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A case of restructuring

0. Introduction

In this article it will be argued that in order to do justice to the peculiar properties of a particular idiomatic construction, it might be necessary to consider restructuring a structure-building operation which assigns additional structure to the construction in question. First, a particular idiomatic construction in Dutch will be analysed and it will be shown that some kind of restructuring is involved. Several alternatives to implement this operation within the Extended Standard Theory framework will be considered and it will be argued that a double structure solution is to be preferred. The article will be concluded with some speculative remarks about possible restrictions on this type of rule, which are necessary in order to develop a restrictive theory of restructuring.

The construction under discussion shows a rather unusual discontinuous pattern. In a sentence such as (1) the underlined parts form one constituent, the object of the verb in underlying structure.

(1) Wat heb jij gekocht voor boeken?
   What have you bought for books
   What kind of books have you bought

The exceptional nature of sentences like (1) will become clear in the course of this article. Before tackling the question what kind of relation exists between which categories in (1), I will start with an analysis of the internal structure of the non-split counterpart of (1).

1. Internal structure I

The non-split counterpart of (1) is given in (2):

(2) Wat voor boeken heb jij gekocht?

The underlined part of the sentence forms one constituent. It is a wh-phrase, moved into COMP from object position. The whole constituent behaves like an ordinary wh-phrase, since it allows movement from COMP-to-COMP, as is shown in (3).

(3) Wat voor boeken denk je dat ik gekocht heb?
   What for books think you that I bought have

With respect to the internal structure of this constituent, there are convincing arguments to consider the noun boeken the head of the whole NP wat voor boeken. If such an NP is a subject of a finite clause, the verb agrees in number with the number of the noun:
(4) Wat voor jongens lopen/*loopt daar?
What for boys walk/walks there
(5) Wat voor jongen *loopen/loopt daar?
What for boy walk/walks there

A similar argument can be construed with reciprocals. The wh-phrase can only function as an antecedent of the reciprocal if the noun is plural:

(6) Wat voor jongens/*jongen heb jij aan elkaar voorgesteld?
What for boys/boy have you to each other introduced
What kind of boys did you introduce to each other

From (4)-(6) it might be concluded that the number of the noun determines the number of the whole noun phrase, exactly as we would expect when the noun is the head of the NP. Another argument concerns the construction with the so-called 'quantitative er' (cf. Bennis 1980). In Dutch it is possible to leave the head of a quantified NP empty, on condition that the sentence contains the quantitative pronoun er which obligatorily binds the empty position within NP. Although for some reason er occurs in the construction under discussion only under specific conditions, the fact that sentences like (7a) are grammatical only if quantitative er is present shows that we have to analyse the empty position as the head of the NP. This empty position corresponds to the position of the noun in (2)-(6).

(7)a. Wat is dat er voor één [e]
What is that there for one
What kind of thing is that
b. *Wat is dat voor één [e]

If we accept that the noun following voor (een) is the head of the NP, we have to consider wat voor an indefinite specifier. I shall argue that wat voor is in fact one complex specifier. The argument is based on the observation that it is not possible to replace one of the component parts by an element of the same categorial class (voor is a preposition and wat is a wh-pronoun):

(8)a. *wat door boeken / *wat aan boeken / *wat van boeken
what by books what to books what of books
b. *welke voor boeken / *wie voor jongens / *dat voor boeken
which for books who for boys that for books

Of course it is possible to replace wat voor as a whole by another wh-specifier such as welke (which):

(9) Welke boeken heb jij gekocht?
Which books have you bought

It would seem that we have enough ground to assume that wat voor is an idiomatic specifier and is part of the lexicon as such. Additional support for this assumption comes from the observation that the singular indefinite determiner een may appear in this construction without affecting the number of the following noun. This again points to a frozen, idiomatic specifier. Note that een cannot be replaced by any other determiner or quantifier:

(10) wat voor een boek(en) / wat voor een jongen(s)
what for a book(s) what for a boy(s)
(11) *wat voor de jongen / *wat voor twee jongens / *wat voor enkele jongens
what for the boy  what for two boys  what for some boys

From these considerations it might be concluded that the internal structure of the constituent *wat voor (een) boeken is as indicated in (12):

(12)  
NP 
SPEC+wh
wat voor (een) boeken

2. Internal structure II

The second construction which is relevant for the present investigation shows the result of wh-movement of wat into COMP, leaving the rest of the NP behind in its original argument position:

(13) Wat heb jij voor boeken gekocht?
what have you for books bought

From (13) it follows that wat must be a separate constituent, since movement can only be applied to constituents. The most plausible candidate for the categorial status of wat is NP. In addition to the fact that in most instances wat is a question pronoun and consequently an NP, a further argument may be derived from sentences such as (14):

(14) De gedachte aan wat de krakers voor schade zouden veroorzaken,
The thought of what the squatters for damage might cause,
weerhield de gemeente van ontruimen
kept the council from ejecting (them)

In this sentence the preposition aan is followed by a free relative clause, introduced by wat. Following the theory of free relatives by Groos & Van Riemsdijk (1981), the constituent in COMP of the free relative clause (wat) must be an NP in order to fulfil the matching condition*. When we incorporate this into (12), we arrive at (15):

(15)  
NP 
SPEC+wh
wat voor (een) boeken

A sentence like (13) could be viewed as resulting from wh-movement of the NP wat out of the constituent wat voor boeken. However, there are at least three problems with such an analysis. First, this extraction violates a principle like the Left Branch Constraint, which prevents wh-movement of specifiers. A condition with the effect of the LBC is necessary in order to prevent the derivation of sentences such as (16):

(16) *Wiens heb jij boeken gelezen?
Whose have you books read
*Welke heb jij boeken gelezen?
Which have you books read
The second problem has to do with the violation of Subjacency that arises when 
wat is moved from an NP-internal NP-position to COMP. This movement operation 
results in a configuration with two relevant boundaries between wat and its 
trace (S and NP), as is illustrated in (17).

(17) \[ S \{ S \{ \text{wat}_i \} \text{heb}_1 \{ \text{ij}_i \} \text{voor}_i \text{boeken}_i \} \text{gelezen}_i \} \]

A third problem for this kind of analysis is the impossibility of wat-extraction 
when the whole NP occupies the subject position:

(18) *Wat hebben voor mensen dit boek gelezen?
What have for people this book read

(19) Wat voor mensen hebben dit boek gelezen?

It appears that extraction of the whole subject NP is possible, as shown by (19) 
but subextraction of wat is not, as (18) shows (cf.Den Besten 1981). Subextraction 
of wat out of the subject NP is possible only if the relevant NP does not 
occupy the subject position, as in (21).

(20) *Wat zijn voor mensen gekomen?
(21) Wat zijn er voor mensen gekomen?
What are there for people come

In (21) the expletive pronoun er occupies the subject position, making subextraction 
of wat possible. There is no way to explain this fact in a straightforward way within a subextraction analysis.

These three problems indicate that a different analysis might be called for. 
An alternative to the analysis in (15) will be provided below, which will be 
based on the analysis provided for sentences such as (1).

3. Internal structure III

Sentences such as (22) (=1) also constitute a problem from a different per-
spective.

(22) Wat heb jij gekocht voor boeken?

Since Dutch is best analysed as a verb final language (cf.Koster 1975), the 
object precedes the verb. The only constituents which may appear after the 
verb are PP and S. Superficially the constituent voor boeken in (22) looks 
like a normal PP, extraposed to a position after the verb. However, in the 
previous paragraphs I have shown that there exists ample evidence that voor 
belongs to a complex idiomatic specifier and does not behave like a regular 
preposition in a productive way. There is no evidence that voor boeken in a 
sentence such as (2) is a PP within the whole NP wat voor boeken. There are 
two conceivable solutions to the problem of the postverbal position of 
voor boeken. Either we consider voor boeken an NP from which wat is extracted, 
regardless of the general prohibition against arguments following the verb, 
or we analyse voor boeken as a PP in spite of the lack of evidence of this 
PP status. The first solution is not very attractive. Apart from the 
fact that sentence (22) would create a violation of the very regular Dutch 
word order pattern, it would lead to the false prediction that sentences like 
(23c) are grammatical.

(23)a. Wat een boeken heb jij gekocht!
What a books have you bought
b. Wat heb jij een boeken gekocht!
c. *Wat heb jij gekocht een boeken!
In these sentences wat is part of another idiomatic construction with an exclamative interpretation. Just as in (2), the whole exclamative NP can be fronted, as shown by (23a). Just as in (13), wat can be extracted out of the NP. This is illustrated in (23b). However, the counterpart of (22) is the ungrammatical sentence (23c). This ungrammaticality is what we expect when we stick to the analysis that NP's cannot be extrapoosed to a position after the verb. If we depart from that position with respect to a sentence such as (22), there is no reason why a sentence like (23), which is in most syntactic aspects similar to the construction under discussion, would not allow extrapolation. The principal difference between (22) and (23c) is the presence of the preposition in (22). If we assume that voor boeken in (22) is a PP, the difference between (22) and (23c) is easily explained by the fact that only PP and not NP can appear in a position after the verb.

Let us assume that voor boeken in (22) is a prepositional phrase. Then the question arises where this PP comes from. It is obvious that this PP has to be interpreted as part of the idiomatic construction. The same restrictions on the occurrence of determiners and quantifiers apply after PP-extraposition, as is demonstrated in (24).

(24) Wat heb jij gekocht voor ∅ / een/*de/*twee/*enkele boeken?
What have you bought for ∅ / a /the/ two / some books

From these considerations it follows that the most probable internal structure before extrapolation is as in (25):

```
(25) NP
   /\         /
  /   \      /   \        /
 NP   PP    SPEC N  N
     +wh    wat voor (een) boeken
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Thus it appears that there are valid arguments in favour of both configuration (15) and configuration (25). However, the choice of one of these two leads to incompatibility with the subclass of facts for which the other structure is postulated.

4. Restructuring

The obvious solution to the problem of one constituent receiving two different structural analyses is that a restructuring process takes place, in such a way that all relevant facts can be derived before or after restructuring. This restructuring process has to change (15) into (25) and not the other way around, since it can be argued that wat voor constitutes one composite lexical item. By means of restructuring D-structure (26) is turned into structure (27):

(26) D-structure : [NP [SPEC [NP wat ] voor (een) ][N boeken] ]
(27) Restructuring I : [NP [wat ][PP [voor ][NP [SPEC een ][N boeken ]]] ]

In this approach, Restructuring is a 'directional' process. It expresses the intuitively attractive idea that, after restructuring, an idiomatic structure has changed into a regular structure. An NP such as (27) is structurally
similar to a regular NP, which consists of a head and a PP-complement. The main change concerns the preposition voor, which does not function as a regular preposition in (26), but is reinterpreted as a normal preposition governing an NP-complement. This NP-internal restructuring does not solve the problems mentioned above with respect to subextraction of wat. To accommodate this fact, I assume that a second restructuring process takes place, which changes (27) into (29).

\[(28)\] Restructuring II: \[NP_{wat}[\text{pp}_{p_voor}[NP_{\text{SPEC}}_{\text{een}}][\text{N}_{\text{boeken}}]]\]

The second restructuring operation, which removes the outmost NP-brackets, is less controversial. Several people (for example, Chomsky 1977) have proposed this as a solution to the problem of PP-movement out of NP in order to avoid a violation of Subjacency. These proposals are designed to account for such sentences as (29):

\[(29)\] Van Vestdijk heeft hij \[NP_{\text{twee boeken t}}\] gelezen

By Vestdijk has he two books read

If we assume this second restructuring operation to be correct, the three problems referred to in section 2. of this paper are solved. No violation of the Left Branch Constraint nor of Subjacency would arise if wh-movement of wat is applied to a structure like (28). The ungrammaticality of partial extraction from subject position is possibly due to the impossibility of the application of Restructuring II to the subject position, on the assumption that the structure which is the result of of a restructuring operation should be a configuration which can be generated by the base rules independently.

Although the assumption of these two restructuring processes provides the structural information necessary to derive all relevant facts without any further appeal to construction specific rules, the resulting grammar is only descriptively adequate. From an explanatory point of view it is unsatisfactory. The main problem is how to account for the fact that a speaker of Dutch, when hearing a sentence such as (1), knows that this sentence contains an idiomatic construction, although the sentence has all the characteristics of a regular construction.

In general, the Projection Principle as formulated in (30) ascertains that at each relevant level the idiosyncratic properties of lexical items are preserved in order to be able to retrace these lexical properties in derived configurations.

\[(30)\] Projection Principle: Representations at each syntactic level (i.e. Logical Form, D- and S-structure) are projected from the lexicon, in that they observe the subcategorization properties of lexical items

(Chomsky 1981, p.29)

In the matter of the restructuring processes discussed above, there is no information whatsoever in the derived structure that an idiomatic construction is involved. Consequently restructuring seems to constitute a violation of the Projection Principle (30), at least as far as the intention of this principle is concerned. In order to come to terms with this it might be proposed to change the status of the Projection Principle. Note that the relevance of the Projection Principle is restricted to that part of the grammar that is involved in the relation between Lexicon and Logical Form. Consequently it includes the intermediate levels of D-structure and S-structure.

Only this part of the grammar is relevant because the Projection Principle is motivated by the idea that a speaker of a certain language, who knows the properties of lexical items, is able without further specification to produce
the relevant aspects of Logical Form, as these properties are preserved through the whole derivation. It seems clear that at the level of Phonetic Form (PF) the Projection Principle does not hold. Several local deletion rules do not observe the principle, although they observe another, conceptually comparable principle, the principle of Recoverability of Deletions. Given the assumption that the Projection Principle is relevant only to the relation between Lexicon and Logical Form, it follows that the degree of relevance of this principle is dependent on the organisation of the model of the grammar. In the T-model as in (31a), proposed in Chomsky 1981, the Projection Principle holds at D-structure and S-structure, since these two levels mediate between the Lexicon and Logical Form. However, in a model like the L-model in (31b), proposed by Van Riemsdijk and Williams (1981), it is by no means clear that at S-structure the Projection Principle should be observed. It is even conceivable that another model might be proposed, in which Logical Form is derived from D-structure without intervening levels (31c). In that case it might be argued that the Projection Principle has no bearing at movement rules at all.

(31) a. \[
\text{Lex} \quad | \quad \text{D-str} \quad | \quad \text{S-str} \quad | \quad \text{PF} \quad | \quad \text{LF}
\]
b. \[
\text{Lex} \quad | \quad \text{D-str} \quad | \quad \text{NP-str} \quad | \quad \text{Logical Form} \quad | \quad \text{S-str}
\]
c. \[
\text{Lex} \quad | \quad \text{D-str} \quad | \quad \text{LF}
\]

It might be possible to avoid a violation of the Projection Principle in the case of restructuring by performing the operation of restructuring on a level to which the Projection Principle is not relevant. Given the fact that restructuring has to take place before the application of wh-movement, since wh-movement operates on the output of restructuring, as shown by examples (1) or (13), the L-model (31b) might be favoured, because in this model restructuring can be ordered before wh-movement without problems.

This approach is not very satisfactory either and does not lead to explanatory adequacy. One of the basic notions of generative grammar is that no directionality is involved. Generative grammar is not designed to be a model of a sentence generator or a parsing machine, but rather a model that represents the abstract knowledge of the structure of human language. In the course of the development of generative grammar a number of different principles have been proposed to guarantee this undirectionality. Principles like Trace Theory, Recoverability of Deletions, Conditions on Transformations have the effect to restrict the operational power of the grammar in order to prevent unrecoverable operations. This tendency might be generalized by a principle such as (32).

(32) At any level of the Grammar $L_i$ any distinct level $L_j$ should be construable by means of grammatical principles

It should be noted that a principle like (32) does not replace any of the principles formulated in the literature, it only functions as a general constraint, requiring several, more restrictive principles to achieve the desired effect. The Projection Principle, just as Recoverability of Deletions, can be regarded as one of those more restrictive principles. If we accept this leading idea, the proposal to order Restructuring after the domain of the grammar to which the Projection Principle is relevant has no explanatory force, since it still is in conflict with principle (32).
For this reason I want to consider another possibility to integrate the process of restructuring discussed above within the grammar, without violating principle (32). The idea is to view restructuring as the assignment of additional structure to the structure to which restructuring is applied. The process of Restructuring I as formulated in (27) might be conceived of as the assignment of the derived structure indicated in (27) to the D-structure in (26). This can be represented by a 'double tree' as in (33).

A close look at (33) will make it clear that no lexical property is lost and that, consequently, neither the Projection Principle nor Principle (32) are violated. Movement rules can apply to I as well as to II in (33), giving the correct results. However, allowing this type of operation in the grammar increases the power of the grammar considerably. In order to restrict the applicability of this structure building operation, several constraints might be proposed. It is not my purpose to offer a general theory of restructuring, but I will consider several conceivable restrictions as a preliminary outline of what such a theory would look like. The main idea is to restrict restructuring to structures that contain complex lexical items which can be considered to be semantic units. Verb-preposition combinations and verb-particle combinations are relevant instances of this type of lexical items.

The following restrictions are conceivable:
- adjacency; this implies that no irrelevant categories should intervene between the elements to be restructured
- no change of the categorial status of the lexical categories involved
- no change of the categorial status of the minimal maximal projection in the domain of which the assignment of additional structure applies
- no addition of (empty) lexical categories
- the additional structure can be generated by the base rules independently

This leads to a system in which an irregular or idiomatic construction, consisting of contiguous elements, can be turned into a seemingly regular configuration, while restructuring the other way around is excluded.

Let us now consider some of the consequences of this proposal. 'Double' structures like the ones given in (34) are impossible configurations, given the restrictions provided above.
The structure in (34a) is impossible because of the change in lexical category which turns V into P. Structure (34b) contradicts the requirement that the minimal maximal projection should be left unaltered. In (34c) a category NP is introduced by restructuring, and the restructuring operation in (34d) results in a configuration that cannot be generated by the base rules (*VP → V-VP and *VP → P-NP).

On the other hand, the well known phenomenon of preposition stranding (cf. Van Riemsdijk 1978, Hornstein & Weinberg 1981) fits into this system nicely, although the predictions concerning the way of restructuring differ somewhat from the existing proposals. Given the required adjacency of constituents to be restructured, it is predicted that preposition stranding only occurs in an SVO-language like English and not in an SOV-language like Dutch, since in Dutch the preposition is not adjacent to the verb, at least not in D-structure. In this framework the analysis of preposition stranding will be as follows. Before restructuring the V-P combination constitutes a complex V (V'), which is interpreted as some kind of semantic unit. Restructuring adds to this structure a regular V-PP sequence:

A similar type of double structure assignment appears with more complex cases like take advantage of NP. The whole phrase take advantage of is accommodated in the lexicon as a complex transitive verb. To this structure a regular V-NP-PP configuration might be added:

The correct prediction is that on both trees NP movement can be applied. This results in the following sentences:

(37) a. John was taken advantage of
    b. Advantage was taken of John

When we turn back to our starting point, the wat voor construction, it is clear that the double tree in (33) is not enough to account for all the relevant facts. It was argued that a second restructuring process (Restructuring II in (28)) is
involved. This restructuring process seems to fit in with the solution of the assignment of additional structure. After the application of the second restructuring operation to the configuration that resulted after the first restructuring process represented in (33), we end up with a 'triple tree' as in (37).

(37)

Notes

1) The quantitative use of the pronoun er in a sentence such as (a) has to be distinguished from prepositional er (b), expletive er (c) and locative er (d).

(a) Ik heb er drie (I have there three; I have three of them)
(b) Ik zit er op (I sit there on; I sit on it)
(c) Er zingt niemand (There sings nobody; Nobody sings)
(d) Ik woon er (I live there)

2) The matching condition requires the categorial status of the wh-phrase in COMP of the free relative clause to be the same as the categorial status of the whole free relative clause as required by the matrix clause. In (14) the preposition aan requires an NP-complement. Therefore the wh-phrase must be an NP.

3) The basic idea of a double structure solution has been suggested to me by Henk van Riemsdijk. In a class-lecture (1981) Riny Huybregts proposed a more or less comparable solution with respect to reflexivization in Dutch.

References

BENNIS, H.

DEN BESTEN, H.

CHOMSKY, N.
1981 Lectures on Government and Binding, Foris Publications, Dordrecht

GROOTS, A. & H. VAN RIEMSDIJK
HORNSTEIN, N. & A. WEINBERG
1981 Case theory and preposition stranding, in: Linguistic Inquiry 12,1

KOSTER, J.
1975 Dutch as an SOV-language, in: Linguistic Analysis 1, 111-136

VAN RIEMSDUIK, H.
1978 A case study in syntactic markedness, Foris Publications, Dordrecht

VAN RIEMSDUIK, H. & E. WILLIAMS
1981 NP-structure, in: The Linguistic Review 1,2