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## Not another book on Verb Raising

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## CHAPTER 2

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### The strengths and weaknesses of previous theories

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#### 2.1 Introduction

Chapter 1 briefly mentioned the observed variation of verb clusters in Frisian and Dutch varieties. Looking in detail at this variation, some properties immediately stand out. For instance, in some language varieties, multiple orders of verbs in a cluster can be observed. Which orders are acceptable in a single variety depends on the types of verbs involved. To give an example, speakers of some varieties accept the  $V_1$ - $V_2$  order when  $V_2$  is an infinitive, and the  $V_2$ - $V_1$  order when  $V_2$  is a participle. In this chapter, I discuss a number of such properties. These properties should be captured by any theory that aims at explaining, rather than merely describing, this variation.

- (i) Multiple orders of verbs in a cluster can be observed within a single language variety;
- (ii) In three-verb clusters, only one order (the 2-1-3 order) does not occur;
- (iii) The 2-3-1 order is only attested with certain verb types;
- (iv) The distribution of the remaining orders depends on the types of verbs involved;
- (v) The different orders are semantically and pragmatically equivalent;
- (vi) The word order variation in these languages contrasts with a rigid ordering in the nominal domain.

- (vii) The observed orders of verbs exhibit clear geographic co-occurrence patterns

All these properties are discussed in more detail in this chapter. Crucially, these properties suggest that while there is abundant variation in this domain, the variation is not unlimited.

There are many different analyses of verb clusters and there is little consensus on which one is correct. In sections 2.3–2.10, I assess how well the different types of approaches capture each of the verb cluster properties. In order to do this, a brief description of the mechanisms assumed by the previous approaches is provided in the next section.<sup>6</sup> All these approaches are well thought out and able to account for a large number of properties of verb clusters, including at least some of the properties listed above. All approaches are able to derive the different observed orders, and for all approaches it is possible to come up with an explanation for the lack of semantic and pragmatic effects with different orderings. Crucially however, most of the remaining properties pose problems for all of the existing approaches to verb clusters. The reason for this is that most existing theories only focus on the structural properties of verb clusters and ignore their geographic distribution.<sup>7</sup> Conversely, I argue in chapter 3 that the approach taken by Barbiers, Bennis, and Dros-Hendriks (forthcoming) and assumed in this dissertation, can in fact account for many of the properties listed above, making this approach superior to the previous approaches.

## 2.2 Deriving verb clusters in existing approaches

One of the main issues in deriving verb clusters is the underlying order from which other orders are derived. Koster (1975) argues in favor of an SOV order, mostly on the basis of the position of particles in sentences of Dutch.

- (8) a. Hij (\*op) gaf de wedstrijd (op).  
       He up.PTCL gave the competition up.PTCL
- b. Hij zei dat hij de wedstrijd (op)-gaf (\*op).  
       He said that he the competition up.PTCL-gave up.PTCL

In these sentences, the particle is assumed to originate in a position adjacent to the verb. As stated by Koster, if the SVO order observed in the root clause were the base-generated order, two separate movement processes would be required: a movement of the particle that applies in all clauses, and a movement of the

<sup>6</sup> I do not provide a detailed discussion of all existing approaches to verb cluster formation, which is not the aim of this chapter. The previous approaches are only discussed to the extent that the problems accounting for these properties become apparent. For a substantive comparison of the existing theories, the reader is referred to Wurmbrand (2017).

<sup>7</sup> To my knowledge, Barbiers and Bennis (2010) – on which the theory presented in chapter 3 is based – is the only approach that aims at explaining the geographic distribution.

verb in embedded clauses only. On the other hand, if the embedded SOV order is assumed to be the underlying order, only one movement has to be assumed, namely a *verb second* movement that moves verbs to the second position of the main clause. Koster concluded that the grammar of Dutch is simpler if one assumes Dutch to be an SOV language with a *verb second* rule that strands the particle in main clauses.

Zwart (1997:12) commented on this issue as follows: “Koster’s answer that the main clause order is derived from the embedded clause order was taken to imply that the embedded clause word order is the basic word order, hence that Dutch is an SOV language. [...] this conclusion is not warranted as long as we do not know for certain that the embedded clause word order is not itself derived from the basic word order via movement processes, like object shift.”

Zwart (1997) is a proponent for analyzing the Dutch word order as SVO, following Kayne’s (1994) *Universal Base Hypothesis*, which states that the structure of sentences and hence the underlying word order is essentially the same in all languages. On the basis of this idea, Kayne states that all well-formed syntactic structures consist of asymmetric c-commanding relations. The *Linear Correspondence Axiom* (LCA) then maps these hierarchic structures to a head-initial linear order. According to Zwart (1997), this theory leads to a simpler theory of the word order variation in Germanic languages. He shows that objects can move independently, as indicated by sentences like (9), where the object precedes the negative marker *niet* ‘not’.

- (9) Jan heeft *het boek* niet gelezen.  
 Jan has the book not read  
 ‘Jan has not read the book.’

Assuming that movement is not optional, it is likely that the object has also moved when there is no adverb present. Since the position of the object preceding the verb could in principle always be the result of an object shift, there is no need to postulate an OV/VO parameter to account for the OV word order.

To date, there is no consensus on whether Dutch has an underlying head-initial or head-final word order. All observed word orders can in principle be derived from either underlying order. Wurmbrand (2017) states that assuming a head-initial or head-final order usually depends on the preferred assumptions: while some may consider an underlying head-initial structure advantageous because of the uniformity of structures across human languages, others might consider the assumptions required in those approaches, such as covert movements, a disadvantage.

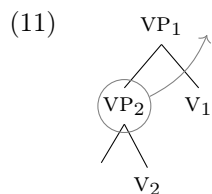
I demonstrate in chapter 3 that a flexible approach to base-generation can capture most of the verb cluster properties and is hence preferred over an approach that assumes either a rigid head-initial or head-final order. Here, I first discuss the mechanisms involved in deriving verb clusters in existing approaches.

Traditional approaches to verb clusters, such as Evers (1975) and others, take

a head-final SOV order as the basic word order. Consequently, a descending 2-1 order is the base-generated order in these approaches. According to Evers, the non-finite verb can raise rightward and incorporate into the finite verb, hence deriving the 1-2 order. The two verbs subsequently function together as a single complex verb.



Later head-final analyses argue that verb cluster formation is the result of a raising of the entire verb projection (Den Besten and Edmondson 1983; Coppen and Klein 1992; Den Besten and Broekhuis 1992; Haegeman 1992, among others). According to them, the entire projection of the main verb moves to a position following the finite verb, as in (11). An advantage of this approach is that interruptions of the verb cluster by non-verbal material are more easily accounted for.<sup>9</sup>



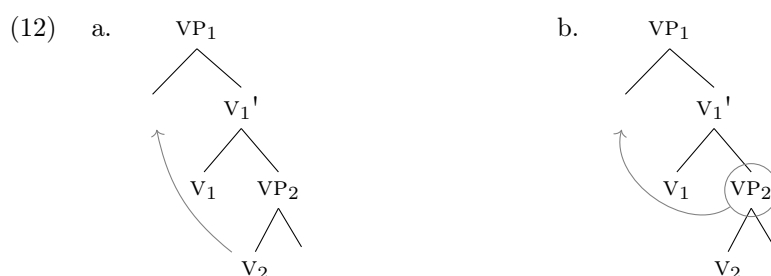
While the traditional analyses of verb clusters have a head-final base-generated structure, later analyses involve a head-initial structure, in which higher verbs precede lower verbs (Den Dikken 1994, 1995b, 1996; Zwart 1994, 1996; Barbiers 2005, 2008b, among others). Since the analyses by Zwart and Barbiers focus

<sup>8</sup> The broken line depicts a simplified structure. Evers (1975) assumed that all infinitival complements originally have a full clausal structure. However, such sentences behave as single clausal domains. Complementizers and complex temporal domains are, for instance, not observed in clauses with verb clusters. Additionally, there are no island effects that are caused by the various clausal levels that are presupposed. It seems as if there is one clausal level with various verbs in it. In order to account for these observations, Evers argues that Verb Raising moves the head (*v*) out of the embedded clause. This raising, Evers argues, poses a problem since sentences without a *v*-projection cannot exist. Consequently, other projections are lost as well, leading to a mono-clausal structure. Potential remaining NPs are then binary added to the complex verb projection. Evers dubbed the removal of the complement clause 'Pruning'. Since this mechanism is irrelevant for the current discussion and might be considered outdated, it will not be displayed in the following tree structures. For a more recent approach that assumes a structure removal operation, see Müller (2017).

<sup>9</sup> Verb cluster interruption is discussed further in section 2.10.

on deriving the various orders of verbs in a verb cluster, these theories will be discussed in this chapter.

Zwart derives the 2-1 order from the base-generated 1-2 order by a movement of the main verb (or the verb projection) to the specifier of a higher projection. Barbiers (2005, 2008b), on the other hand, argues that verb clusters always involve movement of entire the verb projection. The two types of approaches are illustrated in (12).



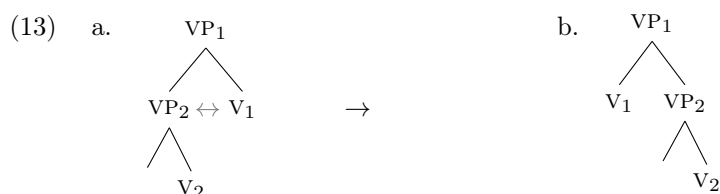
There is a crucial difference between the approach taken by Barbiers 2005 and the approach taken by Barbiers 2008b. In the former, the movement is optional, while in the latter the movement is obligatory, but there is optionality in the copy that is spelled-out. This chapter will mostly consider the most recent approach, but Barbiers 2005 will be discussed in sections where the differences are relevant.<sup>10</sup>

There are also approaches in which the reordering takes place entirely at PF. On the basis of an unpublished approach by Riny Huybregts, Haegeman and Van Riemsdijk (1986) state that the underlying structure of verb cluster constructions can be rebracketed in a different dimension, resulting in a multi-dimensional structure in which the verbs are bound together. This can be followed by a phonological rule that inverts two sister nodes.

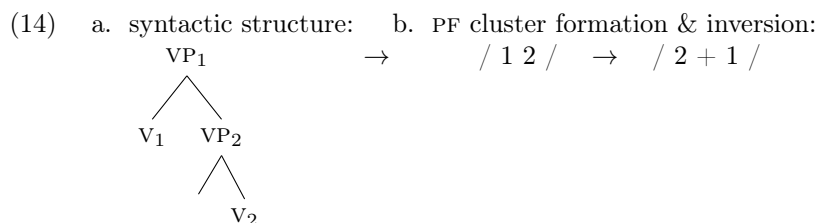
<sup>10</sup>Another head-initial approach to verb clusters is taken by Koopman and Szabolcsi (2000). In this approach, different verb orders are derived through obligatory, leftward VP-movements. This movement is always overt. Differences arise in the projection that is moved along when the VP moves, which can sometimes include a higher projection containing the landing site of a lower VP. This approach can derive all six conceivable verb orders in a three-verb cluster, including the 2-1-3 order, which, as is discussed in section 2.4 below, does not occur. The 2-1-3 order can be derived by a movement of VP<sub>3</sub> to a position above VP<sub>2</sub> and a subsequent movement of VP<sub>2</sub> – excluding the landing site of VP<sub>3</sub> – to a position above VP<sub>1</sub>. To prevent this order from occurring, this approach makes use of ‘complexity filters’. The problems with such filters are discussed by Barbiers (2002), who states that they make the absence of languages that allow the 2-1-3 order seem coincidental.

This chapter will consider more approaches that can derive all conceivable orders and that therefore require additional filters to prevent over-generation. Since I would like to keep the discussion of previous accounts to a minimum and since Koopman and Szabolcsi’s (2000) approach makes the same predictions as other, less complex, approaches discussed in this chapter, I refrain from discussing this approach separately. For a detailed discussion of the problems of this approach, the reader is referred to Barbiers (2002).

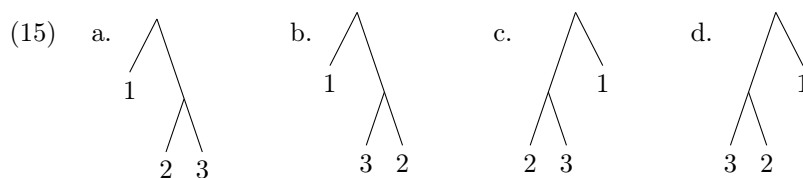
Wurmbrand (2006, 2017) presents a slightly modified version of Haegeman and Van Riemsdijk (1986), which reduces the multidimensional structure to a single dimension and does away with rebracketing. The only available mechanism in this adaptation is inversion under sisterhood.<sup>11</sup> Given that this approach is more compatible with current frameworks, this adaptation will be adopted here.



A more recent rebracketing approach by Salzmann (2013) involves rebracketing of linearly adjacent words. Salzmann argues that verbal elements can undergo cluster formation and inversion when they are linearly adjacent:



The approaches mentioned so far all assumed some fixed direction of projection, either head-initial or head-final. In earlier stages of generative theory, no fixed directionality of branching was assumed. In fact, base-generation would be the simplest way to generate different orders of verbs, as also mentioned by Barbiers (2002, 2005). Keeping the hierarchic relations constant, four different orders can be derived. Cross-linguistic variation in the use of these orders can then arise in the linearization of sister nodes.



<sup>11</sup>This mechanism is very similar to an approach taken by Wurmbrand (2004). She argues that verb clusters are reordered post-syntactically by a PF linearization operation called *flip* (based on Williams 1999). *Flip* inverts sister nodes in a verb cluster according to language specific rules.

Such an approach incorrectly rules out the 3-1-2 order, which would require a movement.<sup>12</sup> Since Abels (2011, 2016) presents a base-generation approach that allows for some limited types of movements to derive the 3-1-2 order, his approach will be used as an example. A further advantage of Abels' approach is that it is based on similar ordering effects in the noun phrase (Cinque 2005; Abels and Neeleman 2012). This makes it especially relevant to investigate the fact that word order variations in Germanic verb clusters contrast with a rigid ordering in the nominal domain; see section 2.8.<sup>13</sup>

The different types of analyses of verb clusters can thus be grouped in the following way:

1. Syntactic movement approaches from a head-final base
2. Syntactic movement approaches from a head-initial base
3. PF inversion approaches
4. Base-generation approaches

It has already become clear that most analyses of verb clusters do not strictly fall within one of these types; rather combinations of mechanisms are used. For instance, some syntactic movement approaches make use of PF factors and Abels' (2011; 2016) base-generation approach makes use of some limited movement processes.

The next sections assess how these different types of approaches capture the different verb cluster properties mentioned at the beginning of this section. The maps used here come from the SAND project.<sup>14</sup>

### 2.3 Property (i): *multiple orders of verbs in a cluster can be observed within a single language variety*

Even in clusters with two verbs, there is variation in the word orders observed in the Dutch language area. Take the two sentences in (16) – these are sentences from the SAND –, one in which the auxiliary is a modal verb (16a)

<sup>12</sup>Note that Barbiers (2002) and Wurmbrand (2004), among others, suggest that the 3-1-2 order might result from some sort of focus movement, but see Bader and Schmid (2009) for arguments against this suggestion. I return to the special status of the 3-1-2 order in chapter 3, which will present a remodeled base-generation account.

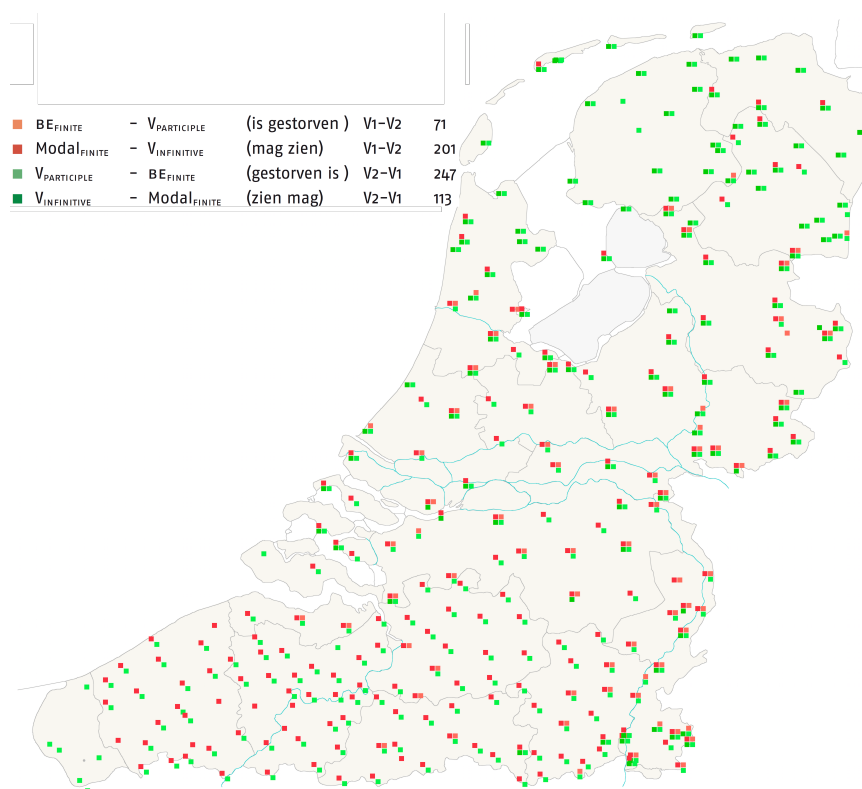
<sup>13</sup>This chapter will not consider another base-generation approach presented by Bader and Schmid (2009), based on Williams (2003), by which all verb orders can be base-generated, assuming that the order and level of selection is irrelevant. This approach will be discussed in chapter 3.

<sup>14</sup>The SAND project (*Syntactische Atlas van de Nederlandse Dialecten* - Syntactic Atlas of the Dutch Dialects) investigated dialect syntax in varieties of Dutch. Two types of maps can be found in this dissertation. Some maps were taken directly from the second volume of the printed atlas (Barbiers et al. 2008) and other maps were made using DynaSAND (Barbiers et al. 2006), which is an online tool that contains the data collected during the SAND project, as well as a search engine and a cartographic component.

and another in which the main verb in the subordinate clause is selected by a perfect auxiliary (16b).

- (16) a. ...ik vind dat jij het ook niet *mag zien* / *zien mag*.  
 ...I find that you it also not may see / see may  
 ‘...I think that you should not see it either.’
- b. Ze weet niet dat Marie gisteren *gestorven is* / *is gestorven*.  
 She knows not that Marie yesterday died is / is dies  
 ‘She does not know that Marie died yesterday.’

Map 2.1 clearly illustrates that both the  $V_1$ - $V_2$  and the  $V_2$ - $V_1$  orders occur in the language area.



Map 2.1: SAND-II map 16

Strikingly, the map illustrates that multiple orders can occur even within one language variety. Most language varieties allow both the  $V_1$ - $V_2$  and the  $V_2$ - $V_1$  orders. Varieties in the north of the language area, however, allow only the  $V_2$ - $V_1$  order.

As will become clear in this section, all theories can derive the different verb orders, but have problems explaining why different orders are optionally allowed in most language varieties.

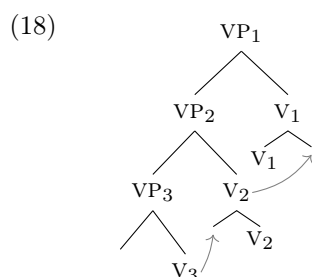
### 2.3.1 Syntactic movement approaches from a fixed head-final base order

In syntactic movement approaches from a head-final base, it is assumed that ascending orders are derived by a raising of the lower verb to a position following the higher verb. Seeing that multiple word orders occur within one language variety, one might assume that verb raising is an optional movement for these languages. This would not be in line with Chomsky's (1993) theory, which states that movement is always triggered by a requirement of the moved element to be licensed and hence cannot be optional,<sup>15</sup> although it may be covert.

There are some ideas for a possible trigger for verb movement in verb clusters. For instance Bennis and Hoekstra (1989) argue that verb raising occurs to link verbs to tense. If verbs indeed move to be licensed, this movement would have to be obligatory and always present. Otherwise, the licensing requirement would not be fulfilled and the derivation would crash. Accordingly, one could assume that the 1-2 order involves a movement to the right of the selecting verb, while the 2-1 order involves a movement to the left of the selecting verb.



This gets even more complicated for the 1-3-2 order, which would involve a movement of the lowest verb to the left of the middle verb, followed by a movement of the new verbal complex to the right of the highest verb.



The problem of variation then in some sense becomes a problem of variability in landing position.

### 2.3.2 Syntactic movement approaches from a fixed head-initial base order

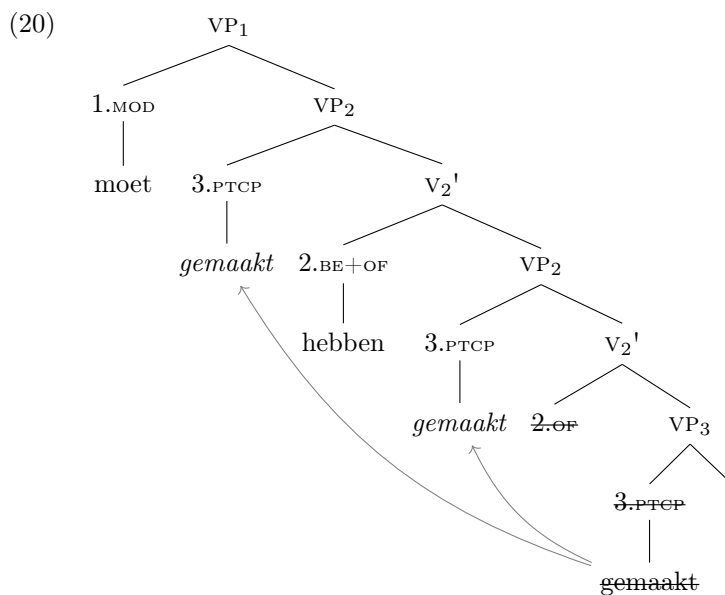
Zwart (1996) assumes a head-initial base-structure and states that all elements

<sup>15</sup> But see Biberauer and Richards (2006), among others.

that are generated in a head-complement configuration have to be licensed in a specifier-head structure at some point during the derivation. This view is in line with the idea that movement is always triggered by a licensing requirement. Crucially, this theory allows for various possible licensing positions, hence accounting for the cross-linguistic variation. Here, I demonstrate how his system derives the 1-2-3 and the 1-3-2 orders that are observed with the verb cluster in (19).

- (19) a. Ik vind dat Jan de wagen voor drie uur *moet*<sub>1</sub> *hebben*<sub>2</sub>  
 I find that Jan the car before three hour must have  
*gemaakt*<sub>3</sub>.  
 made  
 ‘I think that John must have repaired the car before three o’clock.’
- b. Ik vind dat Jan de wagen voor drie uur *moet*<sub>1</sub> *gemaakt*<sub>3</sub>  
 I find that Jan the car before three hour must made  
*hebben*<sub>2</sub>.  
 have

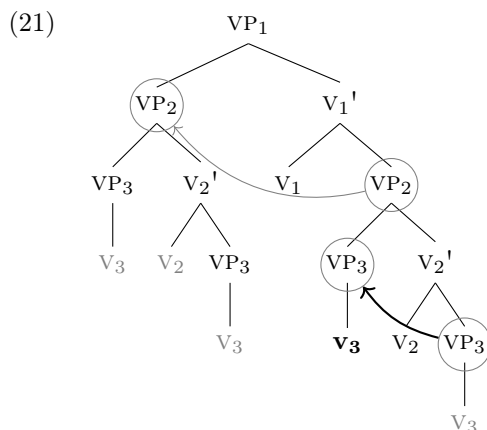
Following Kayne (1993), Zwart (1996) assumes that the auxiliary *have* is composed of two projecting heads (BE and OF). The auxiliary *have* is spelled out in the higher position. The participle needs to be licensed. This licensing can occur in either of the two specifier positions of the composed auxiliary, which therefore provides two possible landing sites for the participle. This automatically allows both the 1-3-2 order and the 1-2-3 order: in the 1-3-2 order, the participle is in the higher licensing position, and in the 1-2-3 order, the participle is in the lower licensing position:



The variation is hence attributed to the various positions in which the participle can be licensed. A problem of such an approach is discussed in Wurmbrand 2017, following Koopman 1984, who states that if the sole purpose of the licensing features is to account for the observed word orders and they are not motivated by syntactic or semantic properties, they may be considered ad hoc.

Barbiers (2008b) has a different method to account for the variation in verb clusters, in which auxiliary and modal phrases can only be licensed in a subject-predicate relation with an eventive predicate, often the main verb. This predication relation is created by an obligatory movement process he dubs ‘intraposition’, which moves the embedded verbal projection to the specifier of the auxiliary projection. This process leads to two copies of the verb phrase. As languages can make different choices regarding which copy to spell-out, different possible verb combinations can arise.

In (21) it is demonstrated how the 1-3-2 order arises in this approach: VP<sub>2</sub> is spelled-out in its base-generated position, while VP<sub>3</sub> is spelled-out in its landing site. This combination of spell-out positions makes the spell-out choice appear arbitrary.



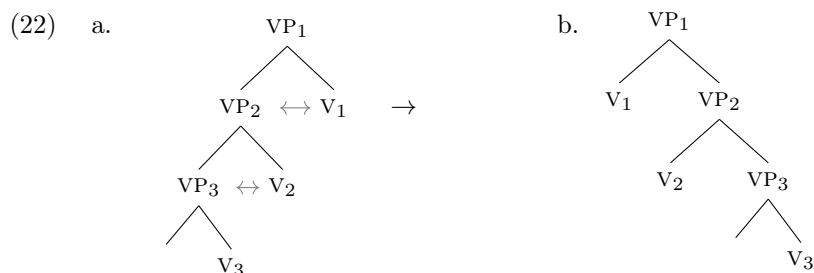
In this approach, the movement always occurs, but is sometimes covert. Variation across languages are argued to arise due to sociolinguistic factors that influence which copy to spell out, rather than to language-specific features. This thus attributes the source of variation in verb clusters to PF.

This aspect of Barbiers 2008b is crucially different from Barbiers 2005, where he argues that the movement is always overt, but only optionally occurs. Such an approach allows for optionality in syntax, which goes against Chomsky’s (1993) claim that movements are triggered by a licensing feature.

### 2.3.3 PF inversion approaches

According to Haegeman and Van Riemsdijk (1986), the different word orders

arise as a result of reanalyzing the VP at different levels. For instance in the 1-2-3 order, all levels are reanalyzed and inverted:



This approach does not explain why multiple verb orders can occur within the language area. The reanalysis is not motivated beyond the fact that some verbs are raising verbs. Haegeman and Van Riemsdijk (1986:420) do say that “the items affected are very often subject to the additional requirement that they be adjacent, such a bond is perhaps more adequately – and possibly equivalently – expressed by means of an additional pair of brackets, a proposal made in Chomsky (1974).” But it remains unclear why these elements would have the requirement to be adjacent, and why only in some cases an inversion takes place.

Similar to Haegeman and Van Riemsdijk’s (1986) inversion parameters, Salzmann (2013) accounts for the variation by means of linearization constraints. For instance, some languages might have a constraint that requires participles to precede the auxiliary they depend on. These constraints do not trigger the inversion, but a violation does lead to a crashing derivation. Hence, Salzmann’s approach pushes the explanation of the variation to PF as well. The difficulties again lie especially in the fact that some speakers optionally allow inversion. This would make the constraint either a violable constraint or an optionally present constraint.

### 2.3.4 Base-generation approaches

In a standard base-generation approach to verb clusters, cross-linguistic variation arises when sister nodes are linearized, during the mapping from syntax to PF. The fact that multiple orders can be used within one language variety, hence entails that the linearization direction is optional. On top of that, the movement that is required to derive the 3-1-2 order also has to be assumed to be optional.

As a concluding remark, this section has demonstrated that all approaches are able to derive the different observed orders. However, all theories account for the fact that multiple orders can occur in one language through some type of optionality, be it optionality in landing site, optionality in the copy that is spelled-out, optionality in inverting verbs, or optionality in linearization. A

question that then arises is why all varieties display such optionality, with the exception of the northern varieties, where only descending orders are observed.

In chapter 3, it will be argued that some orders involve different linguistic categories. More specifically, the co-occurring 1-2 and 2-1 orders are not the result of optionality in word order, but of a difference in the categories involved. Similar claims can be made for the co-occurring 1-2-3 and 3-1-2 orders. However, some optionality is still required to account for the co-occurring 1-3-2 and 3-1-2 orders.

## 2.4 Property (ii): *in three-verb clusters, only one order (the 2-1-3 order) does not occur*

The previous section mostly focussed on the observed variation in two-verb clusters. If one considers three-verb clusters, one might expect all six logically conceivable orders of verbs to be possible. This is crucially not the case. The SAND project included three different sentences that contained a three-verb cluster, with different types of auxiliaries; see (23).

- (23) a. Ik vind dat iedereen {*moet kunnen zwemmen*}.  
 I find that everyone must can swim  
 ‘I think that everybody should be able to swim.’
- b. Ik vind dat Jan de wagen voor drie uur {*moet hebben gemaakt*}.  
 I find that Jan the car before three hour must have made  
 ‘I think that John must have repaired the car before three o’clock.’
- c. Ik weet dat hij {*is gaan zwemmen*}.  
 I know that he is go swim  
 ‘I know that he went swimming.’

Table 2.1 lists the number of varieties where each verb order was accepted. Assuming that the two occurrences of the 2-1-3 order with the AUX-ASP-INF cluster are noise,<sup>16</sup> the results indicate that only this order is absent. A theory of verb cluster formation should explain why this order cannot be derived, without at the same time excluding orders that do occur. In this section, the mechanisms that exclude the 2-1-3 order are compared with the mechanisms that can derive the frequently observed 3-1-2 order. As will become clear, it is often the case that the type of mechanism assumed to exclude the 2-1-3 order, also leads to exclusion of the 3-1-2 order. Additional assumptions are then required to include this order.

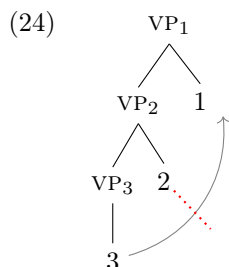
<sup>16</sup>The informants that used this order added the infinitival marker *te* ‘to’ to the cluster: ASP<sub>2</sub>-AUX<sub>1</sub>-TE-INF<sub>3</sub>, which is a different type of construction.

	MOD-MOD-INF	MOD-AUX-PTCP	AUX-ASP-INF
<b>1-2-3</b>	242	91	165
<b>1-3-2</b>	34	163	1
<b>2-1-3</b>	0	0	2
<b>2-3-1</b>	0	0	128
<b>3-1-2</b>	83	186	18
<b>3-2-1</b>	37	48	47

Table 2.1: Frequencies of the different orders of verbs in a cluster grouped by types of verbs

### 2.4.1 Syntactic movement approaches from a fixed head-final base order

It is possible to exclude the 2-1-3 order in an approach that derives verb clusters by raising the verb from a head-final base structure. This order could then involve movement of the lowest verb across the middle verb to a position to the right of the highest verb. This would violate the Head Movement Constraint (Travis 1984).



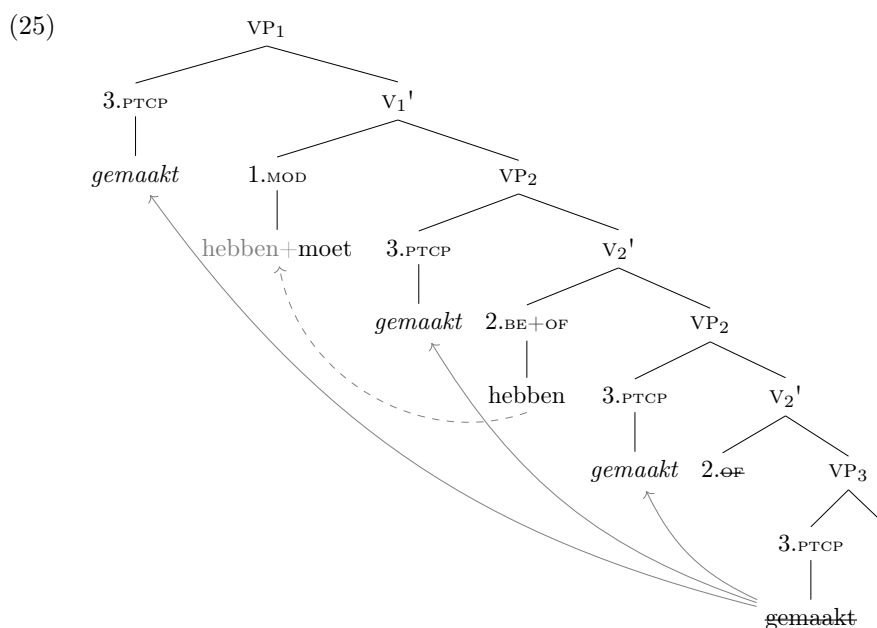
This approach does not have any problems deriving the 3-1-2 order, which can be derived by right-adjoining  $v_2$  only.

Similarly, in order to exclude the 2-1-3 order in a ‘verb projection raising’ approach one might assume that the lowest verb projection cannot move to the highest verb projection while skipping the middle verb projection. However, things aren’t as straightforward in deriving the 3-1-2 order, since a movement of the middle projection automatically includes the lowest projection. The phrasal movement approach therefore requires additional assumptions to move  $v(P)_3$  leftwards before moving the  $VP_2$  remnant to a position following  $v_1$ .

### 2.4.2 Syntactic movement approaches from a fixed head-initial base order

Zwart (1996) can account for the lack of the 2-1-3 order, without excluding

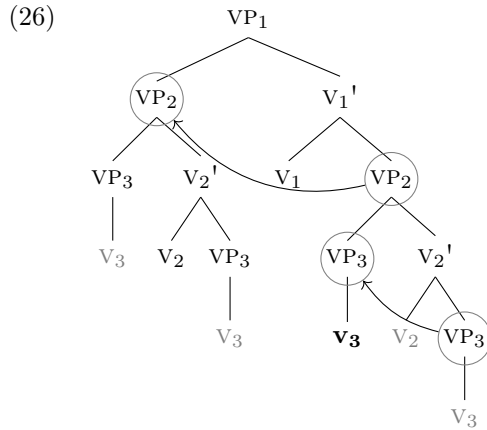
the 3-1-2 order. As was described above, he argues that participles are licensed in the specifier position of the auxiliary. However, according to him, the auxiliary *have* also obligatorily incorporates into the modal verb. This leads to an additional licensing position for the participle in the specifier of the modal verb. Since the incorporation of *have* happens covertly in three-verb clusters in Dutch, the 3-1-2 order is derived. This is illustrated in (25). In languages where this incorporation happens overtly, the 3-2-1 order is derived.



Note that this order crucially depends on an incorporation of the auxiliary, which takes place covertly. This is somewhat speculative, seeing that in two-verb clusters, the infinitive can incorporate both overtly and covertly, leading to both the 1-2 and the 2-1 orders to be possible. To exclude the 2-1-3 order, Zwart states that if the middle verb overtly incorporates in the modal verb, the lower licensing position is no longer available for the participle. Wurmbrand (2006:303) objects to this as “there is no obvious reason why licensing should be subject to [an] overt/ covert constraint [...], it appears that this assumption does no more than restate that the 2-1-3 order is not possible.”

Accounting for the lack of the 2-1-3 order is much more straightforward in Barbiers’ (2005) approach. Since he assumes that movement always targets specifiers,  $V(P)_2$  can never move without taking  $VP_3$  along.

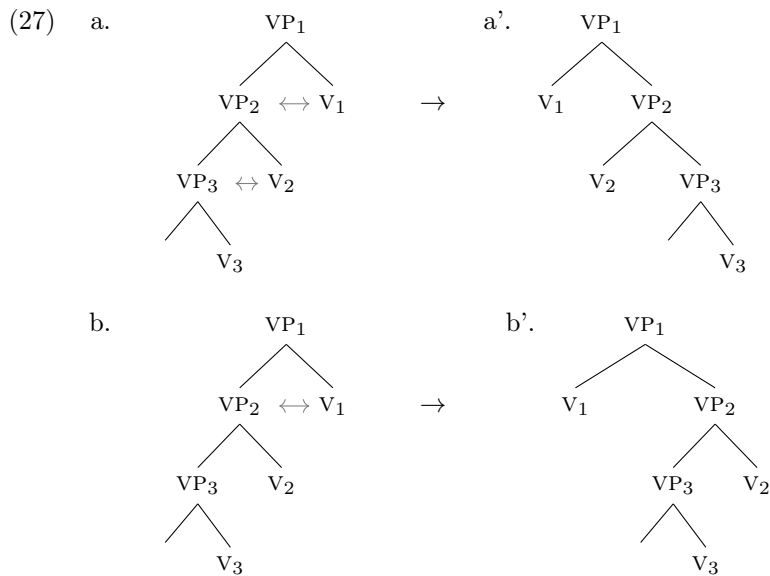
In Barbiers (2008b), it is assumed that there is an intrinsic shredding condition, which prohibits spelling out parts of a phrase in its landing site and other parts in its base-position, accounting for the unavailability of the 2-1-3 word order.

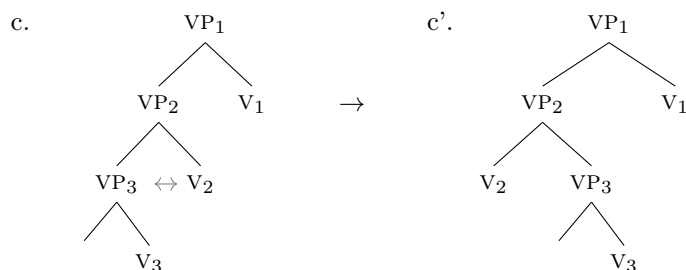


The shredding condition also automatically excludes the 3-1-2 order. Therefore, Barbiers makes an additional assumption. If there is no Spec-Head agreement between the highest two verbs, and a spell-out of  $v_3$  in the higher position makes an agreement relation between  $v_3$  and  $V_1$  visible,  $v_3$  can be spelled out in Spec- $VP_1$ . There seems to be no independent reason for this assumption other than accounting for the word order patterns.

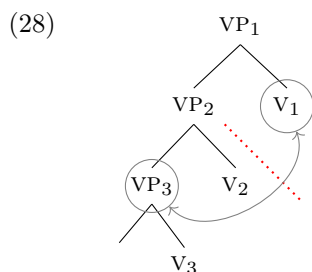
### 2.4.3 PF inversion approaches

In Wurmbrand's (2006; 2017) depiction of Haegeman and Van Riemsdijk (1986), the 1-2-3, 1-3-2 and 2-3-1 orders can be derived from the basic 3-2-1 order without problems:

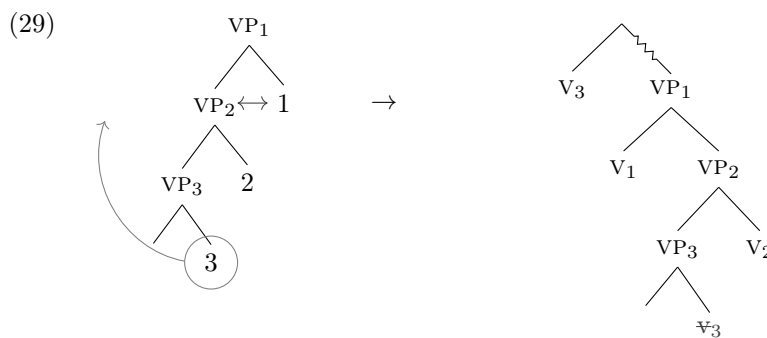




Since the sister node of  $V_1$  is the entire  $VP_2$ , inversion of only  $V_1$  and  $V_3$ , without  $V_2$ , is not possible. Consequently, the 2-1-3 order is automatically excluded.



This mechanism also excludes the 3-1-2 order, since this order would require an inversion of  $v_1$ - $v_2$ , excluding  $v_3$ . Since  $v_1$  is not a sister node of  $v_2$ , but a sister node of the combination  $[v_2$ - $v_3]$ , the only way to derive the 3-1-2 order would be to stipulate an additional leftward-movement of the lowest verb.



In Salzmann's (2013) approach, the 2-1-3 order can be derived without problems, by linearly inverting  $v_1$  and  $v_2$ . Crucial for his approach is that it is based on the idea that all six logically possible verb orders, including the 2-1-3 order, exist. The 2-1-3 order has been argued to occur in Swiss German in constructions where  $v_2$  is a perception, benefactive or inchoative verb, and  $v_3$  is a bare infinitive.

- (30) ...wil er en ghöört<sub>2</sub> hät<sub>1</sub> chooo<sub>3</sub>  
 ...because he him hear.PTCP have.FIN come.INF  
 ‘...because he heard him come.’  
 (Lötscher 1978:3, as cited by Salzmann 2013)

This suggests that the 2-1-3 order involves a different construction.<sup>17</sup> If the 2-1-3 order were analyzed as a regular verb cluster, the question remains why this order is only observed in some Swiss German dialects, and within those dialects, only with specific verb types. Salzmann states that “[his] analysis will invariably over-generate for individual dialects, varieties and idiolects since they generally only allow for a (varying) subset of the six orders.” (Salzmann 2013:114)

#### 2.4.4 Base-generation approaches

In the base-generation approach, both the 2-1-3 and the 3-1-2 orders cannot be base-generated and would require some sort of movement. According to Abels (2011, 2016), some restricted movements are allowed: movements must move a subtree containing the lowest verbal element. This assumption rules out the 2-1-3 order but allows the 3-1-2 order. This is in line with Abels (2016) assumption that examples of the 2-1-3 order involve a different type of construction. However, this approach crucially requires a motivation for moving the lowest verb in the 3-1-2 order, which Abels does not make explicit. Barbiers (2002) and Wurmbrand (2004), among others suggest that this movement might involve some type of focus movement, but this has been refuted by Bader and Schmid (2009) who did not find this effect for verb clusters. Furthermore, focus movement would not explain why this order is very common with certain verb types. Thus, Abels’ (2011; 2016) theory allows for this movement to occur, but the question that remains is why this movement occurs this frequently.

To summarize, most previous theories have no clear account for the lack of the 2-1-3 order in relation with the occurrence of the 3-1-2 order. Two exceptions are traditional head-movement approaches from a head-final base order, and one of the former head-initial approaches proposed by Barbiers (2005).

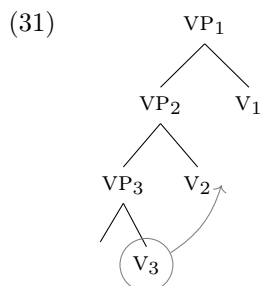
### 2.5 Property (iii): *the 2-3-1 order is only attested with certain verb types*

While the 2-1-3 order is completely absent in varieties of Dutch, the 2-3-1 order is only absent with certain specific verb types. A theory that can derive this order should therefore explain why this order is restricted to these verb types. Conversely, a theory that cannot derive this order should explain why this order can nevertheless be observed with certain verb types.

<sup>17</sup>I set the precise syntactic structure of this construction aside here. See Salzmann (to appear) for arguments against analyzing this construction as an instance of the Third Construction. He argues that the 2-1-3 order behaves like a regular verb cluster.

### 2.5.1 Syntactic movement approaches from a fixed head-initial base order

The lack of the 2-3-1 order with certain verb types does not immediately follow from a verb raising approach, since this order can easily be derived by raising the lowest verb.



One could argue that certain verb types do not trigger raising of the lowest verb, but this would lead to problems deriving the 1-2-3 order, which also requires moving the lowest verb, and is observed with all cluster types.

### 2.5.2 Syntactic movement approaches from a fixed head-initial base order

Following Zwart's (1996) approach, the 2-3-1 order can be derived by moving the entire VP<sub>2</sub> to the specifier of a higher functional projection. If one assumes that the other verb clusters do not involve head-movement,<sup>18</sup> this procedure might not differ from those deriving the other verb cluster orders. However, if one assumes that verb clusters usually involve head-movement, this would account for the fact that the 2-3-1 order generally does not occur. One can then stipulate an account for the fact that the entire verb projection can raise only with certain verb types.

Barbiers (2008b) does have an account for the rareness of the 2-3-1 order, but it requires some assumptions. This order involves a spell-out of VP<sub>2</sub> in the specifier of VP<sub>1</sub>. Barbiers argues that this spell-out can only occur when there is Spec-Head agreement between VP<sub>2</sub> and V<sub>1</sub>, which is the case in (32b), but not in (32a).

- (32) a. [VP<sub>2</sub> 2.kunnen<sub>uEvent</sub> 3.zwemmen<sub>iEvent</sub> ] 1.moet<sub>uEvent</sub> ·  
 b. [VP<sub>2</sub> 2.gaan<sub>uEvent,iPerf</sub> 3.zwemmen<sub>iEvent</sub> ] 1.is<sub>uEvent,uPerf</sub> ·

However, according to Barbiers, a spell-out of VP<sub>3</sub> in the specifier of VP<sub>2</sub> makes its features visible on VP<sub>2</sub>. As a consequence, the 3-2-1 order can occur even when there is no agreement between V<sub>2</sub> and V<sub>1</sub>.

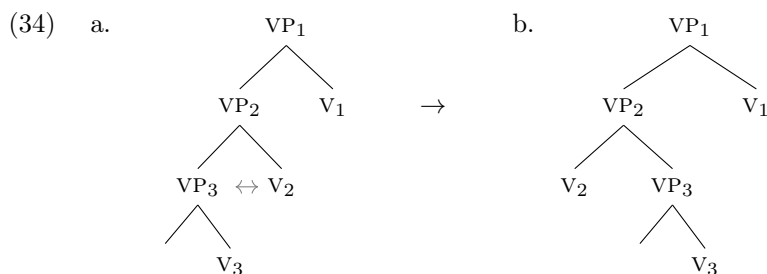
<sup>18</sup>See the discussion in Wurmbbrand (2017:58-59, fn.27).

(33) [VP<sub>2</sub> 3.zwemmen<sub>iEvent</sub> 2.kunnen<sub>uEvent</sub>] 1.moet<sub>uEvent</sub>.

Consequently Barbiers' (2008b) theory predicts that the 2-3-1 order can always be derived, but cannot always be spelled-out.

### 2.5.3 PF inversion approaches

Haegeman and Van Riemsdijk's (1986) theory has no problems deriving the 2-3-1 order, which would therefore require further assumptions.



As was mentioned in section 2.4, Salzmann's (2013) approach over-generates in that all orders can in principle be derived. The 2-3-1 order involves string-vacuous cluster formation of  $v_2$  and  $v_3$ . This string-vacuous rebracketing is then followed by an inverting cluster formation of  $v_1$  with the [ $v_2$ - $v_3$ ] complex. Hence, this approach cannot immediately account for the fact that the 2-3-1 order is specific to certain verbs.<sup>19</sup>

### 2.5.4 Base-generation approaches

Since the 2-3-1 order can be base-generated, there is no obvious reason why this order would not occur with most verb types. A base-generation approach

<sup>19</sup>Salzmann (2013) argues that the 2-3-1 order in Swiss-German is derived by first cliticizing the middle verb to the lowest verb and then inverting this complex with the highest verb:

- (i) a. [ gang<sub>1</sub> [ go<sub>2</sub> [ chauffe<sub>3</sub> ] ] ] (Swiss-German)  
       go.FIN go.PTCL.INF buy.INF  
       → *go* cliticizes onto the infinitive:  
    b. [ gang<sub>1</sub> [ go<sub>2</sub>=chauffe<sub>3</sub> ] ] → inversion:  
       go.FIN go.PTCL.INF=buy.INF  
    c. [ [ go<sub>2</sub>=chauffe<sub>3</sub> ]+gang<sub>1</sub> ]  
       go.PTCL.INF=buy.INF go.FIN

Salzmann argues that the auxiliary verb *go* is a clitic: it is phonetically reduced and cannot be stranded. Accordingly, one could stipulate a restriction on string-vacuous cluster formation to such cliticization contexts. This assumption would entail that non-cliticized verbs either invert, or do not form a unit that can be dislocated. However, if it were the case that these stipulations rule out the 2-3-1 order, the occurrence of this order in varieties of Dutch is problematic. This order is observed with *gaan* (*go*) in these varieties, which is not clearly a clitic.

hence requires additional assumptions to account for the rareness of the 2-3-1 order. Particularly interesting is that the 3-1-2 order cannot be base-generated, but is nevertheless very common.

In sum, only Barbiers' (2005; 2008b) feature-based types of approaches provides some explanation for the fact that the 2-3-1 order only occurs with certain verb types.

## 2.6 Property (iv): *the distribution of the remaining orders depends on the types of verbs involved*

As illustrated in table 2.1 on page 24, the observed orders of verbs in a cluster depends on the types of verbs in the verb cluster. For instance, the 1-2-3 order is much more common when  $V_3$  is an infinitive, while the 3-1-2 order is much more common when  $V_3$  is a participle.

The previous sections have demonstrated that all theories of verb cluster formation can derive the possible orders of verbs in a cluster. This section will demonstrate however, that these theories do not immediately predict why these differences depend on the types of verbs in the cluster.

### 2.6.1 Syntactic movement approaches from a fixed head-final base order

The verb raising approach to verb cluster variation cannot account for the observed variation depending on verb type. Additional assumptions are required to account for either the fact that a specific verb type has a higher chance to raise, or the fact a specific verb type has a different landing site.

### 2.6.2 Syntactic movement approaches from a fixed head-initial base order

According to Zwart (1996), participles and infinitives undergo a different type of movement. Firstly, infinitives incorporate in a higher modal, while participles move to a specifier position, and secondly, infinitives sometimes undergo covert movement, while participles always move overtly. Even though this asymmetry correctly accounts for the word order differences, there is no independent reason why participles and infinitives would behave in such a different manner.

Since Barbiers (2008b) suggests that different verb types have different selectional requirements, this theory might predict to find different orders with different verb types. However, the MOD-MOD-INF and the MOD-AUX-PTCP verb clusters involve the same Agree relations: in both clusters the highest two verbs agree with the lowest verb. It is therefore not predicted that these verb clusters would have different order effects, without additional assumptions.

### 2.6.3 PF inversion approaches

Haegeman and Van Riemsdijk (1986) argue that reanalysis is a lexically conditioned process that occurs with certain lexically defined verbs. This is not very explanatory. Since certain verbs undergo reanalysis more frequently than others, no rules can be formulated that invariably force or disallow inversion between certain specific verb types. Consequently, it is not clear why a specific order is more frequently observed with certain verbs.

Salzmann's (2013) approach is based on language-specific linearization constraints that for instance requires infinitives to follow modals, or participles to precede auxiliaries. This does not explain the variation, but places the source of the variation in PF.

### 2.6.4 Base-generation approaches

Since Abels' (2011; 2016) base-generation approach can generate the different orders, irrespective of the types of verbs involved, the differences between verb types would have to be placed in the linearization component. Again it is not clear why different verb types are linearized differently.

In short, none of the previous theories can account for the observed differences between verb clusters of different types. The reason for this is that most existing approaches are based on deriving the possible orders, rather than explaining their distributions.

## 2.7 Property (v): *the different orders are semantically and pragmatically equivalent*

As mentioned in the previous sections, in some varieties, multiple verb orders co-occur. Strikingly, these orders do not lead to meaning differences.<sup>20</sup> This seems to be a property of verb cluster languages in general. According to Wurmbrand (2017), all four orders in (35) are observed in Swiss-German and have the same meaning.

- (35) a. das er ... wil chöne vorsinge. (Swiss-German)  
           that he ... wants<sub>1</sub> can<sub>2</sub> sing<sub>3</sub>  
       b. das er ... wil vorsinge chöne.  
           that he ... wants<sub>1</sub> sing<sub>3</sub> can<sub>2</sub>

<sup>20</sup>In chapter 3 it will be argued that some meaning differences do show up with certain verb orders. A participle only has a passive, verbal interpretation in the  $v_1$ - $v_2$  order, but can additionally have a stative interpretation in the  $v_2$ - $v_1$  order. However, since the participle can also get a passive, verbal interpretation in the  $v_2$ - $v_1$  order, a different order does not necessarily involve a different interpretation.

- c. das er ... vorsinge wil chöne.  
 that he ... sing<sub>3</sub> wants<sub>1</sub> can<sub>2</sub>
- d. das er ... vorsinge chöne wil.  
 that he ... sing<sub>3</sub> can<sub>2</sub> wants<sub>1</sub>  
 ‘...that he wants to be able to sing.’  
 (Schonenberger 1995:382, as cited by Wurmbrand 2017)

### 2.7.1 Syntactic movement approaches from a fixed head-final base order

Assuming that all movements are triggered by a meaningful licensing feature, following Chomsky (1993), syntactic head-movement is expected to have a semantic effect.<sup>21</sup> This is then problematic for theories that assume that verb raising is an optional process that derives orders that deviate from the 3-2-1 order, since no meaning differences are observed between these orders. The problem can be solved if one assumes that verbs always raise. Differences between ascending and other orders then lie in the landing site, as was discussed in section 2.3.

### 2.7.2 Syntactic movement approaches from a fixed head-initial base order

A similar approach is taken by Zwart (1996) who argues that movement by participles to their licensing position always occurs but the landing site can differ. This means that the trigger for the movements would be the same in all verb cluster orders, so it correctly predicts there to be no differences in meaning between the different verb orders. As for infinitives, Zwart argues that these also always move to a licensing position, but this movement can be covert. Therefore, regardless of the spelled-out 1-2 or 2-1 order, this theory does not predict any meaning differences.

Similar to Zwart’s account of order differences with infinitives, Barbiers (2008b) argues that verbs always move to the same landing site, but differences show up in the copy that is spelled-out. This theory therefore also correctly predicts the lack of meaning differences.

This issue is slightly more complex in Barbiers (2005), since the movement of VPs is optional. However, since he does not attribute this movement to triggered features, semantic differences are not expected to arise in this approach either.

### 2.7.3 PF inversion approaches

Seeing that inversion is a mechanism argued to take place at PF, both Haegeman and Van Riemsdijk (1986) and Salzmänn (2013) make a prediction similar

<sup>21</sup> See Lechner (2007) (among others) for arguments that at least some head-movements have semantic effects.

to Barbiere (2008b) that there should be no meaning differences between the different verb orders.

#### 2.7.4 Base-generation approaches

Abels (2011, 2016) argues that verb clusters can be derived through base-generation. This accounts for the lack of meaning differences between the possible base-generated orders 1-2-3, 3-1-2, 3-2-1 and 2-3-1. However, the 3-1-2 order is derived via movement of the lowest verb to a position preceding the verb cluster, which is a movement this theory allows. As discussed above, the suggestion that this movement is a type of focus movement has been refuted by Bader and Schmid (2009) who did not find this effect. Consequently, this theory cannot account for the lack of meaning differences between the 3-1-2 order and other orders.

In conclusion, most theories have some way to account for the lack of meaning differences in verb clusters.

### 2.8 Property (vi): *the word order variation in these languages contrasts with a rigid ordering in the nominal domain*

While there is abundant variation in the word orders of verb clusters within the Dutch language area, the word order in other domains, such as the nominal domain, is very strict: a determiner always precedes an adjective, and both of these types of elements always precede the noun.

#### 2.8.1 Syntactic movement approaches from a fixed head-final base order

If verb clusters are derived through an incorporation of a lower verb in the higher verb, as was suggested by Evers (1975), and if ordering variability is a result of variability in the landing site, the question arises why other incorporated elements do not show the same order differences. For instance, in other incorporation constructions, there is no ordering variability.

- (36) a. De prijs-uitreiking; \* De uitreiking-prijs  
           the award-ceremony;   the ceremony-award  
       b. stamp-voeten; \* voet-stampen  
           foot-stamping;   stamping-foot

- c. ...dat Jan mooi kan piano-spelen; \* ...dat Jan mooi  
 ...that Jan beautifully can piano-play; ...that Jan beautifully  
 kan spelen-piano  
 can play-piano

### 2.8.2 Syntactic movement approaches from a fixed head-initial base order

According to Zwart (1996), the variation in verb orders is a result of the variability in licensing positions. The prediction this makes for other elements, such as nouns, is unclear.

The question why this variation is not observed with other projections, such as noun phrases, is discussed by Barbiers (2008b). As mentioned, Barbiers argues that predication relations involve a movement of an argument to the specifier position of the predicate. He then goes on to show why adjectives are always in a fixed position with the noun:

- (37) a. de drie rode tulpen  
 the three red tulips  
 b. \*de drie [<sub>N</sub> tulpen ] rode [<sub>N</sub> tulpen ]  
 the three tulips red tulips  
 (Barbiers 2008b:14)

As stated by Barbiers, only projections that do not require an argument themselves, i.e. *saturated* projections, can function as arguments. The projection of the noun is assumed by Barbiers to be saturated by the article. Since the noun still needs to be saturated by an article in (37b), it cannot function as an argument of the adjective.

### 2.8.3 PF inversion approaches

As discussed previously, Haegeman and Van Riemsdijk (1986) do not explain why verbs can invert. Clearly, the same mechanism does not apply to noun phrases. There is no apparent reason why this inversion mechanism would only affect verbs. In the same manner, in Salzmann (2013), it does not become clear why other elements, such as incorporated nouns, cannot locally dislocate.

### 2.8.4 Base-generation approaches

Abels' (2011; 2016) base-generation approach is crucially based on the idea that the typologically observed order of elements in the verb phrase is very similar to the observed orders of elements in the noun phrase (Cinque 2005). This approach immediately predicts similar order effects to be observed in the noun phrase. Abels (2011, 2016) bases his idea on work by Abels and Neeleman

(2012). They present a number of assumptions that derive the 14 different orders that are cross-linguistically attested in the noun phrase, while excluding the 10 unattested ones. According to them, cross-linguistic variation arises in the direction of linearization of sister nodes, with the only potential movements being leftward to a c-commanding position. Abels (2011, 2016) demonstrates how the same assumptions can be used to derive the different orders of verbs in a verb cluster. This seems to counter the claim that the type of variation observed with verb clusters is limited to the verbal domain. However, within the Dutch and Frisian varieties, there is no optionality in different orders of elements in the noun phrase. Thus, by relating the hierarchy-order relations in the verb cluster and the noun phrase to each other, this approach raises the question why the verb cluster, but not the noun phrase, exhibits different orders within varieties of Dutch. This question remains unanswered, since Abels' approach is based on accounting for typological variation, rather than the order possibilities in individual languages.

In sum, except for Barbiers (2008b), none of the previous theories have a good explanation for why the abundant variation in verb clusters is not observed in the nominal domain.

## 2.9 Intermediate conclusions

While all approaches have some mechanism to derive the different word orders, most of the verb cluster properties can only be accounted for by some stipulations. Four main properties remain problematic for almost all approaches:

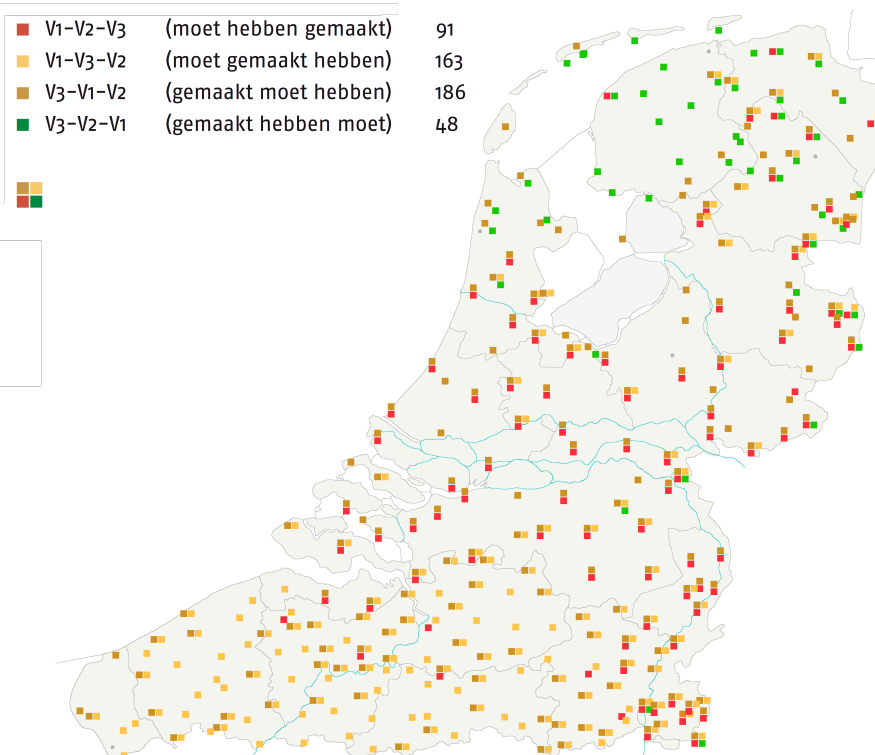
- (i) All varieties of Dutch display various orders across verb types;
- (iii) The 2-3-1 order is only attested with certain verb types;
- (iv) The distribution of the remaining orders depends on the types of verbs involved;
- (vi) The word order variation in these languages contrasts with a rigid ordering in the nominal domain.

In fact, only the syntactic movement analysis by Barbiers (2008b) seems to be able to account for the special distribution of the 2-3-1 order and the lack of word order variation in the nominal domain. Still, none of the previous theories could account for the fact that the types of verbs involved have an effect on the distribution of verb orders.

Geographic co-occurrence patterns might help to understand the phenomenon of verb clustering. I argue in chapter 3 that these patterns are not a coincidence, but are the result of similarities in the manner in which different constructions are derived. If this is indeed the case, a theory that aims at explaining the observed variation in verb clusters should take these geographic co-occurrence patterns into account.

## 2.10 Property (vii): *the observed orders of verbs exhibit clear geographic patterns*

The different verb orders occur in clear geographic regions. For instance, the different orders for the verb cluster *moet hebben gemaakt* ‘must.FIN have.INF made.PTCP’ have a clear geographic distribution: the 1-3-2 order occurs mostly in the south of the language area, the 3-2-1 order occurs mainly in the north of the language area and the 1-2-3 order occurs in the area in between.

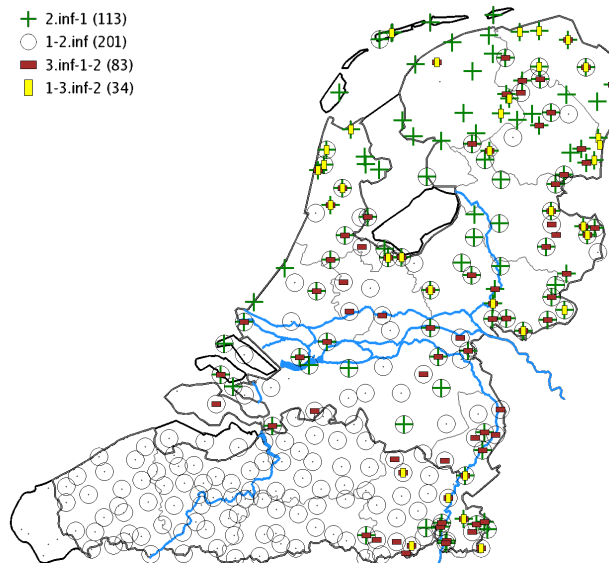


Map 2.2: SAND-II map 17b

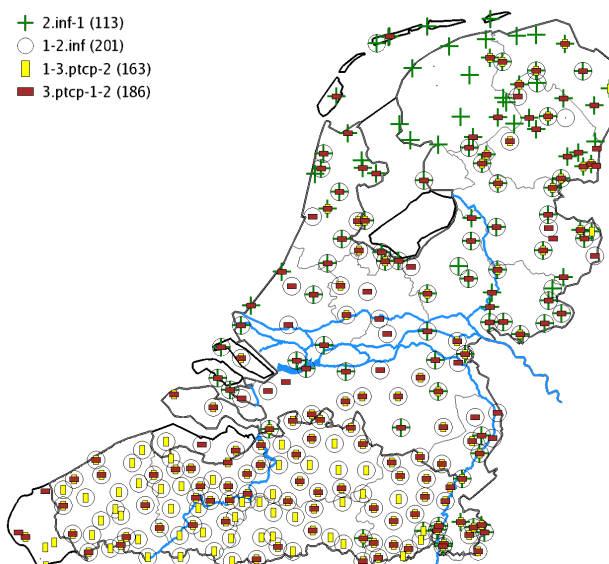
This geographic distribution is not immediately expected if all these possible verb orders are available to everyone. The variation is not free, but depends on the region. This becomes even more apparent in comparing the geographic patterns of different constructions, which show clear geographic co-occurrence patterns. For instance, most of the variation in the order of three-verb clusters is observed in areas that allow the 1-2.INF order. This and other especially striking patterns are mapped and discussed in this section. I demonstrate that the different types of analyses of verb clusters in fact cannot account for these patterns.

### 2.10.1 The 1-3-2 and the 3-1-2 orders occur in ascending grammars

As discussed in the previous section, there is an area in the north where only descending ( $V_3-$ ) $V_2-V_1$  orders are observed. Both maps 2.3 and 2.4 show the locations where the  $V_1-V_2$  and  $V_2-V_1$  orders occur when 2 is an infinitival verb. Map 2.3 additionally depicts the locations where the 3-1-2 and the 1-3-2 orders occur when 3 is an infinitive, while map 2.4 additionally depicts the locations where the 3-1-2 and the 1-3-2 orders occur when 3 is a participle verb. These maps demonstrate that the 1-3-2 and the 3-1-2 orders occur in the regions where the head-initial  $V_1-V_2$ .INF order is observed.



Map 2.3: 1-3.INF-2 & 3.INF-1-2



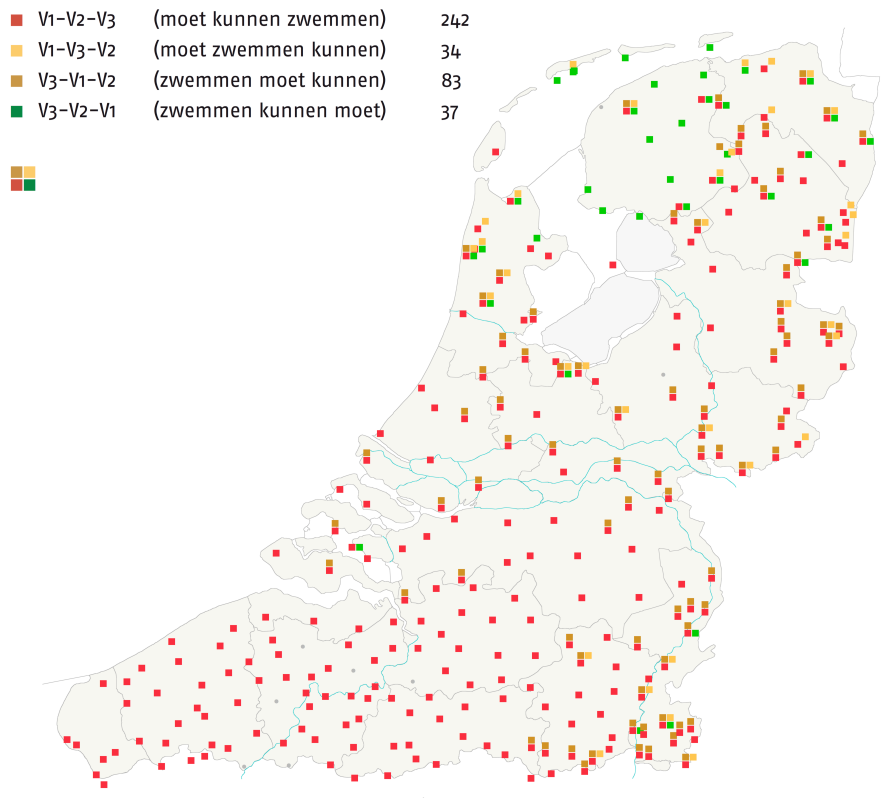
Map 2.4: 1-3.PTCP-2 &amp; 3.PTCP-1-2

Assuming a fixed head-final base-generated order, the 1-2, 1-3-2 and the 3-1-2 orders all involve some type of movement. Therefore, all head-final approaches (Evers 1975; Haegeman and Van Riemsdijk 1986, among others), could account for this co-occurrence pattern by arguing that northern Dutch varieties for some reason do not allow any (overt) procedures that deviate from an underlying 2-1 order. As for approaches that assume an underlying head-initial order (Zwart 1996; Barbiers 2008b; Salzmann 2013, among others), the opposite reasoning could apply: perhaps languages such as Frisian only allow orders in which all possible movements or dislocations have overtly taken place. In base-generation approaches, one might assume that Frisian requires a strict linearization direction.

To sum up, in all these approaches it is unclear what makes some varieties special.

### 2.10.2 The 1-3.INF-2 occurs only in border varieties as a secondary order

The following map demonstrates that there are many varieties of Dutch in which only the 1-2-3 and the 3-2-1 orders are observed. However, there are no varieties of Dutch where the 3.INF-1-2 or the 1-3.INF-2 order is observed as the only possible order. These orders only seem to occur as secondary orders. In fact, the 1-3.INF-2 order only seems to occur in varieties that border on German and Frisian varieties.

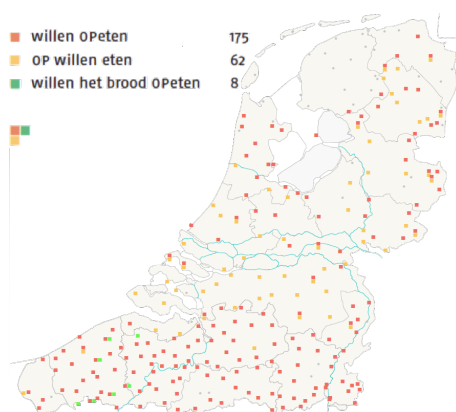
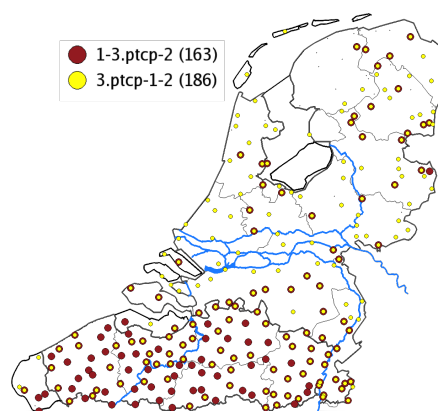


Map 2.5: SAND-II map 17a

Previous theories of verb clusters have nothing to say about the special nature of the 1-3-2 order with respect to the 3-1-2 and the 1-2-3 orders. Especially if one considers the fact that the 1-3-2 order is very common when  $V_3$  is a participle.

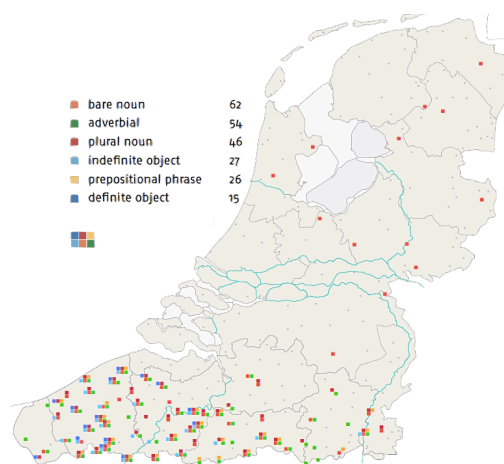
**2.10.3 The 1-3.PTCP-2 order, particle incorporation and verb cluster interruption**

Zooming in on the occurrences of the 1-3.PTCP-2 order, we observe a clear similarity in the geographic distribution of this order with particle incorporation: both the 1-3.PTCP-2 order and particle incorporation occur most frequently in the south of the language area.

Map 2.6: particle incorporation  
SAND-II, map 31b

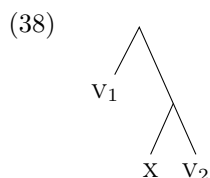
Map 2.7: 1-3.PTCP-2 and 3.PTCP-1-2

Considering this finding, it might be relevant to discuss another property of verb clusters that occurs in the southern varieties: *verb cluster interruption*, the occurrence of non-verbal material in the verb cluster.



Map 2.8: verb cluster interruption, SAND-II, map 30b

Crucially, it will be argued in chapter 3 that the participle in the 1-3.PTCP-2 order only appears to be a verb, but is actually non-verbal (see also Den Besten and Broekhuis 1989; Evers 2003, 2008; Barbiers and Bennis 2010). Following this idea, the three different constructions discussed in this section – the 1-3.PTCP-2 order, particle incorporation and verb cluster interruption – are all of the same structural form:

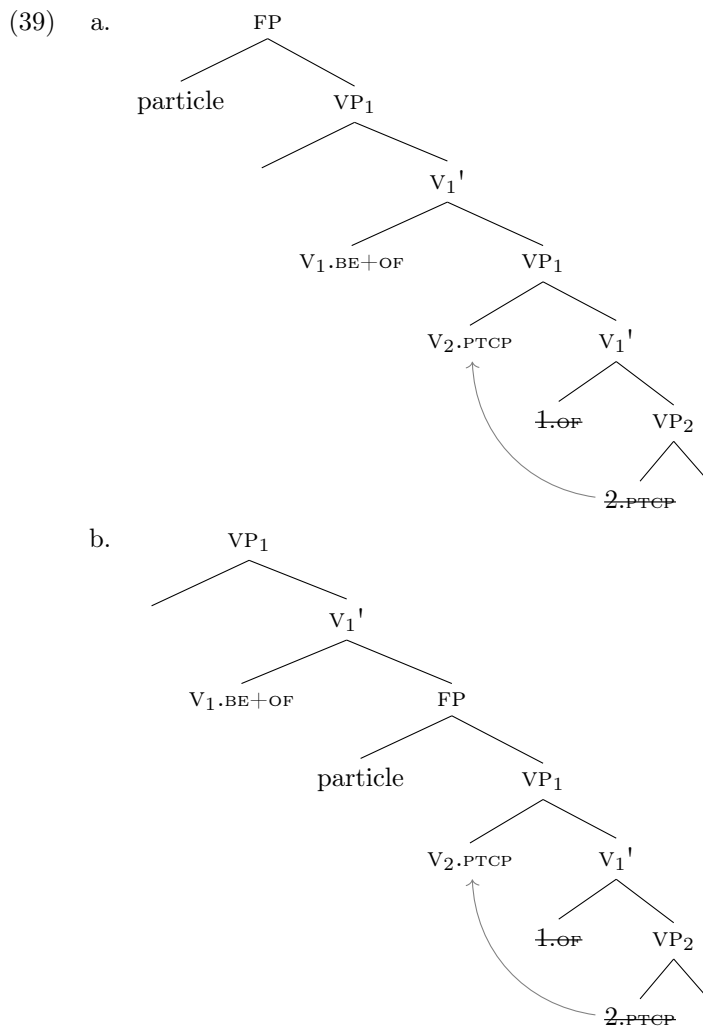


The fact that these three types of constructions then have the same geographic distribution, is no longer surprising, under any type of approach to verb cluster formation.

Note that this analysis is crucially different from Zwart's (1996) proposal, where it is explicitly stated that the participle is licensed in a different position than particles and small clause predicates. Since the specifier position of a verb is used for the licensing of embedded verbs and is hence occupied, a predicate has to be licensed in the specifier position of a different (functional) head. In such a theory it is not immediately clear why particle incorporation patterns like the 1-3-2 order.

#### 2.10.4 Verb cluster interruption

The acceptability of non-verbal material inside the verb cluster is a West-Flemish phenomenon. Its acceptability decreases geographically in moving from West-Flanders to the north. Interestingly, speakers of West-Flemish allow both interrupted and non-interrupted orders. This is problematic for most movement theories. However, Zwart's (1996) account seems to be able to deal with this issue. Since licensing can be transferred in this theory, it allows for multiple licensing positions. For instance, in order to account for the different positions of particles in the verb cluster, Zwart argues that when the participle moves to one of the auxiliary positions, the capacity to project a phrase that can license the particle is transferred to the auxiliary. This then allows for the particle to be licensed in any position above the auxiliary. This is illustrated in (39).



According to Zwart, the overt position of the verb that originally licenses the particle hence determines the eventual range of licensing positions. This seems to be a speculation that is not motivated beyond the fact that it accounts for the observed word order patterns. This approach might be extended to other phrases, such as objects. Additional factors (related to the size of the complement) might then affect which of these two positions is used.

As for PF inversion approaches, one would need to assume that the properties of the elements involved can influence the level at which inversion occurs. It is unclear why this would be the case.

In chapter 5 of this dissertation, I further discuss the properties of cluster interruption and the problems they pose for previous theories of cluster formation.

The previous section has demonstrated that a number of interesting patterns emerge when one considers the geographic distribution of verb cluster orders. None of the previous theories has a satisfying account for the co-occurrence patterns. It will be argued in chapter 3 that these patterns are not coincidental, but are a direct result of the manner in which verb clusters are derived.

## 2.11 Conclusion

This chapter has discussed a number of properties that are special to verb clusters. The most remarkable patterns that still require an explanation are listed here.

- All varieties of Dutch display various orders across verb types, except for many Frisian varieties, where only descending orders are observed.
- The distribution of verb cluster orders depends on the types of verbs involved.
- The word order variation in these languages contrasts with a rigid ordering in the nominal domain.
- The 1-3.PTCP-2 order, particle incorporation and verb cluster interruption show similar geographic distributions.
- The 1-3.INF-2 occurs only in border varieties.
- The acceptability of non-verbal material inside the verb cluster is a West-Flemish phenomenon. Its acceptability decreases geographically in moving from West-Flanders to the north.

On the basis of the results in this chapter, one can conclude that many of the existing accounts of verb clusters are not much more than descriptive rule systems that are not deeply motivated. As stated by Wurmbrand (2017:93): “[M]any interesting accounts have been suggested addressing the question of *how* verb clusters are derived. But what still appears to be an open question is the question of *why* the elements of a verb cluster are inverted in certain languages and constructions.”

In fact, theories that are aimed at deriving all observed orders have difficulties explaining their distributions. For instance, if the 2-1 and the 3-2-1 orders are derived through a similar type of mechanism, why is the 2-1 order abundant in all varieties of Dutch and Frisian, while the 3-2-1 is limited to Frisian varieties?

The approach that will be laid out in the next chapter can account for a large part of the properties of verb clusters. It will be argued that geographic co-occurrence patterns are not a socio-linguistic coincidence, but can be given a deeper explanation.