

**PUSH CHAINS AND DRAG CHAINS:
COMPLEX PREDICATE SPLIT IN DUTCH**

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0. INTRODUCTION¹

The idea that movement is triggered by certain morpho-syntactic requirements was introduced with the Chomsky (1981) framework called Government & Binding Theory. The first main type of movement to be treated in this manner was NP-movement as evidenced in passive and raising constructions. The central idea, due to Rouveret & Vergnaud (1980), was that a noun phrase has to move into the subject position in order to be assigned nominative case. In subsequent research, the concept of morpho-syntactic features triggering movement was extended to other constructions such as *wh*-movement. One major problem here is that *wh*-movement seems to be obligatory (in overt syntax) in some languages, such as English, but not in others, such as Chinese and Japanese (though it could still apply at LF in the latter type languages).² In recent developments in the theory of syntax (Chomsky (1993)) it is assumed that morphosyntactic features must be checked in or at some functional head bearing those same features. The checking must take place in the syntax if the feature is strong and it is delayed until LF if the feature is weak. Using LGB terminology, we may say that syntactically overt movement is triggered by strong features.

One of the central assumptions in recent 'minimalist' theories of syntax is that all movement is triggered in this way. This is, of course, a very strong claim. Triggers must be identified in all cases, and their presence must be empirically well supported. All apparently optional instances of movement must be traced to the presence vs. absence or to the strength vs. weakness of some trigger. Much work in the minimalist framework seems to me to fall short of the high methodological standards that have characterized most of the work in generative grammar since the downfall of generative semantics, but a broad assessment is beyond the scope of the present article. Instead, I want to focus on one aspect of the theory of triggers for movement.

If we take movement to be a relation between a source position and a target position, between the foot and the head of a chain, we may say that both positions contribute to the triggering implied by the existence of the relation. The foot position contains a feature

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²As argued in Huang (1982) and much subsequent work. In fact, the situation is more complex because *wh*-phrases are subject to scrambling, and furthermore some instances of *wh*-scrambling may 'count as' real *wh*-movement. See Takahashi (1993) and Abe's contribution to the present volume for recent discussion of the situation in Japanese. For an appraisal of alleged optional *wh*-movement in languages such as French, see Obenauer (1994).

that needs to be checked, and the head position must be in the immediate vicinity of the checking feature.³ So, in effect it is the properties of the landing site that constitute the trigger in the strict sense, whereas the unchecked feature on the constituent to be moved characterizes the triggered element. Borrowing some evocative terminology from structuralism (cf. in particular Martinet (1955)), we may say that movement is conceived of as a kind of drag chain: a functional head which beckons to the element to be moved and irresistably attracts it and which thereby drags that element up to its exalted position in the clausal structure.

In structuralist accounts of language change, however, drag chains are contrasted with push chains. Pursuing the analogical use of this terminology, a push chain instance of movement would be one in which movement is brought about by the contextual properties of the source position rather than by any properties of the target. Schematically, the contrast can be stated as follows.

- (1)X₁ A_i Y₁X₂ [e]_i Y₂.....
- a. drag chain: movement is triggered by X₁ / Y₁
 - b. push chain: movement is triggered by X₂ / Y₂

There are reasons to believe that there are instances of movement that are best understood as cases of push chains rather than drag chains. It is my purpose in the present article to examine in some details one construction in Dutch which exemplifies this type.

1. THE POSITION OF STRANDED PREPOSITIONS

It is a well-known fact about Dutch that prepositions can be stranded, cf. Van Riemsdijk (1978). Stranding occurs mainly in cases where the object of the preposition comes from a class of special pronominal elements, called r-pronouns, which is suppletive with respect to the normal series of neuter pronouns. The class of r-pronouns includes, among several others such as locatives, indefinites, negatives, etc. the simple definite *er* (it), replacing the regular *het*, its *wh*-counterpart *waar*, and the demonstrative variant *daar*. *Er* moves to a clitic-like position to the right of the subject, while *waar* and *daar*, in the

³The way this works in Chomsky's (1993) implementation is that, basically, the moved constituent is in a specifier position of the functional head that contains the checking feature, or, if it is a head itself, it is adjoined to the checking head. An alternative which I find more attractive for reasons given in Van Riemsdijk (1994, forthcoming) is to say that in the latter case the checking head contains some features including the checking feature but is phonetically empty. One can then say that the moved head is substituted for the checking head and checking itself is done by feature unification.

manner of *wh*-elements in general, move to the Spec,CP position. In the discussion, I will limit myself to these. Some examples are shown in (2) and (3).

- (2) a. Hebben ze het handboek ook [er bij] gedaan?
 have they the manual also there with done
 "Have they also included the manual?"
- b. Hebben ze er_i het handboek ook [e_i bij] gedaan?
- (3) a. [Waar mee]_i ga je de saus [e]_i binden?
 what with go you the sauce thicken
 "What are you going to thicken the sauce with?"
- b. Waar_i ga je de saus [e_i mee] binden?

In these examples the stranded preposition appears to occupy the same position as the corresponding full prepositional phrase. This is confirmed in (4).

- (4) a. Hebben ze het handboek ook [bij de computer] gedaan?
 have they the manual also with the computer done
 "Have they also included the manual with the computer?"
- b. Ik ga de saus [met maizena] binden
 I go the sauce with corn starch thicken
 "I am going to thicken the sauce with corn starch"

I will call this position the canonical position of the PP since it has become increasingly difficult in modern theories to be sure about what is the *d*-structure position of an element. However, a closer look reveals that appearances are somewhat misleading. There are, in fact, cases in which the position of the stranded preposition is not identical with the canonical position of the corresponding full PP. This is shown in the following examples.⁴

- (5) a. *Zij is helaas ziek door al die opwinding geworden
 she is unfortunately sick through all this commotion become
 "She has unfortunately become sick through all this commotion"
- b. Zij is door al die opwinding helaas ziek geworden
- c. Zij is helaas door al die opwinding ziek geworden

⁴Many of these observations can be found in Paardekooper (1977); this work is the fifth revised edition of Paardekooper's monumental syntax of Dutch whose first edition appeared in 1963. A first generative treatment was given in Van Riemsdijk (1974). The subject was taken up again in Van Riemsdijk (1992).

- d. Zij is er_i helaas [e_i door] ziek geworden
 e. Zij is er_i helaas ziek [e_i door] geworden
- (6) a. *Heb jij die trui schoon met Omo gekregen?
 have you this sweater clean with Omo gotten
 "Did you get this sweater clean with Omo?"
- b. Heb jij die trui met Omo schoon gekregen?
 c. Waari heb je die trui [ei mee] schoon gekregen?
 d. Waari heb je die trui schoon [ei mee] gekregen?

A first observation, then, is that stranded prepositions may show up in a 'special position', one that is to the right of the canonical position of the corresponding PP. In other words, we have a case of apparent rightward movement of the stranded preposition. The remainder of this article will be devoted to a discussion of possible analyses for this phenomenon.

What characterizes the contrasts in (6) and (6) is the pivotal element, here *ziek* and *schoon*, which tolerates the stranded preposition to its right, but not the full PP. It turns out that we can observe this behavior with the non-verbal part of complex predicates, that is with predicative adjectives (PAs) as in the above examples and with predicate nominals (PNs). An example of the latter type is given in (7).

- (7) a. *Berlusconi is niet premier voor het geld geworden
 Berlusconi is not prime-minister for the money become
 "Berlusconi has not become prime-minister for the money"
- b. Berlusconi is niet voor het geld premier geworden
- c. Daar is Berlusconi niet premier voor geworden
 there is Berlusconi not prime-minister for become
 "That Berlusconi has not become prime-minister for"

PAs and PNs are typical instances of the non-verbal part of complex predicates. We might expect, then, that prepositional predicatives (PrPs), directional PPs (DIRs) and prepositional indirect objects (PIOs) show the same behavior. To a certain extent they do, but several complications arise in view of which I will postpone discussion of these cases. Nevertheless, we may generalize the descriptive statement to all non-verbal parts of complex predicates. I will call these predicate extensions (PEs). The main generalization, then, is that nothing may intervene between the PE and the V of a complex predicate. The subgeneralization is that stranded prepositions are sometimes exceptional in this respect. We can render this state of affairs in the following preliminary descriptive statement.

(8) *...PE X V JVP unless X = \emptyset or X = stranded preposition

In the present article I will be concerned with the exceptional case, that is, with the case in which X = stranded preposition. I will refer to this construction as Complex Predicate Split.

A final point to note is that the preposition which may be stranded in position X in (8) is not the remnant of a prepositional object. This is so because either prepositional objects are themselves PEs, or they cannot cooccur with a complex predicate. Hence, the stranded prepositions in question are the remnants of the type of VP-adverbs that, in Dutch, allow stranding.⁵

2. SOME POSSIBLE SCENARIOS

Let us first examine the possible scenarios for handling a problem like the one outlined above. It would appear that there are in essence three such scenarios imaginable for the analysis of Complex Predicate Split:

- A. The stranded preposition moves rightward.
- B. The whole PP moves rightward before stranding takes place.
- C. The PE moves leftward across the stranded preposition.

As we will see below, there is a variant of scenario C in which the PP to be stranded moves leftward as well. After dismissing scenarios A. and B. as well as this latter variant of C., I will argue that the correct analysis involves the leftward scrambling of PE. As will become apparent, however, the triggering factor of this scrambling is not a drag chain trigger but it is contextual properties that require the PE to be removed from its base position: a push chain trigger.

2.1. Rightward movement of the stranded preposition

There are three main considerations that militate against such a scenario. In the first place, there is no reason why the rightward movement of the preposition should be sensitive to whether or not the P is stranded. In fact, we have to distinguish two possible variants of this scenario: rightward movement of the P before or after stranding of the P.

⁵There is a second class of stranded PPs which shows up in the X-position. These are the remnants of PPs that originate in some noun phrase, generally a direct object. We will turn to these in section 2.2 below.

If the movement takes place before stranding, there is no reason why patterns of the type ...PE P V should only occur when the object of the preposition is an r-pronoun, that is, a pronoun of the type that can strand the preposition.⁶

- (9) a. We hebben het raam met jouw spijkers inmiddels dicht gespijkerd
 we have the window with your nails meanwhile close nailed
 "We have meanwhile nailed the window shut with your nails"
- b. We hebben er het raam inmiddels dicht mee gespijkerd
 c. *We hebben het raam jouw spijkers inmiddels dicht mee gespijkerd
- (10) a. Zij is door al die opwinding helaas ziek geworden (cf. (5))
 b. Zij is er helaas ziek door geworden
 c. *Zij is al die opwinding helaas ziek door geworden

If on the other hand the rightward movement of the preposition follows stranding, we have to assume a condition that will yield precisely this effect, which we may call the 'minimal remnant property'. More specifically, the condition would have to guarantee that the rightward movement of the P is limited to cases of the type (11).

- (11) [PP X P Y], where X, Y are phonetically zero

As far as I am aware, no condition of this type has ever been proposed.⁷

The second consideration that argues against this scenario concerns the type of movement that it implies. In conformity with current theories of movement, the movement in question would have to be an instance of head movement. And the only plausible option for head movement would be to assume that the stranded preposition is adjoined to V. This would mean in effect that Complex Predicate Split is taken to be an instance of P-

⁶The preposition *met/mee* has two alternate forms. The form *met* shows up when the preposition is followed by its object, the form *mee* is found elsewhere, in particular when the preposition is stranded.

⁷It should be noted, however, that a condition similar to this may have to be assumed for certain incorporation phenomena, to the extent that these are to be handled in the syntax. In particular, incorporation in many languages does not seem to be able to result in the stranding of the remnant parts of the phrase from which the head is extracted. For example, noun incorporation in Dutch can only apply to noun phrases that consist of a single noun and nothing else, even if the noun were not incorporated. This means that no part of a noun phrase may ever be stranded under incorporation in Dutch. While there are some cases in which postpositions or adjectives are incorporated where the object of these heads appear to be stranded, it turns out that in all of these cases the head is stranded by leftward scrambling of these objects. Hence, the generalization that incorporation is limited to bare heads stands. But the nature of the condition that would yield this effect in syntax remains quite mysterious.

incorporation. This is, in fact, the analysis that was proposed in Sturm & Kerstens (1978). More recently, this analysis has been reiterated by Neeleman (1994:15ff). Such an analysis would appear to be seriously flawed, however, as a comparison of Complex Predicate Split with cases of 'true incorporation' will readily show.

First, note that heads, including prepositional ones, do incorporate. This is exemplified in the Dutch variant of the verb particle construction. Take an example like (12).

- (12) ...dat Martin de was op hangt
that Martin the laundry up hangs

That the prepositional particle is an independent syntactic element is shown by the fact that it remains in situ when the finite verb is fronted under verb second in a root clause, as in (13).

- (13) Martin hangt de was op

On the other hand, we can see that the particle does incorporate by the fact that in complex verb clusters it shows up inside the cluster:⁸

- (14) ...dat Martin de was wilde gaan op hangen
that Martin the laundry wanted go up hang
"...that Martin wanted to go hang up the laundry"

Significantly, this latter property is absent in the case of Complex Predicate Split, where the P is a stranded preposition:

- (15) a. Waar_i heb je die trui [e_i mee] schoon weten te krijgen?
where have you that sweater with clean known to get
"what have you managed to get that sweater clean with?"
b. Waar heb je die trui schoon mee weten te krijgen?
c. *Waar heb je die trui schoon weten mee te krijgen?
- (16) a. We hadden er_i het raam [e_i voor] dicht moeten spijkeren
we would've there the window for shut had-to nail
"We would have had to nail the window shut for that"
b. We hadden er het raam dicht voor moeten spijkeren
c. *We hadden er het raam dicht moeten voor spijkeren

⁸Such verb clusters are thought to be the result of a process called Verb Raising. Cf. Evers (1975), Haegeman & Van Riemsdijk (1986).

Neeleman (1994) recognizes this fact, but his discussion is buried in his footnote 3. on page 65. He suggests that in the crucial examples (15c) and (16c) the incorporated preposition is too deeply embedded in the verb cluster to (properly) govern its trace. The verbs themselves are exempted from this as a result of an index percolation mechanism which is limited to adjunction structures consisting of identical categories. Such an account, needless to say, is rather ad hoc. Though the author claims that his account will predict the difference noted between real prepositional particles and stranded prepositions, it is simply not clear how it can do so. Finally, there is a minimal difference between Standard Dutch and BRT-Flemish⁹ with respect to examples like (15c) and (16c) in that they are grammatical in BRT-Flemish. In order to account for this fact, Neeleman would have to further parametrize his already suspicious condition. The obvious alternative is to say that incorporation of stranded prepositions is possible in BRT-Flemish, but not, and this is what I set out to argue, in Standard Dutch.

The final consideration that speaks against rightward movement of the stranded preposition is the very fact that this movement would have to be a case of lowering.¹⁰ While there have been a few scant proposals to introduce lowering rules for various constructions, it seems fair to say that there is a virtual consensus in the field to disallow lowering as a matter of principle.¹¹

It seems reasonable, then, to conclude that rightward movement of P is not the correct approach to the analysis of Complex Predicate Split. Let us therefore turn to the second strategy.

2.2. Rightward movement of the whole PP

On this scenario, the whole PP moves rightward into the position between the PE and the V. Once it has arrived there, stranding must take place to ensure that only the stranded preposition remains behind.

⁹This is the variety of Dutch standardly spoken on the Flemish television news. This variety does not have the more extended possibilities of Verb Projection Raising discussed in Haegeman & Van Riemsdijk (1986), hence VPR cannot account for the grammaticality of these examples.

¹⁰I am disregarding here the question of whether rightward movement exists at all. Recent work by Haider (this volume) and Kayne (1994) has suggested, in fact, that movement can never be rightward. While my proposal below will be compatible with such a conclusion, I will not pursue this line of argumentation any further here, particularly because I do not accept the corollary conclusion that head final structures do not exist at the underlying level. Cf. Van Riemsdijk (1994, in prep.).

¹¹What about 'real' incorporation then? My position is that incorporation may well involve what we might call right association. But I assume that this process, which I take to be an instance of reanalysis rather than movement, takes place under adjacency, in other words that it is a string vacuous operation. See Van Riemsdijk (1994, in prep.) for discussion.

There is one consideration which, at first sight, appears to argue very forcibly in favor of this type of analysis. This is the fact that in many cases the stranded P seems to originate inside the direct object of the verb (or the complex predicate) and hence is not part of the verb's functional complex at all. Let us first examine this line of argumentation. Consider first some examples illustrating this phenomenon.

- (17) Daar heb ik [het voorwoord [PP e]] gisteren van teruggestuurd
 there have I the preface yesterday of sent-back
 "That I have returned the preface of yesterday"
- (18) Ze hebben er [de grootste groep [PP e]] vrij van gelaten
 they have there the largest group free of let
 "They have released the largest group of them"

Note first that it is not plausible to assume that extraction of the r-pronoun takes place at a level at which the PP is still part of the noun phrase. This can be concluded from the fact that with all prepositions other than *van* extraction is impossible except in those cases in which it can plausibly be assumed that the PP is analyzable as a direct dependent of the verb.¹² Consider contrasts like the following:

- (19) a. Waar heb je een argument tegen bedacht?
 where have you an argument against thought-up
 "What have you thought up an argument against?"
- b. *Waar heb je een argument tegen ontkracht?
 "What have you refuted an argument against?"

A verb like *bedenken* (think up) can plausibly be thought of as taking an optional goal argument, but a similar idea is not available for a verb like *ontkrachten* (refute). We may conclude, then, that extraction of r-pronouns out of noun phrases is blocked by bounding theory. This leaves the cases with the preposition *van* (of). Clearly, an analysis by means of an additional argument of the verb is not available in examples like (17) and (18). On the other hand, we may ask if extraction of a *van*-PP out of a noun phrase is a viable alternative. Note that we should not be surprised that the preposition in question is *van* (of) rather than any other preposition. In this Dutch does not differ from such languages as, for example, Italian and French, cf. Cinque (1980), Obenauer (1994). At an intuitive level, the various analyses converge on the assumption that such PPs are, in a sense, possessive PPs which are therefore associated in some way with Spec,NP (or: Spec,DP) and which are, as a consequence, extractable from the noun phrase in question.

¹²The issue of extraction of PPs from noun phrases has been the subject of considerable debate, especially in the late seventies. Cf. Kooij & Wiers (1977), Klein & Van den Toorn (1978), De Haan (1979) and Klein (1983) for discussion.

The next question to be addressed concerns the target position of the extraction of the PP out of the noun phrase. In particular, do we need to assume that this process moves the PP directly to the position between PE and V? The answer appears to be no. It is, in fact, possible to scramble van-PPs leftward out of a noun phrase. (Subsequent) movement to Spec,CP is equally possible. Consider the following examples:

- (20) a. Ik heb [van dat boek / daarvan] [het voorwoord [e]] gisteren teruggestuurd
I have of that book / thereof the preface yesterday sent-back
- b. [Van dat boek / daarvan] heb ik [het voorwoord [e]] gisteren teruggestuurd
- (21) a. Ze hebben [van de gevangenen / daarvan] [de grootste groep [e]] vrijgelaten
They have of the prisoners / thereof the largest group released
- b. [Van de gevangenen / daarvan] hebben ze [de grootste groep [e]] vrijgelaten

It may well be the case, then, that the separation of the van-PP from its source noun phrase is independent of the fact that the stranded preposition ultimately ends up between PE and V.

An additional consideration which is relevant in this context is the fact that this type of separation, unlike extraposition of PPs out of noun phrases, is sensitive to the further embedding of the noun phrase inside another PP.¹³

- (22) a. Hij kan zich niet [in [de bibliografie [van dat boek]]] vinden
He can himself not in the bibliography of that book find
"He cannot find himself in the bibliography of that book"
- b. *Hij kan zich er niet in de bibliografie van vinden
- c. *Van dat boek kan hij zich niet in de bibliografie vinden
- d. Hij kan zich niet in de bibliografie vinden van dat boek
- (23) a. Heb je Jan [op [het voorwoord [van die dissertatie]]] gewezen?
Have you J. to the preface of that dissertation pointed
"Have you pointed out the preface of this dissertation to Jan?"
- b. *Waar heb je Jan op het voorwoord van gewezen?
- c. *Van welke (which) dissertatie heb je Jan op het voorwoord gewezen?
- d. Heb je Jan op het voorwoord gewezen van die dissertatie?
- (24) a. Je kunt beter [met [de directeur [van het instituut]]] praten
You can better with the director of the institute speak

¹³This contrast was already observed in Van Riemsdijk (1974).

"You had better speak with the director of the institute"

- b. *Je kunt er beter met de directeur van praten
- c. *Van het instituut kun je beter met de directeur praten
- d. Je kunt beter met de directeur praten van het instituut

We may conclude from these examples that leftward detachment is not only a prerequisite for leftward scrambling and topicalization of the embedded van-PPs but also for the appearance of the stranded van in Complex Predicate Split. Extraposition, which is at least a potential instance of rightward movement of PPs, appears to be of a different nature.¹⁴

The upshot of all of this is that cases in which the stranded preposition apparently originates inside a noun phrase cannot be taken to constitute evidence for a rightward movement of the PP. In other words, van-PPs that originate inside a noun phrase are structurally equivalent to independent PPs at the point of derivation where Complex Predicate Split occurs. Let us conclude the discussion of this scenario, then, by considering what type of movement would have to be assumed to make such an analysis work.

First, consider the possible landing site. Presumably, substitution is out of the question since there is no evidence for any kind of PP position between PE and V. If the movement is taken to be a case of adjunction, what could the PP adjoin to? There would seem to be two options: left-adjunction to V and right-adjunction to PE. The former can be immediately dismissed because movement theory disallows the adjunction of maximal phrases to heads. The second option can also be quickly eliminated. The PE can undergo movement to Spec,CP, but it can never drag the stranded preposition along, as shown in .

- (25) a. Hoe schoon heb jij er die trui mee gekregen? (cf. (6))
 How clean have you there that sweater with gotten?
 "How clean did you get that sweater with it?"
- b. *Hoe schoon mee heb jij er die trui gekregen?

Note that the ungrammaticality of (25b) cannot be attributed to the fact that the trace of *er*, which would presumably be in the fronted AP, is not properly bound by it, because with unextracted *er* ungrammaticality results as well.¹⁵

¹⁴I will not pursue the implications that this contrast might have for the (non-) existence of extraposition as a rightward movement rule.

¹⁵Note that it is sometimes difficult to exclude a marginal reading in which the PP is generated as an adjunct to the predicative adjective. In the text case, however, the PP is an instrumental adverb which combines most naturally with the verb (or the complex predicate as a whole). Hence, the AP-internal interpretation is excluded.

- (26) *Hoe schoon er mee heb jij die trui gekregen?

We may conclude, then, that neither substitution nor adjunction is a viable option. Combined with the fact that moving the PP into the position between PE and V would also have to be a case of rightward lowering, a singularly unattractive option to start with, we must reach the conclusion that the strategy of moving the PP rightward should be avoided at all cost.

There is one final consideration which further supports this conclusion. As in the case of the discussion in connection with (9) and (10), the question arises what forces the stranding of the preposition. Note, in fact, that stranding by r-movement is normally optional, unless independent factors such as the wh-criterion make movement obligatory. Yet, derivations under the present scenario would have to result in a single stranded preposition. That is, the PP must contain an extractable element (an r-pronoun) from the outset, and furthermore, extraction of that r-pronoun has to be forced. This is illustrated again in the following paradigm.

- (27) a. *We hebben het raam inmiddels dicht met jouw spijkers gespijkerd
 we have the window meanwhile shut with your nails nailed
- b. We hebben het raam inmiddels [er mee] dicht gespijkerd
- c. *We hebben het raam inmiddels dicht [er mee] gespijkerd
- d. We hebben er het raam inmiddels dicht mee gespijkerd

This fact appears to confront the scenario under consideration with another insurmountable problem. Rightward movement of the PP can therefore safely be eliminated as a viable analysis of Complex Predicate Split.

2.3. Leftward movement of the predicate extension (PE)

The idea on this scenario is that the predicate extension (PE) scrambles leftward across the stranded preposition to produce the Complex Predicate Split effect. The PE, which is presumably always some XP would then have to be assumed to be subject to scrambling just like other XPs in the verbal domain.

Right away, we may note that this scenario avoids the problems associated with rightward movement and, more particularly, with lowering that arise under the other scenarios. Hence an analysis along these lines deserves serious attention. Nevertheless serious problems arise immediately. In fact, if one disregards the phenomena of Complex Predicate Split under consideration, PEs are just about the most inert XPs. In other words, if scrambling is thought to affect a considerable number of XP types, predicative XPs are generally thought to be exempt. That PEs are typical non-scramblers is illustrated in the examples (5) and (6), repeated here as (28) and (29).

- (28) a. *Zij is helaas ziek door al die opwinding geworden
 she is unfortunately sick through all this commotion become
 "She has unfortunately become sick through all this commotion"
- b. Zij is door al die opwinding helaas ziek geworden
 c. Zij is helaas door al die opwinding ziek geworden
 d. *Zij is ziek helaas door al die opwinding geworden
- (29) a. *Heb jij die trui schoon met Omo gekregen?
 have you this sweater clean with Omo gotten
 "Did you get this sweater clean with Omo?"
- b. Heb jij die trui met Omo schoon gekregen?

We see that the PE must remain strictly adjacent to the verb. Some additional examples:

- (30) a. We hebben het raam met jouw spijkers inmiddels dicht gespijkerd
 we have the window with your nails meanwhile close nailed
 "We have meanwhile nailed the window shut with your nails"
- b. *We hebben het raam met jouw spijkers dicht inmiddels gespijkerd
 c. We hebben het raam inmiddels met jouw spijkers dicht gespijkerd
 d. *We hebben het raam dicht met jouw spijkers inmiddels gespijkerd
- (31) a. *De boot is lek helaas geraakt
 the boat has leaky unfortunately gotten
- b. De boot is helaas lek geraakt
- (32) a. *We moesten korter twee hoofdstukken maken
 we had-to shorter two chapter make
- b. We moesten twee hoofdstukken korter maken
- (33) a. *Je kunt de inleiding te lang niet laten worden
 you can the introduction too long not let become
- b. Je kunt de inleiding niet te lang laten worden

We must conclude, then, that PEs are rigid non-scramblers. For the purposes of an analysis of Complex Predicate Split we would have to conclude that PEs do scramble, but only across an immediately left adjacent stranded preposition.

If we pursue this type of approach to the problem, despite these obvious difficulties, we must first note, that the types of factors that govern scrambling patterns in general

(definiteness, specificity, topic-focus organization, etc.)¹⁶ do not seem to play a role here. In fact, neither the PE nor the stranded preposition are referential, so most of these notions are inapplicable to start with. What seems to be at stake, if anything, is considerations of heaviness. This will indeed be my informal conclusion which will be reached on the basis of a number of observations to be discussed in the next section. Before turning to these considerations, however, let us address the question of how a technical solution in terms of PE-scrambling could be formulated within a minimalist conception of the grammar.¹⁷

It is both one of the attractive aspects and one of the serious dangers of the minimalist approach that it is relatively easy to see how one can go about getting things to work out the way they should. If we need to say something very specific about the position of the stranded preposition, let us assume that there is a functional projection associated with it. Similarly, if we need to pinpoint the PE in some specified position, a functional projection is presumably involved.

More specifically, let us assume that stranding is licensed by means of feature checking. This is not an outlandish idea since stranding is, in fact, limited to the extraction of r-pronouns out of PPs. These pronouns can be taken to constitute a morpho-syntactic category, characterized by the feature 'R', which probably bears some relation with the concept of location.¹⁸ We might assume, then, that there is a functional head, call it LOC, which heads a functional projection in which PPs with the R-feature are checked and in whose specifier position their P is stranded. Similarly, we might assume that there is a functional head PRED to whose specifier PEs must move to have their predicational status checked.

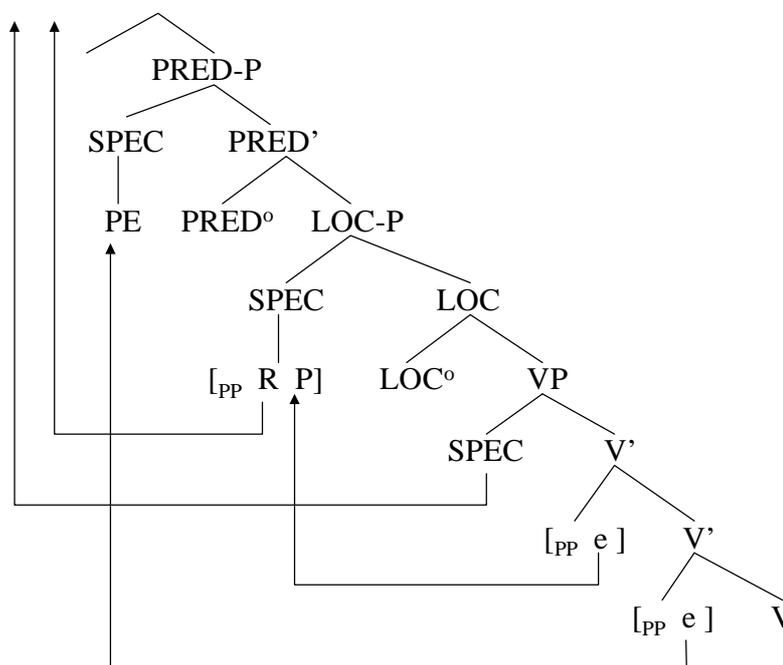
Schematically, and ignoring irrelevant details, this would yield structures of the following type:

¹⁶See Corver & Van Riemsdijk (1994) for an overview of the scrambling literature and Haftka (1994) for several contributions discussing the effect of semantic and informational factors on word order variants in the Mittelfeld. Cf. also Diesing (1992) for an analysis of the role of definiteness, as well as forthcoming work by Beermann and Van Hoof.

¹⁷Thanks are due to Riny Huybregts for suggestions and discussion of this point.

¹⁸Cf. Van Riemsdijk (1978, 1990), Koopman (1993), Zwarts (1995).

(34)



By stipulating that the LOC-projection is the one immediately dominating the VP, we guarantee that the stranded P will (ultimately) be the lowest, rightmost element preceding V, assuming, of course, as one must, that all other dependents inside the VP such as the subject etc. must also have some feature checked in a higher functional domain, thereby vacating the VP. Similarly, by assuming the the PRED-projection is situated immediately above the LOC-projection, we make sure that PEs will end up to the left of stranded prepositions, but no further away from the verb.

What this amounts to, in effect, is the building of a word order template into the extended verbal projection. All of this is massively stipulative. While one or the other element in this chain of stipulations may be amenable to empirical support, I am sceptical about the ultimate success of such an enterprise. Be that as it may, it would appear that there are a number of specific considerations that are in conflict with this type of approach to the problem. I will discuss two such considerations:

- optionality
- heaviness effects

First note that the scrambling that is involved in Complex Predicate Split is essentially optional.¹⁹ That this is so can be seen in the examples in (5) and (6), the relevant parts of which are repeated here as (35) and (36).

¹⁹We will differentiate this statement somewhat in section 3 below.

- (35) a. Zij is er_i helaas [e_i door] ziek geworden
 she has there unfortunately by sick become
- b. Zij is er_i helaas ziek [e_i door] geworden
- (36) a. Waar_i heb je die trui [e_i mee] schoon gekregen?
 what have you that sweater with clean gotten
- b. Waari heb je die trui schoon [ei mee] gekregen?

But if the position of the stranded preposition is fixed and derives from obligatory feature checking, and if the same is true for the position of the PE, then the observed optionality is unexpected. One might, of course, resort to a solution in terms of, for example, the optional strength or weakness of the PRED-feature, which would have the effect that the PE undergoes overt movement into the specifier of PRED only if the feature is strong. But such a move, needless to say, would further void this type of approach of any empirical content.

The third consideration that militates against the type of minimalist account sketched above has to do with certain heaviness effects that can be observed to play a role in Complex Predicate Split. These effects are the subject of discussion in the next section.

3. HEADINESS, HEAVINESS, CATEGORY CONFUSION AND FOCAL ACCENT

In the outline of the basic properties of Complex Predicate Split above it was noted that the stranded preposition must always be 'alone', a property referred to as the 'minimal remnant property'. Another way to put this is to say that the only element that can split up a complex predicate is a prepositional head, P. On the other hand, the PE was occasionally referred to as the predicative or directional XP. However, in most of the example given above the PE consists of a single head as well. Observe, now, that the relative heaviness of the PE is a factor that influences the grammaticality of Complex Predicate Split.

Consider again the examples in (35) and (36) repeated and expanded here as (37) and (38), with heaviness of the predicative adjective introduced as a variable in the paradigm.

- (37) a. Zij is er_i helaas [e_i door] ziek geworden
 b. Zij is er_i helaas ziek [e_i door] geworden
- c. *Zij is er_i helaas [e_i door] [zo ziek als een hond] geworden
 she has there unfortunately by as sick as a dog become
- d. Zij is er_i helaas [zo ziek als een hond] [e_i door] geworden

- (38) a. Waar_i heb je die trui [e_i mee] schoon gekregen?
 b. Waar_i heb je die trui schoon [e_i mee] gekregen?
 c. *Waar_i heb je die trui [e_i mee] [schoner dan hij ooit geweest is] gekregen?
 what have you this sweater with cleaner than it ever been has gotten
 d. Waar_i heb je die trui [schoner dan hij ooit geweest is] [e_i mee] gekregen?

The same effect can be observed when predicate nominals are taken into account.

- (39) a. Hij is er inmiddels door burgemeester geworden
 b. Hij is er inmiddels burgemeester door geworden
 c. *Hij is er inmiddels door [de burgemeester van Amsterdam] geworden
 he has there meanwhile through the mayor of Amsterdam become
 d. Hij is er inmiddels [de burgemeester van Amsterdam] door geworden

Clearly, the single-headedness of the PE plays an important role here. Note that this is not a heaviness effect of the usual kind (light elements like clitics tending to show up further to the left and heavy constituents having a tendency to undergo some sort of extraposition). Rather, what seems to be going on is that there is a tendency to organize the Mittelfeld in such a way that it consists of a sequence of phrases followed by a sequence of heads, regardless of whether these heads are simultaneously XPs as well. We may represent this tendency in the form of a template.

- (40) XP - X]_{VP}

Note that not only can the heads on the right be exhaustively dominated by XP, but also the XPs on the left can happen to consist of only a single head. Note further that the sequence of heads on the right can be further subdivided in that the end of that sequence will consist of the verb cluster which consists of a series of verbs that are clustered together in an adjunction structure and which may contain incorporated nouns, adjectives or prepositions.

In the above discussion, prepositional PEs are conspicuously absent. This is so because they are exceptional in that they do not permit Complex Predicate Split, not even when the adoption of the split pattern would improve the status of a sentence in terms of the template (40). Consider the following examples.

- (41) a. *Ik heb er het voorwoord al aan Jan van gegeven
 I have there the preface already to John of given
 "I have already given the preface of it to John"

- b. Ik heb er het voorwoord al van aan Jan gegeven
- (42) a. *Je kunt er toch moeilijk naar de dokter mee gaan
You can there really difficultly to the doctor with go
"You really can't very well go see a doctor with a thing like that"
- b. Je kunt er toch moeilijk mee naar de dokter gaan
- (43) a. *Deze regel schijnt daar niet van toepassing op te zijn
this rule seems there not of application to to be
"This rule doesn't seem to be applicable to that"
- b. Deze regel schijnt daar niet op van toepassing te zijn

What these examples seem to indicate is that scrambling of the PE is prohibited if the PE is a PP. I have no idea what is going on here. One initial idea, which I will stick with, is that this has to do with the fact that in these cases the PE and the stranded preposition are the same category. While this is a somewhat functional intuition, note that simple perceptual confusion, attachment problems, cannot be at stake here. Why should the fact that the stranded preposition might be interpreted as a dependent of the noun to its immediate left play a role in these examples but not when the PE is itself a noun as in the above example (39)? Nevertheless I will attribute this fact to some kind of category confusion and state the fact as follows.²⁰

- (44) * [PP PRED/IO/DIR] - [PP e P] - V]VP

²⁰There is a curious fact which seems to almost contradict this description of the facts in terms of category confusion. Where category confusion blocks scrambling of the PE, scrambling seems to be obligatory with the adjective *ver/verder* 'far/further'.

- (i) a. Hij is er toch ver mee gekomen
he has there nevertheless far with come
- b. Hij is er toch verder dan Jan mee gekomen
(further than Jan)
- (ii) a. *Hij is er toch mee ver gekomen
b. *Hij is er toch mee verder dan Jan gekomen

While these examples are fully compatible with the phrase-head template, it is surprising that (ii-a) is ungrammatical. This is doubly surprising because, like *near* in English, *ver* is categorially somewhat like a preposition. But if it were a preposition, and if as a consequence category confusion were to arise, we would expect exactly the opposite pattern. I will not pursue this matter any further here.

Let us now turn to a third factor that seems to be involved in these patterns: focal accent. The basic rule for normal or neutral focal accent in Dutch is that the rightmost non-verbal element in the VP gets focal accent if there is one, otherwise the verb itself gets the focal accent.²¹ A second consideration is whether the XPs under consideration are part of the argument structure of the clause or have adjunct status.²² PEs are the elements that typically bear focus accent since they are by definition the rightmost non-verbal elements in the VP. It is only natural to ask, then, what happens to the stranded preposition in the case of Complex Predicate Split. In the simple case, certain stranded prepositions may bear focal accent if the corresponding full PP is part of the argument structure and is rightmost. This is exemplified in (45).

- (45) a. Hij had niet aan de KNOPPEN moeten zitten
 he had not at the buttons had-to sit
 "He should not have touched the buttons"
- b. Daar had hij niet AAN moeten zitten
- c. *Daar had hij niet aan moeten ZITTEN

On the other hand, certain prepositions cannot bear focal accent even if they are prepositional objects and are in the right position.

- (46) a. We kunnen toch niet op de volgende TREIN blijven wachten
 we can surely not for the next train stay wait
 "Surely we cannot stay and wait for the next train"
- b. *Daar kunnen we toch niet OP blijven wachten
- c. Daar kunnen we toch niet op blijven WACHTEN

Observe, incidentally, that if the focal accent goes on the verb, it will go on the last verb in the verbal cluster, which is also the verb that determines most of the overall argument structure.

With this much background, we may observe, that the stranded prepositions that show up in the Complex Predicate Split construction are of the latter type; they do not bear focal accent, even if there is no PE to attract it. Here are some representative examples:

²¹See Cinque (1993) for a recent discussion.

²²The distinction is not, of course, very straightforward and there is considerable variation. Cf. Gussenhoven (1992) for a recent discussion. On certain conceptions of phrase structure, adjuncts would not be generated inside the VP, thereby exempting them from focal stress assignment. But then, if current radical scrambling theories are on the right track, nothing ever remains inside the VP, except, sometimes, the verb. In that case the formulation of the focal stress assignment rule would have to be changed accordingly.

- (47) a. Zij is door al die opwinding helaas GESTORVEN
 she has through all this commotion unfortunately died
 "Through all this commotion she unfortunately died"
- b. *Zij is er helaas DOOR gestorven
 c. Zij is er helaas door GESTORVEN
- (48) a. Heb je die trui met OMO gewassen?
 have you that sweater with Omo washed
 "Did you wash that sweater with Omo?"
- b. *Waar heb je die trui MEE gewassen?
 c. Waar heb je die trui mee GEWASSEN?
- (49) a. Ik heb het voorwoord van dat boek gisteren TERUGGESTUURD
 I have the preface of that book yesterday returned
 "I returned the preface of that book yesterday"
- b. *Ik heb er het voorwoord gisteren VAN teruggestuurd
 c. Ik heb er het voorwoord gisteren van TERUGGESTUURD

While we cannot say that Complex Predicate Split is triggered by the requirements of the focal accent pattern, it is remarkable that the process is sensitive to these patterns in that it is limited to stranded prepositions that do not interfere with focal accent. Taking into account what was said above about accent in the verbal cluster, we can, in fact, revise the template given above in (40).

- (50) TEMPLATE: a. ...XP₁.....XP_iXP_n[°] X₁[°].....X_j[°].....X_m[°]]_{VP}
 b. ...XP₁.....XP_iXP_n X₁[°].....X_j[°]X_m[°]]_{VP}

In other words, focal accent goes on the last element of either the XP-series or the X[°] -series. In view of these observations, it might be thought that we could profitably replace the minimalist analysis discussed and rejected above by replacing the PRED-projection by a FOCUS-projection, perhaps along the following lines (where EE stands for 'everything else'):

- (51) [FOC-P SPEC [FOC' FOC [VP EE [PP e P] PE V]]]
-

But it would appear that such an approach would run into difficulties similar to those mentioned above.

Instead of pursuing this or other possible accounts in greater technical detail, I will let the matter rest here. What we have found is, apparently, a form of scrambling that is minimal in the sense that it can move an XP (the PE) at most across a stressless stranded preposition. Furthermore, we have seen that the factors governing this type of scrambling are largely contextual and perhaps even non-grammatical in nature. At this point, the question of how the template in (50) can be further reduced to independently motivated principles of grammar must be deferred to future research.

4. CONCLUSION

In one sense, there is not much to conclude. I have presented an analysis of the problems that arise when one tries to account for the phenomenon of Complex Predicate Split and have failed to produce an entirely satisfactory solution. Nevertheless, I hope the analysis is at least careful enough to serve as a basis for further investigation. However, it seems to me that the phenomenon in question has a relevance that is somewhat more general. Work in generative syntax has never been particularly successful in dealing with phenomena of the type described here. Sensitivity to heaviness has always been just around the corner, its influence has been abundantly clear ever since Ross' (1967) dissertation, but it has never been successfully accommodated in syntactic theory. The recent insistence on obligatory triggering effects has further detracted from the attention given to heaviness. And yet, it is difficult to avoid the conclusion that if there is an independent principle (grammatical or extragrammatical in nature) that accounts for heaviness effects, the rest of the grammar must be liberal. By this I mean that in cases where heaviness considerations favor one variant over the other, the rest of the syntax must offer both variants as equally grammatical. But that is the essence of optionality. Even if the present analysis is very preliminary, I find it difficult to avoid the conclusion that the scrambling phenomena in question, and probably scrambling in general, is an essentially optional process and that whatever factors differentiate the various options are independent.

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