Jonas hät schwimme müese (B: 1-3-2)
that the Jonas has-1 swim-3 must-2
das de Jonas schwimme hät müese (3-LEFT: 3-1-2)
that the Jonas swim-3 has-1 must-2

e.
Mod-AUX-V (obligatory inversion of participle (A); optional inversion with modal (B); optional 3-LEFT):

wil	er	si	mues	gsee	ha (A: 1-3-2)
since	he	her	must-1	seen-3	have-2
wil	er	si	gsee	ha	mues (A & B: 3-2-1)
since	he	her	seen-3	have-2	must-1
wil	er	si	gsee	mues	ha (3-LEFT: 3-1-2)
since	he	her	seen-3	must-1	have-2

f.
AUX-AUX-V (obligatory inversion of participles (A) (3-LEFT also yields 3-2-1)):
das de Hans gwäält worde isch (2 inversions A: 3-2-1)
that the Hans elected-3 been-2 is-1

(88) **WF - head-final inversions** (data from Haegeman 1994: 511, 517; 1995a: 59; 1998c; p.c.):
a.
AUX-PART (obligatory inversion of main verb participles):
da Valère dienen boek gelezen oat /*oa gelezen (2-1/*1-2)
that Valère that book read-2 had-1 /*had-1 read-2

b.
MOD-INF (no inversion):
da Valère dienen boek *kuopen wilt /wilt kuopen (1-2/*2-1)
that Valère this book *buy-2 wants-1 /wants-1 buy-2

c.
MOD-MOD-V (no inversions):
dan ze dienen boek kosten willen kupen (1-2-3)
that they this book could-1 want-2 buy-3

d.
AUX-Mod-V (obligatory inversion when AUX is [-TENSE] (NEG = [+TENSE])):
da Valère willen Marie dienen boek geven eet (2-3-1)

that	Valère want-2	Marie	that book	give-3	has-1
da	Valère ee	willen	Marie	dienen boek	geven (1-2-3)
that	Valère has-1	want-2	Marie	that book	give-3
da	Valère oa	willen	Marie	dienen boek	geven (1-2-3)
that	Valère had-1	want-2	Marie	that book	give-3
da	Valère nooit	en-ee	willen	Marie dienen boek	geven (1-2-3)
that	Valère never	NEG-has-1	want-2	Marie that book	give-3
?*da	Valère willen	Marie	dienen boek	geven	oat (?*2-3-1)
that	Valère want-2	Marie	that book	give-3	had-1
?*da	Valère nooit willen	Marie dienen boek geven			en-eet (?*2-3-1)
that	Valère never want-2	Marie that book	give-3 NEG-has-1		

e.

MOD-AUX-V (obligatory inversion of main verb participle; optional 3-LEFT):

dat	Jan	. . .	moe	gezien	een (Inversion: 1-3-2)
that	Jan	. . .	must-1	seen-3	have-2
da	Jan	. . .	gezien	moet	een (3-LEFT: 3-1-2)
that	Jan	. . .	seen-3	must-1	have-2

f.

AUX-AUX-V (obligatory inversion of main verb participle; inversion with AUX):[30]

da	Jan	gekozen	geworden	is (A and B: 3-2-1)
that	Jan	elected-3	been-2	is-1
dat	Jan	is	gekozen	geworden (B: 1-3-2)
that	Jan	is-1	elected-3	been-2

NOTES

1 The notion of 'unmarked' word order is crucial to distinguish verb clusters from constructions like stylistic fronting in Icelandic or VP topicalization.

2 As will be shown in section 2.3, these languages allow word orders that cannot be treated as basic word orders under either a head-final or a head-initial base structure. Thus, these languages clearly involve verb-cluster reordering (in certain constructions) independently of what one assumes to be their base structure.

3 According to a preliminary study conducted by Peter Ackema, there is some potential variation among Frisian speakers regarding the possibility of the IPP effect in descending orders. However, the empirical situation is not clear at this point; in particular, as pointed out by Germen de Haan (p.c.), there is a strong influence from DU which interferes with the data.

4 Not considered for this overview are causative and perception verb constructions, or double-auxiliary constructions of the form *John will have left*, since these constructions are less discussed in the literature.

5 For this basic illustration of the orders attested in verb clusters, the distribution of objects in verb clusters will be ignored. One might imagine that inversion in cases such as (10b, c, d) should result in a structure in which the object occurs between the verbs of a cluster; similarly, without further assumptions, the object should occur after the lowest verb in the structures in (11). However, despite the fact that both expectations are generally not borne out (but see section 3.2), these facts do not challenge the types of inversion suggested in (10-11). An important ingredient of head-initial structures is that in the West Germanic languages, material that is generated to the right of the lowest verb (such as objects) undergoes obligatory movement to some position further to the left. In the course of this overview, this property will be discussed in detail; however, for the present discussion, it might be useful for the reader to simply imagine that the object is not in its base position but somewhere to the left of the cluster (in both the head-initial and the head-final structures).

6 The rules do not capture double-participle constructions in DU as listed in table 75.2. The reason why this construction is ignored is that no systematic empirical characterization is available at this point. For one, constructions involving the auxiliary *geworden* are generally considered as marked and rejected by most DU speakers. Furthermore, while the 1-3-2 order is attested for the *get*+PART construction (Robbers 1997: 124), it is not clear at this point what the status of the other orders in this construction is. Thus, the rules given in table 75.3 and in table 75.4 below might have to be modified after establishing the empirical situation for this construction.

7 The formulation of the inversion rule as in table 75.3 (in particular the assumption that the rule is sensitive to

modals rather than to infinitives) receives further support from the fact that modals also invert with non-verbal complements in AF (see Robbers 1997: 167–171).

8 The Swiss data in these examples are from Haeberli (p.c.) and partly also from Hsiao (1999, 2000).

9 But see Den Dikken 1989, Den Besten and Broekhuis 1992, Coppen and Klein 1992, IJbema 1997, and Koopman and Szabolcsi 2000, for instance, for exactly that position – i.e., a pure phrasal movement approach.

10 To account for the optionality of particle stranding (cf. (32b) and (32f)) it has to be assumed that either excorporation is possible or that incorporation can occur before or after verb-cluster formation. Since the structure of particle constructions is a topic on its own, a detailed discussion cannot be provided here. See Neeleman (1994a), Den Dikken (1995c), and references therein for in-depth discussions.

11 For the present discussion, the structure of these infinitival constructions will be left unspecified; in particular, no label is assigned to the remnant constituent in (34). See section 4.

12 The exact landing site of the object (i.e., whether it is higher or lower than the higher VP) is ignored here since it is orthogonal to the question addressed.

13 In fact, particles can appear to the left of certain elements (namely stranded prepositions), which has been taken as support for a movement analysis of particles and against the claim that particles are immovable (cf., for instance, Zwart 1997a). However, since these reduced elements are the only categories that can appear between a particle and a verb, the conclusion that particles undergo leftward movement should also be drawn with some caution. An alternative view would be to assume that particles and other preposition-like elements undergo syntactic or phonological cliticization; if this process occurs in the phonological component, the order between a particle and a stranded preposition could be seen as a phonological ordering effect, and hence these constructions would not provide evidence for syntactic movement.

14 Assuming that phrasal movement in verb clusters is some form of extraposition, it is expected that this form of movement does not have to target the closest XP on the right but can attach to a higher projection, as long as no clause boundary is crossed. Thus, movement of VP-2 in (42b) across XP would be unproblematic unless the latter is a CP. Since not all infinitival constructions allow the remnant movement operation in (41a, b) (in particular, factive and propositional infinitives prohibit this configuration), the presence vs. absence of a CP (like the suggested presence vs. absence of the XP in (42)) could be seen as the crucial property that distinguishes infinitives allowing a remnant movement construction from ones that prohibit it (see Wurmbrand 2001 for an analysis along these lines).

15 Note that the main issue of this section is simply to determine how different structures can be derived. The question of why certain things move or do not move will be addressed in section 3.3.

16 Although technically speaking, the term 'verb projection raising' is no longer the correct description of these constructions in light of (certain) head-initial approaches, it will be kept here as a descriptive label for constructions of the form 'V-1 . . . [XP V-2]'.

17 As mentioned below table 75.7, the prohibition against stranding of particles holds only for idiomatic particles; particle constructions with a transparent meaning readily allow particle stranding in AF (cf. Robbers 1997), and under the right focus conditions, also in GE and SG (see Wurmbrand 1999b and Ackema 2004 for discussions of this distinction). In DU and WF, however, both types of particles can be stranded. The statements in the text should thus be seen as referring only to idiomatic particles.

18 The claim that movement to functional projections is motivated by the need to check features is itself based on an assumption which appears to be controversial. What kind of features do verbs, modals, auxiliaries, etc., check? Features commonly assumed are so-called V-features. Although it seems that these rather vague features do no more than account for movement in the absence of any other good reason (see also Koopman 1984 for a similar observation regarding features such as [±AFFIX]), it will be granted for the discussion here that movement that is triggered by these kind of features is 'motivated' movement.

19 Unfortunately, the paradigm is incomplete and it is not entirely clear what the options regarding particle placement are in the 1-3-2 order. According to Marcel den Dikken (p.c.), particles can occur to the left or to the right of 1 in the 1-3-2 order. However, since these intuitions have not been confirmed by a speaker of this dialect, the facts are only noted preliminarily at this point.

20 This is not an entirely correct description of Zwart's analysis, since Zwart leaves open (1996: 249) the phrase-structure status of the participle (i.e., whether the element that moves to Spec*OF/BE* is a head or a phrase). The reason – according to Zwart – is that clausal complements are not carried along when the participle moves to its licensing position. However, this problem can of course be avoided (by keeping the assumption that participle movement is XP-movement) if the clausal complement undergoes prior movement to a position above the VP but below the landing site of the participle (see Hinterhölzl 1997, 1998, 1999 and Koopman and Szabolcsi 2000 for extensive use of this option). Since this remnant movement approach seems to be more in the spirit of Zwart's proposal than the rather ad hoc assumption that heads move into specifier positions, the participle movement will be represented as VP movement, with the understanding that additional movements might have occurred that pre-emptied the VP.

21 As noted in note 19, it is not entirely clear where particles can go in this order. If speakers of this dialect share Marcel den Dikken's intuition that particles can occur to the right or to the left of 1 in the 1–3–2 order, one of the options for particles as discussed in the text would have to be eliminated – i.e., particles could then not be considered as immobile, but one would have to pursue an analysis according to which particles undergo string-vacuous movement (see section 3.1.3).

22 One of Zwart's critiques of the head-final approach which is mentioned repeatedly in the article is that both head- and phrasal movement are necessary to derive verb clusters. Although the account presented in the text indeed involves both head- and phrasal movement, it is important to note that this is not necessarily the only way to derive DU verb clusters under a head-final approach. It has been chosen here since it appears to be the most straightforward option. However, as we have seen in section 3.1.3, it is possible – under certain assumptions about particles – to derive the word-order patterns exclusively by phrasal movement in the head-final approach. Thus, Zwart's claim is not entirely correct. Furthermore, it should be noted that Zwart's own analysis crucially involves both head- and phrasal movement. Thus, it seems that this point of criticism is not justified.

23 Evers attributes this principle to a proposal made by Kuroda in an unpublished paper (cited in Ross 1986).

24 Both articles were subsequently republished. References below are to the newer versions.

25 Note, however, that this conclusion holds only under the particular assumptions stated in the text. One question of debate, for instance, is the claim that floating quantifiers mark the trace position of the subject (see Bobaljik 1998 and references therein for arguments against this position). Furthermore, excorporation could be dispensed with, assuming the relativized HMC approach suggested in Den Dikken and Hoekstra (1997).

26 The lists of references are selective and no claim is made that they exhaustively represent the works on restructuring. In many cases, only works that explicitly address the questions or issues under consideration will be mentioned. Roberts (1997b) is listed in both categories in table 75.13, since restructuring verbs are characterized as non-theta-assigners in his article; however, at the same time it is stated that this property is essentially a language-specific lexical property that does not necessarily correlate with the thematic and semantic properties of the verbs involved.

27 Von Stechow does not commit himself to any assumption about the initial structure of restructuring infinitives (i.e., whether they are base-generated VPs or reduced CPs). However, since he talks about potential deletion of PRO and sentential nodes, his reference is included here.

28 The rules yield Swiss-1 in two-verb clusters; see Notes to table 75.2.

29 Again, the rules yield Swiss-1 in two-verb clusters; see Notes to table 75.2.

30 The current formulation of the rule predicts that inversion with the higher AUX is subject to the [−TENSE] restriction. If this is empirically incorrect, the rules will have to be modified.

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