

A VO-based Approach To Verb Raising

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1. Introduction

In this paper, we introduce a novel approach to the analysis of Verb Raising (VR) constructions. Following Kayne's (1994) proposal that phrase structure is uniformly of the basic form Specifier-Head-Complement, we provide a VO-type approach to the syntax of VR-constructions in which the infinitival complements in these constructions are analysed as full CPs, allowing us to hold that all sentential complements are CPs. We argue that VR-constructions do not only involve head-movement of the verb but crucially involve XP-movement of an extended verb projection. The interpretation and distribution of the arguments of the infinitive and of adverbs modifying it is accounted for by movement of the embedded TP into the matrix clause. TP-movement is followed by T-to-T head-movement that renders the embedded TP transparent for the movement of the embedded arguments into the matrix TP.

The paper is organized in the following way. In section 2, we introduce the VR-construction in German and Dutch and discuss the properties that distinguish it from other infinitival constructions in these languages. In section 3, we first describe the traditional OV-based analysis of this construction. We then point to empirical and conceptual problems of this analysis that lead us to the conclusion that VR-constructions crucially involve VP-movement rather than VR in the sense of Evers (1975).

In section 4, we introduce our VO-based approach to VR-constructions. We first outline the problems that the VR-construction poses for a VO-type of approach. More specifically, we argue that the distribution and interpretation of the arguments of the infinitive and of the adverbs modifying the infinitive can not be accounted for by assuming that these constituents have been moved individually, via scrambling, into the domain of the matrix

clause. We then describe in detail our alternative account and close the paper with a brief discussion of its main advantages.

2. Coherent Infinitives

The Continental Westgermanic languages possess two types of infinitival complements. Like English, these languages have full sentential infinitival complements, generally analyzed as CPs, which we will call **incoherent infinitives**. These languages also possess another type of infinitival complements which we will call, following standard terminology, **coherent infinitives**.

The most salient properties that distinguish coherent and incoherent infinitives are the following. A) Coherent infinitives are *transparent* for several types of extraction processes. B) Coherent infinitives give rise to the formation of **verb clusters**. We will briefly illustrate these properties below.

Let us first look at the transparency of coherent infinitives. Coherent infinitives as opposed to incoherent ones allow for *long distance scrambling*, that is to say, the arguments of a coherent infinitive can be scrambled into the domain of the matrix IP. In German, the arguments of the embedded infinitive can be scrambled across the matrix subject, as is illustrated in (1a). Note that long distance scrambling out of an incoherent infinitive is not possible. In (1b), scrambling of the embedded direct object (across the matrix subject) out of an incoherent infinitive leads to ungrammaticality.

- (1) a. daß [der Maria]_i [das Buch]_j Hans gestern [t_i t_j zu geben] versprach
 that Maria-dat the book-acc Hans yesterday to give promised
 'that Hans promised yesterday to give the book to Mary'
- b. * daß uns [das Buch]_j Hans gestern [der Maria t_i zu geben] bat
 that us the book Hans yesterday to Mary to give asked
 'that Hans asked us yesterday to give the book to Mary'

Like in English, the scope of non-wh-quantifiers and operators is restricted by clausal boundaries in German. Consequently, the sentences in (2) and (3), where the matrix verb *bedauern* (regret) selects only an incoherent infinitival complement, may only have the narrow scope readings in (b), but not the readings with a wide scope of the quantifier/operator represented in (c).

- (2) a. weil er [sie nicht geheiratet zu haben] bedauerte
 since he her not married to have regretted
 'since he resented not having married her'
- b. 'since he did not resent having married her'
- c. weil er [niemanden geheiratet zu haben] bedauerte
 since he nobody married to have regretted
 'since he regretted not having married anybody'
- c. 'since for no x: he regretted having married x'

However, a non-wh-quantifier/operator embedded in a coherent infinitive may take scope over the matrix clause. Thus the sentences in (4) and (5), in which the matrix verb *wagen* (dare) allows for a coherent infinitival complement, are ambiguous between the readings given in (b) and (c).

- (4) a. weil er [sie nicht zu küssen] wagte
 since he her not to kiss dared
 since he dared to not kiss her
- b. 'since he did not dare to kiss her'
- c. weil er [niemanden zu küssen] wagte
 since he nobody to kiss dared
 'since he dared for no x: to kiss x'
- c. 'since for no x: he dared to kiss x'

Let us now look at the issue of verb cluster formation. Coherent infinitives, as opposed to other (sentential and non-sentential) arguments show a very restricted distribution in the sentence. Coherent infinitives can generally not be extraposed and, as opposed to incoherent infinitives, resist scrambling. While its arguments can undergo movement into the domain of the selecting verb, the infinitival head of a coherent infinitive itself can not be separated from the selecting verb. (6) shows that while the embedded direct object "sie" can be scrambled across the matrix subject, the infinitive itself can not be scrambled across an adverb modifying the matrix verb. The adverb has to precede the infinitive, in which case it can modify both the matrix verb and the dependent infinitive (as we expect from the general transparency of coherent infinitives) (6b).

- (6) a. * weil sie der Hans zu besuchen oft versprach
 since her the Hans to visit often promised
 'since Hans often promised to visit her'
- b. weil sie der Hans oft zu besuchen versprach
 since her the Hans often to visit promised
 'since Hans (often) promised to (often) visit her'

Note, however, that the head of the coherent infinitive and the verb selecting it can be topicalized, that is, moved into [Spec,CP] of the matrix clause as if they formed a constituent (7a), while if the infinitive is incoherent its head can not be topicalized together with its selecting verb (7b).

- (7) a. [zu besuchen versprochen] hat sie der Hans noch nie
 to visit promised has her the Hans-nom yet never
 'Sofar Hans has never promised to visit her'
- b. * [zu besuchen bedauert] hat Hans seine Schwester noch nie
 to visit regretted has Hans-nom his sister yet never
 'Sofar Hans has never encouraged me to visit his sister'

The fact that the head of a coherent infinitive can not be separated from its selecting verb (cf. (6ab)) as well as the fact that the head of a coherent infinitive can be topicalized with the selecting verb to the exclusion of the arguments of the infinitive have been taken as direct evidence for the assumption that coherent infinitival constructions involve the formation of verb clusters by **Verb-Raising (VR)**. VR is a process of head movement that adjoins a dependent infinitive to its selecting verb (Evers 1975).

The formation of a verbcluster typically, though not necessarily, gives rise to the so-called IPP-effect (Infinitivus Pro Participio). The IPP-effect generally occurs when a verb selecting a bare infinitive (the dependent infinitive) is put into a perfect tense. In this case the verb does not show up in its expected past participial form but is realized as bare infinitive (the IPP-infinitive). (8) illustrates the IPP-effect in Dutch.

- (8) a. * dat Elise hem een brief heeft **gewild** schrijven
 that E. him a letter has wanted write
 b. dat Elise hem een brief heeft **willen** schrijven
 that E. him a letter has want-IPP write
 'that E. has wanted to write him a letter'

3 The Traditional Analysis of Coherent Infinitives

In this section, we will briefly outline how the properties of coherent infinitives have traditionally been explained in a OV-based account. The following discussion of the data is based on the work by Den Besten & Rutten (1989) and Rutten (1991).

3.1 The Traditional OV-based Analysis

Infinitival complements are divided into the three groups given in (9) below. Various main verbs can select *om* + *te*-infinitivals as a (prepositional) object. The element *om* is generally taken to be the infinitival complementizer. Thus an example like (10a) is traditionally analyzed as displayed in (10b) with the infinitival clause being extraposed, that is, being right-adjoined to VP or IP.

- (9) a. *om* + *te*-infinitivals: Extraposition
 b. bare infinitivals: Verb Raising (VR)
 c. *te*-infinitivals: VR or Extraposition (classification following Evers (1975))
- (10) a. dat Jan besloot om een liedje te zingen
 that Jan decided a song to sing
 b. dat Jan _{EXTR} besloot [_{CP} om [_{IP} PRO een liedje te zingen]]_{EXTR}

While *om* + *te*-infinitivals are unequivocally to be described as incoherent infinitive constructions, bare infinitivals in Dutch display all the properties of a coherent construction that we showed to be characteristic in the previous section. Bare infinitivals are characterized by the lack of the infinitival marker *te* (zu). (11) is an example of a bare infinitival selected by

the ECM-verb *horen* (to hear). Here the matrix verb intervenes between the embedded infinitive and its arguments. To accommodate this order with the head-final character that he assumed for Dutch, Evers (1975) proposed a rule of VR that right-adjoins the dependent infinitive to its selecting verb as depicted in (11b).

- (11) a. dat ik Jan een liedje hoor zingen
 that I Jan a song hear sing
 'that I hear Jan sing a song'
 b. dat ik [_{IP} Jan een liedje _{VR}] hoor zingen_R

In a OV-based account, verb cluster formation in coherent infinitives is accounted for by the rule of VR that right-adjoins dependent infinitives to their selecting verb in Dutch, but left-adjoins them in German. The transparency of these constructions is simply accounted for by the assumption that bare infinitives are VP-complements (cf. Broekhuis et al (1995)).

Te-infinitivals are analyzed within this tradition as IP-complements. *Te*-infinitivals can enter into VR-structures or into the so-called Third Construction, with some verbs allowing only VR and others only allowing the Third Construction (see Rutten (1991) for a detailed discussion of these issues). The Third Construction and VR-structures differ, among other properties, with respect to the IPP-effect, with the IPP-effect being absent in the Third Construction. Some verbs like *proberen* (try) can enter into both constructions as is indicated by corresponding lack or presence of the IPP-effect in (12ab).

- (12) a. dat Marie een boek heeft **proberen** te lezen
 that M. a book has try-IPP to read
 b. dat Marie een boek heeft **geprobeerd** te lezen
 that M. a book has tried to read
 'that Marie has tried to read a book'

In their analysis, den Besten & Rutten (1989) proposed that the Third Construction involves extraposition plus scrambling. (12b) can be derived by extraposing the infinitival complement and by extracting the DP "een boek" from the infinitival clause and adjoining it to a projection of the matrix clause, that is, by long-distance scrambling. The resulting structure has been (later) called Remnant Extraposition, since the extraposed part consists of those elements that remain after scrambling. Given this account and what we have said before about VR, the similar looking sentences in (12) have the following quite divergent structural analyses: (12a) represents a VR-structure and (12b) the structure resulting from Remnant Extraposition.

- (13) a. dat Jan [PRO een boek _{VR} _{t_i}] heeft [_{IP} proberen [_{te} lezen]_R]_R
 b. dat Jan een boek_{SCR} _{t_{EXT}} heeft **geprobeerd** [PRO _{t_{SCR}} te lezen]_{EXT}

The analysis in (13) allows us then to assume that the IPP-effect is actually triggered by VR in the sense of Evers (1975). To account for the transparency of *te*-infinitivals, the standard theory does not analyze *te*-infinitivals as full CP-complements but rather as IP-complements.

3.2 Problems of the Traditional Account

In this section, we will discuss the behaviour of particles in Dutch VR-constructions. We will present data showing that certain occurrences of particles can not be derived by incorporation in terms of head movement but must involve XP-movement. This observation will lead us to reject the assumption that VR is a process that only involves head-movement.

In Dutch, a particle may precede the verb cluster created by VR, as is illustrated in (14a), or, as is shown in (14b), it may also move along with its selecting verb and become part of the verb cluster.

- (14) a. dat Jan Marie op wil bellen
that Jan Marie up wants call
b. dat Jan Marie wil op bellen
that Jan Marie wants up call
'that Jan wants to call up Marie'

Following van Riemsdijk (1978), we assume that the particle is the head of a particle phrase, a PP in fact, in the complement domain of the verb (15a). The fact that the verb and the particle often act as a unit is accounted for in this approach by adopting a rule of Particle Incorporation (PI) that moves the particle to the verb. If PI is optional then the particle may stay in its PP and will be stranded by VR yielding the analysis depicted in (15b) for sentences like (14a), or the particle may incorporate into the verb and subsequently undergo VR yielding the analysis depicted in (15c) for sentences like (14b).

- (15) a. dat Jan Marie [_{PP} [_P op]] bellen wil
b. dat Jan Marie [_{VP} op] t_k wil bellen_k
c. dat Jan Marie [_{PP} t_{PI}] t_k wil [OP_{PI} bellen]_k

First, note while this analysis accounts for the behavior of particles in VR-constructions, it fails to explain why VR viewed as a process of head-movement may "pied-pipe" or strand particles, while Verb-second, an operation that is generally analyzed as head-movement of the finite verb into C⁰ in root clauses, must strand particles, as is shown in (16).

- (16) a. * Jan opbelde Marie
Jan up-called Marie
b. Jan belde Marie op
Jan called Marie up
'Jan called up Marie'

Secondly, note that particles can never be taken to incorporate into te-infinitives: the infinitival marker "te" always intervenes between particle and selecting verb (17). In the traditional OV-account, where the VP precedes its selecting head I⁰, it is assumed that the infinitival verb undergoes head-movement and right-adjoins to the infinitival marker occupying I⁰ in order to derive the sequence te + infinitive. The important point is that the

sequence "op te bellen" cannot have an analysis in which it is assumed that the verb is right-adjoined to "te" and the particle is left-adjoined to "te". That is to say that regardless of whether we assume that the particle has incorporated into the selecting verb this sequence can not be analyzed as a single complex head. If the particle incorporates into the selecting verb (which then excorporates to adjoin to the infinitival marker), it can not excorporate (out of an head-adjunction structure in which it does not constitute the head) in order to left-adjoin to the infinitival marker. If it does not incorporate into the verb, it can not incorporate to the higher infinitival marker, since this would require that it crosses an intervening head in violation of the HMC¹.

- (17) a. * zonder Marie te op bellen
without Marie to up call
'without calling up Marie'
b. zonder Marie op te bellen
without Marie up to call

This in turn implies that the VR-structure in (18) can not have been derived by an operation of head-movement that right-adjoins a (complex) infinitival head to its selecting verb. We therefore conclude that VR involves XP-movement of a VP or some bigger projection. Furthermore, we assume that particles are never licensed by incorporation. This assumption naturally explains why particles must be stranded by the operation of Verb-second, while they may be pied-piped by VR, an operation that involves movement of a larger maximal phrase.

- (18) dat Jan Marie t_k probeerde [op te bellen]_k
that Jan Marie tried up to call
'that Jan tried to call up Marie'

Another problem of the standard account of coherent infinitives is that it treats some clausal complements as CPs and others as TPs or VPs. It would be nice to have a theory of coherent infinitives that allows one to assume that all sentential complements are CPs. In the following section, we will propose a VO-based account that assumes that both coherent and incoherent infinitival complements are full CPs.

¹ The same argument against particle incorporation is made in Den Besten & Broekhuis (1992), who reach the same conclusion as we do, namely, that VR may not be analysed as only involving head-movement. That particles can not be taken to incorporate into the verb and that verb clusters containing particles can therefore not be analysed as head-adjunction structures is also shown by the behavior of particles in multi-member verb clusters. Particles in Dutch can occupy various positions in the verb cluster (cf. Bennis (1992)). For instance, in (i) the particle must have reached its surface position via XP-movement (head-movement would violate the HMC), entailing that the containing structure can not be a head-adjunction structure. However, the same point can be made more easily with particles in to-infinitives as long as it is assumed that the infinitival marker is not affixed to the verb itself.

- (i) dat hij mij zou kunnen [weg]_i horen t_i rijden
that he me would can away hear ride
'that he would be able to hear me drive away'

4. A VO-based Account of Coherent Infinitives

The main problem that a VO-based account of coherent infinitives faces is the question of how to account for the distribution and interpretation of nominal arguments, adverbs and sentential complements in this constructions.

If we look at a typical case of VR in Dutch (cf. (19ac)), then we realize that the nominal arguments of the infinitive and adverbs and adverbials modifying it precede the selecting verb "wilde", while the infinitive itself and a sentential complement of the infinitive (19c) follow the selecting verb. In (19) constituents belonging to the embedded infinitival are given in square brackets. In a VO-based account, we have to assume that a coherent infinitive like (19a) is the derived from an underlying structure of the type given in (19b).

- (19) a. dat Jan [Marie het boek morgen] wilde [geven]
 that Jan Marie-Dat the book tomorrow wanted give
 'that Jan wanted to give Marie the book tomorrow'
 b. dat Jan wilde [PRO Marie het boek morgen geven]
 dat Jan [Marie morgen] wilde [vertellen dat Piet ziek is]
 c. that Jan Marie tomorrow wanted tell that Piet sick is
 'that Jan wanted to say to Marie tomorrow that Piet is sick'

The simplest possibility of relating the structure in (19a) with the underlying structure in (19b) is to assume that the bracketed constituents preceding the matrix verb have been moved individually via scrambling from the embedded clause into the matrix clause. However, a closer look at this assumption reveals that scrambling (alone) is not a solution for our problem at hand. In the following section, we will illustrate why.

4.1 Against Scrambling

In this section, we present three arguments that constituents of the infinitive can not be moved via scrambling into the domain of the matrix clause in VR-constructions. A) Verb particles, small clause predicates and idiomatic expressions can not scramble but can precede the verb selecting the infinitival complement in VR-constructions.

This is illustrated for small clause predicates in (20). (20a) shows the basic order in which the small clause predicate follows the small clause subject and precedes the finite verb. (20b), in which the small clause predicate has been scrambled across the small clause subject is ungrammatical. Thus it is implausible that the small clause predicate has been moved via scrambling into the matrix clause in (20c).

- (20) a. dat Jan de schuur rood schilderde
 that Jan the barn red painted
 'that Jan painted the barn red'
 b. ?? dat Jan rood de schuur schilderde
 that Jan red the barn painted

- c. dat Jan de schuur rood wil schilderen
 that Jan the barn red wants paint
 'that Jan wants to paint the barn red'

B) It is generally assumed that adverbs do not scramble. That is to say that if two adverbs, ADV1 and ADV2 can occur both in the order ADV1 > ADV2 and in the order ADV2 > ADV1, it is assumed that at least one of them can be base-generated in a higher and in a lower position. This assumption is confirmed by the observation that in English, which is a non-scrambling language adverbs of the same type may occur in different positions. In addition, there is also direct empirical evidence for the assumption that adverbs at least can not undergo long distance scrambling (LDS), which comes from cases of Remnant Extrapolation. (21) is a case of Remnant Extrapolation and shows that while arguments can undergo LDS, adverbs and adverbials can not. Here, the DP "het boek" has undergone LDS into the matrix clause but the adverbial "om drie uur" must have been base generated in the matrix clause, since it can not be interpreted as modifying the embedded infinitive. In VR-constructions, however, adverbs and adverbial preceding the matrix verb are always ambiguous between a matrix clause-construal and an embedded clause construal.

- (21) Jan heeft het boek, om drie uur geweigerd t_i weg te brengen
 Jan has the book at three o'clock refused away to take
 "Jan has refused at three o'clock to take away the book"

C) Scrambling is not even an option in accounting for the distribution of arguments in VR-constructions. We have argued in 3.1 that cases of Remnant Extrapolation are best analysed as involving LDS of the arguments of the embedded infinitive. A closer look at this process reveals that LDS has properties of A-bar movement as is indicated by the fact that a LD-scrambled quantifier can not bind a pronoun in the matrix clause (since in Dutch arguments can not scramble across other arguments but only across adjuncts, the pronoun to be bound in the case of Remnant Extrapolation in (22a) is contained in the adjunct "na zijn inauguratie"). In (22a), the DP "each professor" has been LD-scrambled across the adjunct Crucially, no bound variable reading is available. In cases of VR, however, an argument of the embedded infinitive can give rise to a bound variable interpretation of a matrix pronoun. In (22b), a case of VR in German, the embedded direct object has been scrambled across the matrix subject and the bound variable reading is available. If we assume that the DP "jeder Mann" has been moved from the infinitival clause into the matrix clause via LDS, then we can not account for the difference in (22).

- (22) a. * De journalist heeft [iedere hoogleraar]_i na zijn_i inauguratie geprobeerd
 [t_i te interviewen]
 The journalist has every professor after his inauguration tried to interview
 'The journalist has tried after his inauguration to interview every professor'
 b. weil [jeden Mann]_i seine_i Mutter zu besuchen versuchte
 since every man his mother-nom to visit tried
 since his mother tried to visit every man'

4.2 The Clause-Structure in a VO-based Account

Before we propose our alternative account, we have to give a description of the clause structure of the Westgermanic languages from the perspective of a VO-based account. A) Nominal arguments of the verb always have to leave the VP before Spell-out (independently of whether they are definite or indefinite) and are licensed in functional projections above the position of manner adverbs and the negative marker "nicht". B) Full sentential complements are licensed in their base position within VP while small clauses have to move out of the VP and are licensed in a position below manner adverbs.

Manner adverbs like *sorgfältig* (carefully), *genau* (precisely, exactly), *gut* (well), *schlecht* (badly) and so forth show that both definite and indefinite NPs have to leave the VP. Since manner adverbs are usually analyzed as being adjoined to VP (we will later show that they actually occupy a higher position in the tree), a DP preceding a manner adverb must have moved out of the VP, as is illustrated for direct objects in (23).

- (23) a. weil Hans das Buch/ein Buch *sorgfältig* gelesen hat
 since Hans the book/a book carefully read has
 'since Hans has read the/a book carefully'
 b. ?? weil Hans *sorgfältig* das Buch/ein Buch gelesen hat
 since Hans carefully the book/a book read has
 'since Hans has read the/a book carefully'

The negative marker "nicht" (not) obligatorily precedes manner adverbs and obligatorily follows nominal arguments.² The movement of nominal arguments out of the VP to positions above manner adverbs and the negative marker, which we will call **short scrambling**, has to be distinguished from another type of scrambling that has been discussed a lot in recent literature (cf. Diesing 1992). It is well-known that indefinite NPs in German differ in their interpretation depending on whether they follow or precede sentential adverbs like *oft* (often), as is illustrated in (24). The latter kind of scrambling, which we will call **long scrambling** and which affects the scope of an NP is optional, while short scrambling is obligatory and seems to occur for reasons of Case-licensing.

- (24) a. weil Hans ein Buch oft gelesen hat (only specific interpretation)
 since Hans a book often read has
 'since Hans often read a certain book'

² Often, as in (23b) the order manner adverb < nominal argument yields a perfect sentence. This is always the case when the manner adverb is eligible for an alternative interpretation. So, for instance, (23b) is perfect under the interpretation "it was careful of Hans to read the book", where the adverb is interpreted as sentential adverb rather than as VP-adverb.

³ If a DP follows the negative marker, the latter can not be interpreted as sentence negation. In this case the negative marker is interpreted as constituent negation, that is, as negating only the constituent, in this case the DP, that follows it, which receives a (negative) contrastive interpretation.

- b. weil Hans oft ein Buch gelesen hat (only nonspecific interpretation)
 since Hans often a book read has
 'since Hans often read some book or other'

In a VO-based approach, we have to assume that the non-verbal predicates have been moved leftward from a position to the right of the verb. We assume that these nonverbal predicates, together with the "direct object" of the verb, form a Small Clause in the complement domain of the verb. Following Zwart (1993), we assume that small clauses undergo XP-movement and are licensed in the Specifier of a Predicate Phrase (PredP) that dominates the VP. The Predicate Phrase occupies a position below the position of manner arguments. While the small clause predicate stays in [Spec,PredP] its argument, like the other arguments of the verb, moves out of PredP to its licensing position above manner adverbs, as is illustrated in (25).

- (25) weil Hans **den Zaun**, *sorgfältig* [_{VP} *gelb*]_{sc} [_{VP} *anstrich* t_{sc}]
 since Hans the fence carefully yellow up-painted
 'since Hans painted the fence up yellow carefully'

In addition to small clauses, idiomatic expressions and directional PPs are licensed in PredP. PredP dominates FIP, a functional projection that hosts the infinitival marker and that immediately dominates the VP. We thus arrive at the following structure of the German sentence, a structure that we assume also holds for Dutch (in (26), LSCR-NPs stands for "long-scrambled NPs", SSCR-NPs for "short-scrambled NPs" and S-Adverbs for "sentential adverbs" like "often". For the sake of simplicity, we assume that the domain of LSCR-NPs corresponds to the traditional TP.

- (26) [LSCR-NPs [S-Adverbs [SSCR-NPs [Neg [VP-Adverbs [Pred⁰ [F1 [V CP]]]]]]]]

4.3 The Alternative Account

In this section, we will outline an account of VR in a VO-based approach. This approach is based on the generalizations about the basic clausal structure that we outline in the previous section (cf. (26)) and on the assumption that coherent infinitives are full CP-complements. Let us look again at a simple case of VR in Dutch to remind us of the problem at hand. If (27a) is derived from the underlying structure given in (27b), then it seems that while the infinitive may stay in the embedded clause everything else, namely the arguments of the embedded verb and the adverb modifying it, must move into the matrix clause.

- (27) a. dat Jan het boek vaak lang wil lezen
 that Jan the book often long wants read
 'that Jan often wants to read the book for a long time'
 b. [dat vaak [_{VP} Jan wil [_{CP} ... [lang [_{FIP} 0 [_{VP} PRO lezen het boek]]]]]

We have argued that this movement can not be scrambling of the individual constituents. In particular, we have argued in 4.1 that adverbs can not be taken to undergo scrambling. It is thus natural to assume that adverbs end up in the domain of the matrix clause

by being pied-piped by the movement of a larger constituent. In addition, it must be insured that movement of this larger constituent is to a position below all matrix adverbs, since (27a) can not mean "for a long time, Jan wanted to read the book often". Furthermore, we argued in 3.2 that the operation of VR itself can not be taken to be head-movement, but must be analyzed as involving XP-movement of a larger constituent. We thus propose that the embedded FIP, that is essentially the VP plus the potentially empty infinitival marker, is moved into [Spec,CP] of the infinitival after which process the remaining TP of the embedded clause is moved into [Spec, PredP] of the matrix verb. After the embedded TP and the embedded FIP have undergone XP-movement, their respective heads undergo local head-movement. The infinitival Tense-head head-adjoins to the matrix Tense-head, accounting for the general transparency of coherent infinitives we discussed in Section 2. The infinitival verb undergoes head-movement as well and adjoins to the matrix verb, accounting for the so-called IPP-effect.

In the previous section, we have argued that nominal arguments leave the VP in German, possibly for reasons of licensing before Spell-out. The same holds for Dutch. The structure that results from this step of operation is given in (27c). In the next step, FIP that has been emptied up to the verb is moved into [Spec,CP] of the infinitival. The result of this operation is shown in (27d). In the next step, the remaining TP of the infinitival is moved into [Spec, PredP] of the matrix verb. The resulting structure is given in (27e). In the final step, both the matrix subject and the embedded direct object undergo long-scrambling to positions above the sentential adverb "vaak". This last step is optional; hence both "dat vaak Jan het boek lang wil lezen" and "dat Jan vaak het boek lang wil lezen" are fine sentences in Dutch. We assume that long-scrambling of the embedded object in (27f) is enabled by T-to-T head-movement that has the effect of unifying the two TP-domains.

- (27) c. [dat vaak Jan [_{VP} wil [_{CP} [_{TP} PRO het boek lang [_{FIP} [_{VP} lezen]]]]]]
 d. [dat vaak Jan wil [_{CP} [_{FIP} lezen] [_{TP} PRO het boek lang _{t_{FIP}}]]
 e. [dat vaak Jan [_{FP} PRO het boek lang _{t_{FIP}}] wil [_{CP} lezen _{t_{TP}}]]
 f. [dat Jan_i het boek_j vaak _{t_i} [_{FP} PRO [_{TP} PRO _{t_j} lang] wil lezen]]

This account has several advantages. A) It provides a simple and natural explanation of the position and interpretation of adverbs in VR-structures. An adverb modifying the verb in a coherent infinitive is moved along with the remainder (after FIP-movement) of the infinitival to a position below the adverbs in the matrix clause. An adverb preceding a verb cluster is ambiguous between modifying the embedded verb or the matrix verb because it can be analysed as occupying the embedded TP or as occupying the matrix TP. No scrambling of adverbs has to be assumed.

B) It provides us with a simple explanation for the transparency of coherent infinitives. We assume that due to T-to-T-movement, arguments of the embedded clause (including quantifiers) may freely undergo A-movement into the matrix clause. For instance, (28a) is ambiguous between the readings in (28bc), because the negative quantifier "niemand" can be

analyzed as occupying the matrix or the embedded TP, as is illustrated in (29).

- (28) a. weil Hans niemanden besuchen will
 'since Hans nobody visit wants
 b. 'since Hans does not want to visit anyone'
 c. 'since Hans wants to visit nobody'

- (29) a. weil [_{TP} Hans niemanden_i [_{TP} _{t_i}] besuchen will
 b. weil [_{TP} Hans] [_{TP} niemanden] besuchen will

That arguments of coherent infinitives can stay in the embedded clause and must not obligatorily move into the matrix clause, is shown in (30a) where the adverb "often" (more often) can have narrow scope with respect to the matrix verb. In this reading the adverb must occupy a position in the embedded clause, implying that the argument "eine Frau" (some woman) that follows it is contained in the embedded clause as well. This interpretation of the facts in (30a) is corroborated by the observation that in the narrow scope interpretation of the adverb in (30b) the negative quantifier following it is no longer ambiguous, that is to say, it can not take scope over the matrix verb.

- (30) a. weil Hans öfter eine Frau besuchen will
 'since Hans more-often a woman visit wants
 'since Hans wants to more often meet some woman'
 b. weil Hans öfter niemanden besuchen will
 'since Hans more-often nobody visit wants
 'since Hans wants to more often visit nobody'

C) It gives us for free the right branching structure of Dutch verbclusters without making use of right adjunction. If we assume that verb-particles in Dutch are not licensed via incorporation but by XP-movement to either [Spec, PredP] or [Spec, FIP], then the cases in which a to-infinitive has been raised with its particle that are so problematic for the standard theory fall in place nicely as the analysis in (31a) shows.

- (31) a. dat Jan [Marie]_{TP} probeerde [_{CP} [_{FIP} [_{FP} op] te [_{VP} bellen _{t_{FP}}]]_{TP}]
 that Jan Marie tried up to call
 'that Jan tried to call up Marie'

D) It provides a simple and elegant solution to the distribution of CP-complements in VR-structures without making use of the operation of extraposition. CP-complements do not leave the VP in Dutch and German, they are licensed in-situ. Thus, they are pied-piped by FIP-movement into [Spec, CP] of the infinitival. This yields the effect that while all other arguments of a coherent infinitival show up in positions to the left of the matrix verb, the CP-complement stays with the verb selecting it and appears in a position to the right of matrix verb (31b).

- (31) b. dat Jan Marie morgen wilde [_{IPP} 0 [_{VP} zeggen dat Piet ziek is] that Jan Marie tomorrow wanted say that Piet sick is
'that Jan wanted to say to Marie tomorrow that Piet is sick'
c. dass Hans Maria morgen [_{sagen}+0]_{FI} wollte [_{IPP} _{FI} dass Peter krank ist] that Hans Maria-Dat tomorrow say wanted that Peter sick is
'that Hans wanted to say to Marie tomorrow that Peter is sick'

E) It provides us with a simple explanation for the difference in word-order between German and Dutch verb clusters. In German, the dependent infinitive generally precedes the VR-verb. Thus, German is one step ahead of Dutch. After F IP-movement into [Spec, CP] the infinitive undergoes local head-movement and left-adjoins to the matrix verb, leaving behind its CP-complement to the right of the matrix verb (compare (31b) with its German counterpart in (31c)). In Dutch, this operation will obtain at LF. Head-movement of the infinitive occurs in order to check the subcategorisation of the selecting verb. Following Bech (1955/1983), we assume that verbs in German and Dutch may select the **status** of their dependent supinum, that is to say, they determine whether the dependent non-finite verb is a participle, a to-infinitive or a bare infinitive. We assume that status can be checked via head-movement⁴.

F) It provides us with a very straightforward explanation for the so-called IPP-effect. Remember that the IPP-effect occurs when a VR-verb is used a perfect tense. In this case, the VR-verb does not show up in its expected participial form but is realized as a bare infinitive (the IPP-infinitive). We assume that VR-verbs require status-checking via head-movement and propose that the IPP-effect results from an improper checking configuration between dependent infinitive and selecting participial verb that is induced by the complex morphological structure of the participle.

In simple terms, when the dependent infinitive adjoins to the selecting participle in order to check its status, the participial prefix "ge" intervenes between the infinitival morpheme and the selecting verb-stem (cf. Vanden Wyngaerd (1994) for a similar account). The formation of the participle in German and Dutch involves a prefix and a suffix. We assume that the participle has the following structure: the prefix "ge" is left-adjoined to the verb-stem yielding a complex head that itself is left-adjoined to the participial suffix, as is depicted in (32a). Given the structure in (32a), it then follows from basic assumptions within Kayne's (1994) framework that a dependent infinitive can not directly adjoin to the verb-stem or the participle as a whole, the resulting structures being too symmetrical (32b), but rather has to adjoin to the prefix (32c)⁵. We follow Koopman (1995) in assuming that sisterhood is required for feature-checking between heads. In the configuration in (32c), the infinitival inflection (Inf = F1) that needs to be checked (whether it is "to" or zero) is a sister of "ge" and not of the selecting verb-stem. Thus, in order to insure a proper checking configuration between VR-verb and dependent infinitive the participle is dropped and replaced with the

⁴ In German, the status of to-infinitives is checked by XP-movement.

⁵ In (32bc), we only show the relevant subparts of the complex adjunction-structure.

default form of a bare infinitive.

- (32) a. [_{Part} [_v ge V] Part]
b.* [_v V2+Inf [_v ge V1]], [_{Part} V2+Inf [_{Part} ge+V1 Part]]
c. [_v [_{ge} [_{Inf} V2 Inf] ge] V1]

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