



the scrambling operation can remove parts of the VP within the middle field in the SOV-languages it became understandable why only these two languages allowed VP-remnants to topicalize. The alternative theory has no insight to offer concerning this correlation; both properties of the SOV-languages have to be stipulated independently.

Our reason for writing the current paper stems from the fact that we had to leave one aspect of remnant topicalization unexplained in the earlier article. The problem was the following: we argued that the sentence in (1) has the structure in (2) and according to the theory this sentence was possible, because the scrambling rule could produce the sentence in (3):

- (2)  $[_{VP} t \text{ gelesen}] \text{ hat Hans } [_I \text{ das Buch } [_I \text{ nicht vp}]]$   
 read has Hans the book not
- (3)  $\text{weil Hans } [_I \text{ das Buch } [_I \text{ nicht } [_{VP} t \text{ gelesen}] \text{ hat}]]$   
 because Hans the book not read has

The VP-remnant of (3) would be the topicalized part of (2) with the trace in the topic position of (2) being bound by some reconstruction device that was shown to be independently necessary.

However, although our theory makes the correct prediction for (2) and (3) it fails to predict that the grammatical scrambling structure in (5) cannot be converted into a grammatical topicalization structure, since (4) is ungrammatical:

- (4)  $*[_{VP} [t \text{ mit}] \text{ gerechnet}] \text{ hat Hans } [_I \text{ da } [_I \text{ nicht vp}]]$   
 with counted has Hans there not  
 'Hans did not expect that to happen'
- (5)  $\text{weil Hans } [_I \text{ da } [_I \text{ nicht } [_{VP} [t \text{ mit}] \text{ gerechnet}] \text{ hat}]]$   
 bec. Hans there not with counted has  
 'because Hans had not expected that to happen'

(5) contains an example of the limited type of preposition/postposition stranding that is possible in German: as is wellknown, only members of the restricted class of R-pronouns can strand prepositions. The word *da* in (5) belongs to this class. However, as (4) shows, the remnant-PP cannot be topicalized together with the rest of the VP over the R-pronoun and our theory was unable to explain this fact, since the proposed reconstruction mechanism could not distinguish between the verb-governed trace in TOP in sentences like (2) and the preposition-governed trace in TOP in sentences like (4).

Here, we would like to address this problem through both a careful examination of the relevant example sentences and a broadening of the domain of investigation. Besides preposition stranding we will consider three other constructions that show a similar behavior. Two of these we introduce now, leaving the third one till later in the paper.

Consider the following sentence which is an example of what is known as *was-für-split* in the literature:

- (6)  $\text{Was hat Hans } [t \text{ für Leute}] \text{ getroffen?}$   
 what has Hans for people met  
 'What kind of people did Hans meet?'

These structures, analyzed for the first time for German in Den Besten (1985), are described most successfully as being derived by a movement rule moving the question word *was* (what) out of an object noun phrase to the sentence-initial operator position, referred to as the "O-position" from now on in accordance with Webelhuth (to appear).

The second additional construction that will concern us involves extraction from NP:

- (7)  $\text{Bücher hat Hans } [keine t] \text{ gelesen}$   
 books has Hans none read  
 'Hans has not read any books'

In this case, according to the standard X'-theoretic analysis of noun phrases, the head of the noun phrase is extracted to the O-position, leaving the determiner of the noun phrase behind. Obviously, for us to adopt this analysis would be self-defeating, since we are claiming that non-maximal projections cannot move to O. We are thus forced to assume that the topicalized constituent in (7) is a maximal projection, in this case an NP. We thus accept the DP-analysis of nominals proposed independently in Abney (1987). According to this theory, the structure of (7) will be (8):

- (8)  $[_{NP} \text{ Bücher}] \text{ hat Hans } [_{DP} \text{ keine np}] \text{ gelesen}$   
 books has Hans none read

We will refer to structures like (8) as "DP-split."<sup>1</sup>

Before we turn to an examination of the properties of the three constructions considered here we want to introduce the structures that we hypothesize for each. Let us begin with the preposition stranding phenomenon. As the following sentences show, R-pronouns obligatorily precede strandable prepositions/postpositions, unlike full DPs which must follow the preposition:



sentences just given we can say that in all three constructions the operator can be moved to the operator position leaving the remnant behind in the middle field.

The next sentences show that the inverse is not possible, i.e., the remnant cannot be topicalized with the operator staying in the middle field:

- (17) \**[t mit] hat er da nicht gerechnet*  
with has he there not counted
- (18) \**[t keine] hat er Bücher gelesen*  
none has he books read
- (19) \**[t für Bücher] hat er was gelesen*  
for books has he what read

It is also impossible to scramble the remnant over the operator in the middle field:

- (20) \**weil er [t mit] da nicht gerechnet hat*  
bec. he with there not counted has
- (21) \**weil er [t keine] wohl Bücher gelesen hat*  
bec. he none well books read has
- (22) \**weil er [t für Bücher] was gelesen hat*  
bec. he for books what read has

Likewise, it is ungrammatical to topicalize the remnant together with the remainder of the VP, leaving the operator in the middle field. This was the problem which we could not solve in our earlier paper:

- (23) \**[[t mit] gerechnet] hat er da nicht*  
with counted has he there not
- (24) \**[[t keine] gelesen] hat er Bücher*  
none read has he books
- (25) \**[[t für Bücher] gelesen] hat er was*  
for books read has he what

And, finally, it is also not allowed to topicalize the operator together with the rest of the VP, leaving the remnant behind in the middle field:<sup>3</sup>

- (26) \**[Da gerechnet] hat er nicht [t mit]*  
there counted has he not with
- (27) \**[Bücher gelesen] hat er [t keine]*  
books read has he none
- (28) \**[Was gelesen] hat er [t für Bücher]?*  
what read has he for books

(29) states the generalization that we arrive at on the basis of the examples in (14)–(28):

- (29) In the following constructions an extracted operator has to c-command the remnant at S-structure:
- (a) Preposition stranding  
(b) *was-für*-split  
(c) DP-split

The three constructions listed in (29) thus differ systematically from VP-remnants like (2) which do not have to be c-commanded by the extracted phrase at S-structure. We should therefore be eager to determine whether there is some crucial difference between each of the first three constructions and the VP-remnant configuration which we can make our reconstruction mechanism sensitive to. Our preliminary hypothesis will be the following:

- (30) Traces in specifier positions are not reconstructable

If (30) can be derived as a theorem from Universal Grammar, then our theory can distinguish between the three constructions in which remnant topicalization is impossible and the one construction where it is possible, under the assumption that the postulated structures (11)–(13) are correct at least in so far as the extracted phrase has left the containing constituent through the specifier position. The Binding Theory will block all of the sentences in (17)–(28) for the same reason: since at S-structure all traces have to be bound — either directly or through reconstruction — these sentences contain an unbound trace in specifier position: the reason is that there is no direct c-command relation between the trace and its antecedent at S-structure, but the specifier trace also does not qualify for reconstruction. The VP-remnant construction in (2), however, can be derived, since the trace although not directly c-commanded by its antecedent — can be bound by reconstruction, this process not being blocked here.

As a corroborating piece of evidence for our claim that the crucial difference between the good and the bad remnant topicalization cases lies in the occurrence of a specifier trace take the following sentence:

- (31) \**[Gesagt [t<sub>i</sub> daß er lesen will]]<sub>k</sub> weiß ich nicht*  
said that he read wants know I not  
*was<sub>i</sub> er vp<sub>k</sub> hat*  
what he has

This sentence has the following characteristics: it contains two sentential embeddings; the intermediate verb phrase has been topicalized together with its object clause. Before topicalization, however, an argument from the object clause has been extracted to the intermediate COMP. (31) is thus a clause with long VP-topicalization with the VP having a trace in specifier position of one of its arguments.

As the reader can see this type of structure is completely ungrammatical, in contrast to a sentence with a topicalized VP with an argument trace in it. The fact that the sentence is ungrammatical is not very surprising as such, since it contains a WH-island violation: the topicalized VP has been moved over the filled intermediate COMP. What is crucial to our argument is the degree of ungrammaticality of (31). It is practically unintelligible, whereas other violations of the WH-island condition lead to comparatively mild violations:

- (32) ?\* *Gelesen weiß ich nicht was er hat*  
 read know I not what he has  
 'I don't know what he has read'

In fact, sentences like (32) are reportedly grammatical in Southern German where the WH-island condition is only weakly operative, at least under extraction of non-subjects. However, even in these dialects (31) is judged completely ungrammatical. Similarly, the Dutch equivalent of (32), i.e., *Gelezen weet ik niet wat hij heeft*, does not sound that bad and may deserve only one or two question marks, whereas the Dutch equivalent of (31), i.e., *Gezegd dat hij wil lezen weet ik niet wat hij heeft*, deserves a full star. The (near-)grammaticality of sentences like (32) in Dutch and Southern German may also be related to the fact that the latter varieties of Continental West Germanic allow extractions out of finite CPs much more freely than Northern German does. In Northern German such extractions are usually considered to be ungrammatical or at least questionable. Despite these differences all three varieties of SOV Germanic reject sentences like (31), which we would like to claim is due to the trace in the intermediate specifier position inside the topicalized VP.

This also holds for the following sentence which has the same structure as (31) just that this time the lowest sentence is non-finite. Non-finite CPs usually allow extraction more easily than finite clauses, as is wellknown. Nevertheless, the following sentence is strongly ungrammatical:

- (33) \**[Versuchen [t mir zu geben]] weiß ich nicht*  
 try me to give know I not  
*was er vp wollte*  
 what he wanted

We conclude that the relevant difference between (31) + (33) and (32) is the existence of a trace in specifier position in the former sentences and the absence of such a trace in the latter. If this difference between these sentences is to be captured in the grammar, then the reconstruction mechanism will have to be made sensitive to the different positions of the traces. It follows right away that the generalization in (29) can be automatically derived as well, once (31)–(33) have been taken care of.

By way of a curiosity, note that by the same token sentences like (34) and (35), which combine features of (23)/(25) and (38), may be expected to be ungrammatical, as they are:

- (34) \**[[t<sub>i</sub> mit] gerechnet]<sub>k</sub> weiß ich nicht wo<sub>i</sub> er vp<sub>k</sub> hat*  
 with counted know I not where he has  
 (35) \**[[t<sub>i</sub> für Bücher] gelesen]<sub>k</sub> weiß ich nicht was<sub>i</sub> er vp<sub>k</sub> hat*  
 for books read know I not what he has

(34) and (35) are just two more ungrammatical sentences exemplifying the generalization in (29) which we are certain can be derived, once (31)–(33) have been accounted for.

With these prospects in mind let us return to (30), repeated here for convenience:

- (36) Traces in specifier position are not reconstructable

We had said above that this is a preliminary version of the principle that will solve the preposition stranding problem. But is it too weak in one sense, because it will still not rule out one permissible derivation of the following ungrammatical string:

- (37) \**[Mit gerechnet] hatte Peter da nicht*  
 with counted had Peter there not  
 'Peter had not expected that to happen'

It will rule out the following structure of (37):

- (38) \**[[t<sub>k</sub> mit] gerechnet] hatte Peter da<sub>k</sub> nicht*  
 with counted had Peter there not

The trace in the specifier position of the prepositional phrase is not bound, since it cannot be reconstructed. But the following derivation does not run into this problem, since reconstruction of the trace in specifier position is not necessary, since it is c-commanded at S-structure:

- (39) \* $[t_k [t_k \textit{mit}] \textit{gerechnet}] \textit{hatte Peter da}_k \textit{nicht}$   
 with counted had Peter there not

(39) contains a derivation in which the operator after leaving the prepositional phrase has first adjoined to the VP and then to I'. It is likely that this double adjunction is possible, since the positioning of the adverbial phrase on the surface is rather free. But, if this double adjunction is possible, then there is no reason why the trace adjoined to the VP could not move along with the VP under remnant topicalization, as in (39). The specifier trace is bound by the adjoined trace in TOP, so that (36) loses its force.

To rule out the structure in (39) on a par with that in (38) we have to strengthen our principle (36) to the following one:

- (40) Only argument traces can be reconstructed

(40) will now block reconstruction of both the non-argument traces in the topicalized constituents of (38) and (39), thus barring all unwanted derivations of this string, so that the grammar predicts it to be ungrammatical — as desired. We will cling to (40) as the principle operative in distinguishing between the good cases of remnant topicalization and the bad ones. It allows us to capture the major generalizations about VP-remnants as opposed to NP, CP and PP-remnants and also enables us to maintain the conclusions that we arrived at in our earlier article: the stricter version of the theory of movement, which restricts movement to specifier position to maximal projections does not have to be given up and the correlation between the availability of remnant topicalization and the existence of scrambling in a language can be derived in a principled manner from Universal Grammar.

One problem still remains unsolved, however, even if we invoke (40) as a universal principle. Contrast the following examples with (14)–(16):

- (41) \**Da hatten wir [t mit] nicht gerechnet*  
 there had we with not counted  
 (42) \**Bücher hatte er [t einige] nicht gelesen*  
 books had he some not read  
 (43) \**Was hat er [t für Bücher] nicht gelesen*  
 what has he for books not read

These sentences show that the operator cannot be extracted if the containing phrase has been scrambled out of its D-structure position before the extraction takes place. Assuming that the negation delimits the left bracket of the VP, all the bracketed expressions in (41)–(43) have to occupy adjoined positions, since they occur to the left of the negation. To capture the ungrammaticality of these examples the simplest statement to make is that extraction out of adjoined positions is impossible. Assuming this statement or a similar one to be correct, our theory of remnant topicalization predicts that the following sentence is ungrammatical:

- (44)  $[_{VP} t_k \textit{gerechnet}] \textit{hatte Peter da}_i \textit{nicht} [t_i \textit{mit}]_k$   
 counted had Peter there not with  
 'Peter had not expected that to happen'

The reason we predict this sentence to be ungrammatical is the following: the prepositional phrase at the end of the sentence is an argument of the verb heading the topicalized VP. Since the prepositional phrase is missing from the topicalized phrase, it must have been scrambled out before topicalization of the VP. But then it should occur in a derived position in (44) and should thus be an extraction island as much as in (41). This is not the case as the grammaticality judgement shows: (44) is perfectly grammatical. We do not have a convincing solution to this problem. Obviously, if our overall theory of remnant topicalization is to be maintained, we have to find an alternative to the simplest solution mentioned above that distinguishes (41) and (44): we cannot maintain the claim that every adjoined phrase is an extraction island.

Maybe it is possible to claim that a phrase adjoined in the government domain of a higher verb allows extraction, since it is governed by a lexical head, whereas a phrase adjoined to an Infl-projection does not have this option. This would distinguish between (41) and (44), since the latter could be given a structure in which the prepositional phrase is adjoined to the verbal projection headed by the verb *hatten*, while in (41) the PP would have to adjoin to I'.

However, another hypothesis suggests itself as soon as we take some other facts about preposition stranding into consideration. First of all, note that surprisingly, it is possible to strand a preposition heading an adjunct-PP, as the following examples shows:

- (45) *Da hat Peter es [t mit] geöffnet*  
 there has Peter it with opened  
 'Peter opened it with that'
- (46) *Da haben wir Geld [t für] gesammelt*  
 there have we money for collected  
 'We have collected money for that'

The instrumental phrase in (45) and the beneficiary in (46) are not extraction islands, although these phrases are probably not subcategorized by the verb, especially the latter one. If this is true, then the grammaticality of (45)–(46) further suggests that occurring in a non-argument position is not a sufficient condition for islandhood. We will leave these structures for further research, but we can use them to demonstrate another fact about preposition stranding.

Recall that in sentences without topicalized VPs a stranded preposition heading an argument PP must immediately precede the verb, as can be derived from examples (14) and (41), which we repeat here as (47) and (48):

- (47) *Da hatten wir nicht [t mit] gerechnet*  
 there had we not with counted
- (48) \**Da hatten wir [t mit] nicht gerechnet*  
 there had we with not counted

Although this observation seems to warrant the conclusion that a stranded preposition may only head an argument PP, a weaker conclusion cannot be excluded, and is even required given the grammaticality of (45) and (46). As a first approximation of the condition we have in mind, let us state that a stranded preposition must immediately precede the verb. This condition, which we have couched in observational terms, predicts that also stranded prepositions heading adjunct-PPs must immediately precede the verb. This is the case indeed, witness the following examples:

- (49) a. *Peter hat es damit nicht geöffnet*  
 Peter has it therewith not opened
- b. \**Da hat Peter es [t mit] nicht geöffnet*  
 there has Peter it with not opened
- (50) a. *Wir haben dafür Geld gesammelt*  
 we have therefor money collected

- b. \**Da haben wir [t für] Geld gesammelt*  
 there have we for money collected

(49) and (50) are to be compared with (45) and (46). The a-examples of (49)–(50) show that the pertinent PPs do not have to be adjacent to the main verb. Yet, there is only one position for a remnant of a PP of the relevant type: a position immediately to the left of the main verb.

Before we try to come to grips with (44) in terms of this condition on preposition stranding, we would like to make some remarks about it. First of all, we repeat that our formulation of the condition is nothing but an approximation couched in observational terms and so is far from being explanatory. Furthermore, even this approximation is not fully correct because it is known that Small Clause predicates, among which directional phrases, preferably occur between a stranded preposition and the verb, although things become more complicated if PP complements of adjectives are considered.<sup>4</sup> Even so, we prefer to stick to our first approximation of the condition, since Small Clause predicates will not play a role in the following discussion.

Now, if we stick to the original (and not fully correct) approximation of the condition to the effect that stranded prepositions must immediately precede the verb, it is possible to give an alternative explanation for the grammaticality of (44), which we repeat here in a slightly more explicit version:

- (51)  $[t_k \text{ gerechnet}]_j$  *hatte Peter da\_i nicht [t\_i mit]\_k* vp;  
 counted had Peter there not with

In (51)/(44) *mit*, the stranded preposition, immediately precedes the trace of the topicalized VP-remnant. The VP-remnant contains a trace and a lexical verb. Therefore, under reconstruction *mit* will precede  $t_k \text{ gerechnet}$ . Suppose now that adjunction traces do not count for phonological visibility. It will then follow that under reconstruction *mit* in (51)/(44) will immediately precede the main verb *gerechnet*, which may explain the grammaticality of (51)/(44).

To sum up the preceding discussion: we have suggested two alternative solutions for the problem posed by the grammaticality of (51)/(44).

- (52) a. Government by a higher verb obviates the restrictions upon extraction out of an adjoined position.
- b. The requirement to the effect that a stranded preposition be adjacent to the verb also holds under reconstruction —

modulo certain provisos — so that the restrictions upon extraction out of an adjoined position are obviated.

One may wonder whether a choice can be made between the two proposals. In fact we do have evidence favoring (52)b.

Consider the following sentence:

- (53) *Er hat noch nicht [das Vorwort davon gelesen]*  
he has yet not the preface thereof read

The PP *davon* can adjoin to higher positions in the sentence:

- (54) a. *Er hat noch nicht [davon<sub>i</sub> das Vorwort t<sub>i</sub> gelesen]*  
b. *Er hat davon<sub>i</sub> noch nicht [das Vorwort t<sub>i</sub> gelesen]*

Both sentences are grammatical although (54)b. is definitely preferred over (54)a. Stranding in the pertinent adjunction positions is ungrammatical:

- (55) a. \**Da<sub>j</sub> hat er noch nicht [[t<sub>j</sub> von]<sub>i</sub> das Vorwort t<sub>i</sub> gelesen]*  
there has he not yet of the preface read  
b. \**Da<sub>j</sub> hat er [t<sub>j</sub> von]<sub>i</sub> noch nicht [das Vorwort t<sub>i</sub> gelesen]*

The crucial example here is (55)a. Its ungrammaticality is not predicted by (52)a. but follows from the adjacency constraint on preposition stranding. The latter constraint predicts that stranded *von* must be adjacent to *gelesen* if we want to get a grammatical result — whether the direct object has been taken out of its VP or not. This prediction is correct:

- (56) a. *Er hat da<sub>i</sub> noch nicht das Vorwort [t<sub>i</sub> von] gelesen*  
he has there yet not the preface of read  
b. *Er hat da<sub>i</sub> das Vorwort noch nicht [t<sub>i</sub> von] gelesen*

(Similarly for topicalization of *da*.)

Now, note that the adjacency requirement as implemented by (52)b. makes a strong claim for complex structures such as those in (53)–(56). It is predicted that VP-remnant topicalization cum preposition stranding will be possible only if the VP has been emptied of all non-verbal material. In so far as we can see, the facts confirm this predication:

- (57)  $[[t_i t_j \text{ gelesen}]_m \text{ hat er } da_k \text{ das Vorwort}_i \text{ noch nicht}]$   
read has he there the preface yet not  
 $[t_k \text{ von}]_j \text{ vp}_m$   
of

- (58) \* $[\text{Das Vorwort } t_i \text{ gelesen}]_k \text{ hat er } da_j \text{ noch nicht } [t_j \text{ von}]_i \text{ vp}_k$   
(59)  $[\text{Das Vorwort } t_i \text{ gelesen}]_j \text{ hat er } davon_i \text{ noch nicht vp}_j$

Although (57)–(59) are harder to judge than simple cases like (51), because of the complex dependencies that play a role here, intuitions about differences in grammaticality among (57)–(59) are clear: (58) is out; (57) — despite its complexity — is in; and (59) is a simple case of VP-remnant topicalization. The difference between (57) and (58) is predicted by (52)b.: if adjunction traces do not count for the adjacency requirement, *von* will be adjacent to the main verb in (57) after reconstruction. (This is not the case in (58). The pair of (58)–(59) shows that preposition stranding is the offending element in (58).

This having been said, we hasten to add that (52)b. can only be the beginning of a solution for the problem posed by sentences such as (51)/(44) or (57). First of all, the adjacency requirement alluded to by (52)b. seems to have the properties of an ordinary government requirement. However, this might imply that a PP headed by a stranded preposition must be adjoined to its own VP, after which the original VP is topicalized. At this moment we do not find this consequence very appealing. Furthermore, the exact properties of the adjacency requirement are not clear to us yet, as we mentioned above. And finally, there is the nagging question of why PPs and NPs demonstrate differential behavior under adjunction. Therefore, we have to leave the preposition stranding structures for further research.

To sum up: we started out with the presentation of an empirical problem with our theory of VP-remnant topicalization in Webelhuth/Den Besten (1989): this theory could not explain why a VP-remnant cannot contain a stranded preposition/postposition. In the current paper we investigated the conditions under which preposition stranding is possible in the larger setting of three additional constructions: *was-für*-split, DP-split and the topicalization of clauses with a gap in them. We found that a trace which does not occur in an argument position has to be directly bound at S-structure, whereas argument traces can be bound under reconstruction. Thus, the proper formulation of the reconstruction mechanism solves the problem that we set out to attack. Since the crucial difference seems to be the arguments vs. everything else it is tempting to relate reconstruction to the  $\theta$ -criterion in some fashion, e.g. by making the  $\theta$ -criterion the trigger of reconstruction. Since a number of other considerations enter into a proper theory of reconstruction — among which a new type of problem concerning VP-remnant topicalization cum preposition stranding which we can hardly say we have fully solved —, we have not attempted to give a formal characterization of this process here.

### Notes

1. We have not been able to evaluate Van Riemsdijk (1989) for the purpose of the present paper anymore.
2. Our argument will in the end actually not be dependent on whether the pronoun was moved to the specifier position or not, as long as it *does* occupy the specifier position at some point of the derivation. Our theory is compatible with a base-generation analysis, although we are not convinced by the arguments in Bennis (1986) that this analysis *has* to be right.
3. There is some uncertainty about the ungrammaticality of (27). This sentence is certainly better than (26) and (28). However, the absolute grammaticality judgement is unclear. We treat it as ungrammatical here, believing that its relatively good status is due to an analogical interpretation with gerundive nominals like *das Bücherlesen* (the reading of books).
4. Compare the pertinent remarks in Koster (1987).

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