Best wishes -
Norbert

THE SYNTAX OF LEFT BRANCH EXTRACTIONS

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PROEFSCHRIFT

ter verkrijging van de graad van
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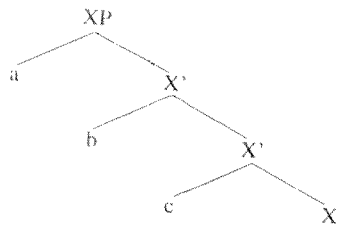
1 INTRODUCTION

The central problem considered in this study is the problem of the extractability of left branch constituents, based primarily on research on the syntax of Dutch and English. More in particular, this study undertakes the investigation of the movement properties of left branch complements, modifiers and specifiers that are contained within noun phrases, adjective phrases and prepositional phrases. In terms of tree diagram (1), "the left branch problem" concerns the question when the left branch positions **a** (specifier), **b** (modifier) and **c** (complement) can be related by a transformational rule to a position outside XP.

(1)



Ross (1967) was the first who investigated the accessibility of left branch constituents to transformational operations. He observed the frozen character of certain left branch specifiers and modifiers in English. In order to account for the immobility of these elements, he proposed his Left Branch Condition. Up to recent years, the syntax of left branch extractions in languages such as English and Dutch has not been subject to extensive study in the generative framework. Although various attempts have been made to explaining many of Ross's island constraints (e.g. Complex NP Condition, Sentential Subject Condition, etc.) in terms of more general, unifying principles, far less alternative analyses have been proposed for giving a more satisfactory solution of the effects covered by the Left Branch Condition.

The theoretical framework which forms the background of this study of the syntax of left branch extractions is the **Government and Binding Theory**, the theory of grammar developed in Chomsky (1981, 1982, 1986a, 1986b) and the references cited therein. This theory of generative grammar, which gives a characterization of the speaker's linguistic competence, makes the following important assumptions. First, it is assumed that the wellformedness of a syntactic structure is dependent on the interaction of general principles rather than construction specific rules. Second, there exists a 'Universal Grammar' (UG), from which the grammar of a particular language is derived by parameter setting. Third, UG has a modular structure.

According to the first property, the speaker's linguistic competence should not be characterized through a set of language specific rules (e.g. phrase structure rules, passive transformation, topicalization transformation etc.), but in terms of general linguistic wellformedness principles that apply blindly to syntactic

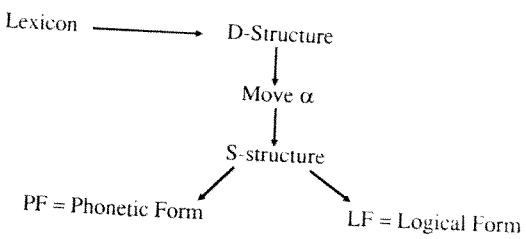
structures or syntactic rules. By postulating a powerful system of principles, the rule system is essentially reduced to general rule schema's such as "Move alpha" (where alpha stands for any syntactic category) and "Coindex".

The second property refers to the conception of UG as a system containing a set of universally valid structural conditions, from which specific core grammars can be derived by fixing the parameters (= options: the presence or absence of a certain value) of the conditions. The parametrizability of syntactic conditions accounts for the interlingual differences. UG narrowly restricts the class of possible grammars which a child can infer on the basis of environmental data. The ultimate goal of the theory of generative grammar, as conceived of in this study, is to specify and discover the nature and the structure of this universal system, so that the facts of the attainment of linguistic knowledge can be accounted for.

The last property, 'modularity', refers to the internal and the external organization of the grammar. It is assumed that UG consists of a restrictive and highly structured system of autonomous subcomponents (modules) of rules and principles, with some specific open parameters to allow for language particular variation. The linguistic phenomena fall out from the interaction of these different subcomponents. The following subcomponents can be distinguished: X-bar theory, government theory, theta-theory, case theory, bounding theory, binding theory and control theory (cf. Chomsky (1981, 1982, 1986a)).

The organization of the grammatical system presupposed in this study is the following:

(2)



The lexicon contains information about the abstract morphophonological structure, the argument structure and the syntactic features (categorial and subcategorization) of each lexical item. D-structure is determined by X-bar theory and (theta-marking) properties of lexical items. It is mapped onto S-structure via the application of Move alpha. This level of syntactic representation is interpreted in turn by Phonetic Form (PF), the 'sound end' of the system, and Logical Form (LF), the 'meaning end' of the system.

Let us now place the left branch extraction problem against this theoretical background. Being an investigation of the movement properties of left branch complements, modifiers and specifiers, this study focuses on the syntactic process Move alpha and the government and bounding modules. Although the

Move alpha process has been studied extensively with respect to complements and VP-adjuncts, it has not been studied in a detailed manner with respect to the empirical domain of left branch specifier and modifier extractions from within noun phrases, adjective phrases and prepositional phrases. Therefore, it is interesting to see whether the system of principles (such as the Subjacency Condition and the Empty Category Principle) motivated by the study of complement and VP-adjuncts extractions broadens its scope to the above-mentioned left branch specifier and modifier extraction phenomena.

The general organization of this study is as follows. I will start in chapter 2 with the historical background of the left branch extraction problem. Chapter 3 deals with the internal structure of noun phrases, adjectival phrases and prepositional phrases, with emphasis on a number of constructions that play an important role in later chapters. It will be argued among others that determiners and degree words head a functional maximal projection (Determiner Phrase and Degree Phrase, respectively). Chapter 4 discusses a construction which has often been analyzed in the linguistics literature as involving a syntactic left branch quantifier movement operation, namely the so-called subcomparative construction. The main purpose of this chapter will be to show that no left branch movement process underlies this syntactic construction. Chapter 5 is devoted to the analysis of split and non-split *wat* ('what')-exclamative constructions in Dutch. It will be shown that the non-split pattern is derived by wh-movement of the entire exclamative phrase. With respect to the split pattern, however, it will be argued that it should not be described in terms of syntactic wh-movement of a left branch exclamative element *wat* to the [Spec,CP] position. Instead, it will be argued that *wat* is base-generated in [Spec,CP] and functions as a lexically realized exclamation morpheme in the sense of Baker (1970). In chapter 6, I examine a particular type of interrogative noun phrase in Dutch, the so-called *wat voor een N*-phrase (literally: what for a N; meaning: 'what kind of N'). The internal syntax of this noun phrase will be studied, as well as the exceptional possibility of sub-extracting the left branch wh-element *wat* from within this particular type of noun phrase in Dutch. Chapter 7 discusses the movement behavior of determiners, degree words and possessors. It will be argued that the inaccessibility of determiners and degree words to transformational movements is due to their head status. It will further be shown that the determiner-position plays an important role in the frozen character of left branch possessors as well. Chapter 8 primarily deals with extractions of various types of left branch constituents from within Degree Phrases and APs. In chapter 9, I investigate the extractability of left branch constituents from within PPs. Chapter 10 provides an analysis of various types of left branch extractions out of noun phrases. In this chapter, I will also address the issue why left branch constituents contained within noun phrases are more easily accessible in Slavic languages such as Polish and Czech. It will be argued that this greater accessibility is a consequence of the absence of a DP-projection in these languages.

2 HISTORICAL BACKGROUND OF THE LEFT BRANCH EXTRACTION PROBLEM

2.1 Introduction

In this chapter I will outline the historical background of what I call the left branch extraction problem, i.e. the problem why certain left branch constituents are inaccessible to movement operations and why others can undergo movement. I will pursue by focusing on different approaches to this problem within the generative linguistics literature. This historical overview will present various types of left branch effects which will be dealt with in later chapters of the present study. It starts in the next section with Ross's (1967) Left Branch Condition, which was one of the first attempts within transformational generative grammar to account for the immobility of left branch constituents in English.

2.2 A linear requirement

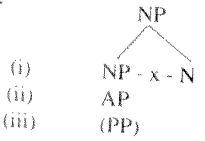
In Ross (1967)[1] the frozen character of left branch constituents in English was noticed. In order to account for this phenomenon he proposed his Left Branch Condition:

(1) Left Branch Condition (LBC)

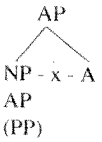
No NP which is the leftmost constituent of a larger NP can be reordered out of this NP by a transformational rule

According to this condition the linear property of "leftmostness" is a syntactic factor determining the nonextractability of certain NPs. Notice also that this formulation does not refer to the satellite status of the left branch elements, i.e. whether the left branch constituent is a complement, adjunct or specifier. Since complements always occur on right branches in English, the LBC will never apply to them. As a consequence of this, the LBC is often considered to be a constraint solely on left branch modifiers and specifiers. It should further be said that Ross analyzes adjective phrases and prepositional phrases as noun phrases. Translating Ross's categorial system into the one generally assumed nowadays, the LBC predicts that the left branch constituents (NP, AP, PP) in the following structures are nonextractable in English (where x is a variable that may be filled or empty).

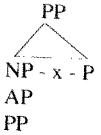
(2) a.



b.



c.



Two of these structures are simply not generated at D-structure in English and therefore cannot form "input" to the LBC, viz. the sequences *PP - x - N* and *PP - x - A*. PPs (both complements and adjuncts) only occur to the right of nominal and adjectival heads in English (e.g. *proud [of Mary]*, *popular [in the Netherlands]*, *the destruction [of the city]*, *the man [with the beard]*). Given the fact that they are on a right branch, the LBC does not apply to them.[2]

I will now consider some facts that can be explained in terms of the LBC. Consider, for example, the following sentences in which a left branch possessor NP is fronted (see structure (2a (i))).

(3) a. John saw [[[the minister's] wife's] dog]
b. * Whose$_i$ did you see [[[t]$_i$ wife's] dog]?
c. * Whose wife's$_i$ did you see [[t]$_i$ dog]?
d. Whose wife's dog$_i$ did you see [t]$_i$?

Sentence (3b) is excluded by the LBC, because the NP *whose* has been reordered from the leftmost position of the lower NP *whose wife's*. The NP *whose wife's* cannot be moved to the front of the sentence either, because in that case the leftmost NP contained in the highest NP *whose wife's dog* is extracted. So, if you front the possessor NP, the dominating NP must be carried along. In other words, the LBC imposes obligatory pied piping in such structures.

Ross notices that not only leftward movements but also rightward movements (heavy NP shift) are subject to the LBC. He gives the following examples (his (4.188)):

(4) a. We elected [t]$_i$ president [the boy's guardian's employer]$_i$
b. * We elected [[t]$_i$ employer] president [the boy's guardian's]$_i$
c. * We elected [[[t]$_i$ guardian's] employer] president [the boy's]$_i$

In (4a), the entire NP *the boy's guardian's employer* has been moved to the end of the sentence. In (4b), movement of the leftmost NP *the boy's guardian's*, which is contained in the dominating NP *the boy's guardian's employer*, is prohibited by the LBC. This condition also rules out (4c), in which the leftmost NP *the boy's* is extracted out of the NP *the boy's guardian's*. In short, rightward movement of a possessor NP carries along the dominating NP.

Since Ross regards APs as NPs, the LBC also accounts for the ungrammaticality of the examples in (5), in which an AP is removed from within a structure corresponding to the one given in (2a (ii)).

(5) a. * That expensive$_i$ did John buy [t$_i$ a picture by Dali]!
b. * How expensive$_i$ did John buy [t$_i$ a picture by Dali]?

Ross assumes that "NPs" like *that expensive* and *how expensive* are base-generated in a pre-determiner position. As such, they are the leftmost

elements within the dominating NP. Therefore, fronting these constituents violates the LBC.

The ill-formedness of the following facts is also explained by the LBC given Ross's assumption that degree words like *how* and *that* are NPs as well (see structure (2b (ii))).

(6) a. * How$_i$ is John [t_i tall]?
b. * That$_i$ John certainly is [t_i tall]!
c. * How$_i$ did John open the door [t_i slowly]?
d. * That$_i$ John opened the door [t_i slowly]!

Of course, these sentences are well-formed if the more inclusive structure is carried along in the movement of the degree word:

(7) a. How tall$_i$ is John t_i?
b. That tall$_i$ John certainly is t_i!
c. How slowly$_i$ did John open the door t_i?
d. That slowly$_i$ John opened the door t_i!

Ross only discusses extraction patterns as in (3), (4), (5) and (6) to illustrate the explanatory force of the LBC. So, many of the potential left branch extraction patterns given in (2) are not discussed. But as we will see soon, some of these left branch extraction patterns falsify the LBC. Before turning to these patterns, I will make a more general point of criticism concerning the idea that the linear property of "leftmostness" is the crucial factor determining the nonextractability of a constituent.

Recall that the formulation of the LBC incorporates the claim that the left-to-right (i.e. linear) order is a crucial factor for the extractability of a left branch constituent. It says that in a string [x - y - z -N], where x is leftmost, x is the only element which is inaccessible to a transformational operation. In other words, the LBC does not account for the impossibility of extracting the left branch elements y and z in the given string. Thus, the ungrammaticality of the following sentences cannot be explained in terms of the LBC:

(8) a. * Very pretty$_i$ I saw [John's t_i daughter]!
b. * Very intelligent$_i$ I met [several t_i girls]!

In (8a), *very pretty* is not the leftmost constituent of the containing NP. Hence, its frozen character is not accounted for in terms of the LBC. The same holds for (8b). The AP *very intelligent* is not the leftmost constituent within the dominating NP and consequently its nonextractability does not follow from the LBC. Of course, it is possible that different syntactic requirements account for the ungrammaticality of these sentences. But given the similar status of the extracted elements in (5) and in (8) (i.e. both are attributive APs), it seems plausible that a common factor underlies the nonextractability of these elements. Thus, it seems that reference to leftmostness is too weak.

Turning now to some of the potential left branch extraction patterns in English that are not discussed by Ross, it turns out that certain left branch reorderings are permitted, which is not predicted by Ross's formulation of the LBC. Consider, for example, left branch extraction patterns from within PP. The PPs in the examples (9a,b) contain a left branch AP (*far*) and a left branch NP (*two miles*) respectively.

(9) a. John went [[far] into the woods]
b. John went [[two miles] into the woods]

Recall that in Ross's framework reordering of these phrases involves extraction of a leftmost NP from within a containing NP, given the fact that he analyzes AP and PP as NP. So, subextraction of the left branch modifiers from within the dominating PP (= Ross's NP) would yield a LBC-violation. The following sentences, however, show that this left branch reordering out of PP is permitted in English.

(10) a. How far$_i$ did John go [t_i into the woods]?
b. How many miles$_i$ did John go [t_i into the woods]?

This means that Ross's LBC is too strong. It rules out structures which are well-formed.

Notice that removal of the entire PP (i.e. NP for Ross) is possible as well.

(11) a. How far into the woods$_i$ did John go t_i?
b. How many miles into the woods$_i$ did John go t_i?

A question construction like (11a) is derived as follows in Ross's framework. The wh-phrase *how* is the target of the transformational rule that builds wh-interrogative structures. Removal of *how*, which is an NP in Ross's analysis, from within the containing phrase *how far*, which is also considered to be an NP, would violate the LBC:

(12) * How$_i$ did John go [[t_i far] into the woods]?

In other words, the LBC imposes obligatory pied piping of *far* when the wh-phrase *how* is fronted. Removal of the "NP" *how far* from within the containing "NP" *how far into the woods* also imposes pied piping of *into the woods*.

A last issue I will discuss with regard to Ross's LBC is its status as a principle of UG. It turns out that the LBC is violated in many languages to a greater or less extent. Ross, in fact, realized that the LBC could not be universal.[3] As he pointed out himself, the accessibility of left branch elements inside noun phrases to transformational rules is extremely free in Slavic languages. Consider, for example, the following examples from Czech:

(13) a. Jakou$_i$ čte Petr [t_i knihu]?
Which-ACC reads Peter book-ACC
'Which book is Peter reading?'

b. Její$_i$ čte Petr [t_i knihu]!
Her-ACC reads Peter book-ACC
'Her book Peter is reading!'

c. Jak pěkná$_i$ Jan potkal [t_i děvčata]?
How beautiful-ACC John meets girls-ACC
'How beautiful girls does John meet?'

Besides subextraction of the left branch constituent, it is possible to front the entire NP.

(14) a. Jakou knihu$_i$ čte Petr t_i?
b. Její knihu$_i$ čte Petr t_i?
c. Jak pěkná děvčata$_i$ potkal Jan t_i?

For certain non-Slavic languages it has been observed that left branch reordering from noun phrases is possible as well to a certain extent. Consider, for example, the following sentences taken from the literature:[4]

(15) a. Combien$_i$ a-t-il vendu [t_i de livres]? (French)
How-many has he sold of books
'How many books did he sell?'

b. Wat$_i$ heeft hij [t_i voor romans] geschreven? (Dutch)
What has he for novels written
'What kind of novels has he written?'

Left branch constituents within adjective phrases are also accessible to movement operations in certain languages. This is exemplified in (16).[5]

(16) a. Jak$_i$ je Jan [t_i vysoký]? (Czech)
How is John tall
'How tall is John?'

b. ¿Cómo dices que es [t_i de inteligente]? (Spanish)
How (you) say that (he) is of intelligent
'How intelligent do you say he is?'

c. Cît$_i$ e Maria [t_i de frumoasă]! (Rumanian)
How is Mary of beautiful
'How beautiful Mary is!'

The sentences in (15) and (16) have the following pied piped variants:

(17) a. Combien de livres a-t-il vendu?
b. Wat voor romans heeft hij geschreven?

(18) a. Jak vysoký je Jan?
b. ¿Cómo de inteligente dices que es?
c. Cît de frumoasă e Maria!

As for the Slavic languages, the question arises why these differ in such a striking way from the Romance and Germanic languages. As for those languages in which only a limited set of left branch constituents is accessible to move alpha, the question is raised why only this small set is reorderable.

In conclusion, there are certain problems on the observational level with Ross's proposal to constrain the extractability of left branch elements in terms of his LBC. These problems also appear to resist certain reformulations of his proposal that have been proposed in the literature.

Emonds (1976, 1980, 1985), for example, has proposed various reformulations of Ross's LBC. His latest version of the LBC is the following:

(19) **Generalized Left Branch Condition** (Emonds (1985))[6]

No syntactic phrase Ci to the left of the lexical head of an X^2 can be analyzed as a Ci by a transformation

Like Ross LBC, the GLBC states that the (linear) syntactic property of being to the left of the head of a phrase is the relevant factor that accounts for nonextractability. Emonds's (1985) reformulation differs from Ross's original LBC on two points, however. First, Emonds's GLBC makes reference to constituents that are to the left of heads of all lexical types, i.e. N, A, P and V. In other words, not only left branch elements contained within NP, AP or PP (i.e. in Ross's system: NP) are involved, but also left branch constituents within VP are inaccessible to transformational operations. Second, Emonds's GLBC refers to all material to the left of the head of a phrase, and not only to the constituent which is leftmost of the head of a phrase, as Ross's LBC does. One of the advantages of making reference to all the material to the left of the head is that it accounts for the ungrammaticality of the examples in (8). The GLBC, namely, states that in a string [x - y - z - H], where H is a head, neither x nor y or z are accessible to transformational operations. Recall that according to Ross's formulation of the LBC only x is inaccessible to movement.

Notice that the GLBC given above incorrectly rules out left branch extractions from PPs. In fact, in earlier reformulations of the LBC (Emonds (1976, 1980)), Emonds explicitly stated that P did not belong to the class of heads which do not permit removal of left branch elements.[7] Take, for example, his (1980) formulation:

(20) **Generalized Left Branch Condition** (Emonds (1980))

No syntactic phrase C to the left of the lexical head (N, A, V) of a larger phrase is analyzable as C.

Of course, although the condition in (20) allows left branch extractions from PPs, it does not give any principled account of why P does not belong to the set of heads which do not permit removal of elements to their left. It is merely a stipulation.

Emonds's versions of the GLBC also meet the problem of lack of generality with regard to the number of languages covered by this principle. The data from Slavic languages are also problematic under this formulation of the Left Branch Condition. With respect to the sporadic left branch extractions from NPs in certain Romance and Germanic languages (e.g. *combien*-extraction), he argues that these are **non-phrasal** morphemes and therefore are not subject to the GLBC. In other words, left branch word-level categories are accessible to movement operations. The question, of course, arises what evidence we have in support of the claim that constituents like *combien* are non-phrasal. The fact that these elements do not take complements or cannot be modified cannot be adduced as arguments in favor of a non-phrasal analysis. If absence of complements and modifiers would be considered a diagnostic criterion for X-zero bar-level status, determiners (e.g. *the, a, this*, etc.) should be analyzed as non-phrasal categories as well (at least within a traditional noun phrase analysis). That in turn would lead to the incorrect prediction that determiners, being non-phrasal categories to the left of a head, can be reordered out of an NP too.

Notice furthermore that in present linguistic theory it is often assumed that only maximal projections can move to the initial position of a clause, i.e. the specifier of CP. In other words, an X^o cannot be moved in the specifier position. So, if *combien* is a word level category there would not be a landing site for this element when it is fronted.

Notice, finally, that the GLBC makes the incorrect prediction that SOV languages like Dutch and German do not allow any extraction from VP (= V^2 in Emonds's X-bar theory), since in those languages both complements of the verb and VP-adjuncts occupy a VP-internal position to the left of the lexical head V. Of course, this prediction is incorrect, as is illustrated by the following examples from Dutch, in which a complement (21a) and an adjunct (21b) are moved to the [Spec,CP] of the embedded clause.[8]

(21) a. Ik weet niet [wat$_i$ [$_S$ jij [$_{V^2}$ t_i verkoopt]]
I know not what you sell
'I don't know what you have sell'

b. Ik weet niet [wanneer$_i$ [$_S$ Jan [$_{V^2}$ t_i slaapt]]
I know not when John sleeps
'I don't know when John sleeps'

In conclusion, Emonds's GLBC largely meets the same problems as Ross's LBC. In the next section I will discuss hierarchical approaches to the left branch problem, i.e. approaches that associate the inaccessibility of certain left branch elements to their hierarchical position within the immediately dominating phrase.

2.3 A hierarchical requirement

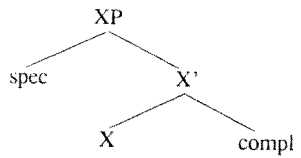
Chomsky (1973; fn 10) gives a reinterpretation of Ross's LBC as a condition that would prevent extraction of the specifier of an NP or an AP. He argues that the ungrammaticality of sentences such as (22a-c) "can perhaps be attributed to a principle that requires that if the specifier of a noun phrase or an adjective phrase (...) is extracted, then the whole phrase must be extracted." This condition rules out the sentences in (22), and imposes obligatory pied piping in such structures, as in (23).

(22) a. * Whose$_i$ would you approve of [t_i leaving]?
b. * Which$_i$ did you see [t_i books]?
c. * How$_i$ is John [t_i tall]?

(23) a. Whose leaving$_i$ would you approve of t_i?
b. Which books$_i$ did you see t_i?
c. How tall$_i$ is John t_i?

Under this reinterpretation of the LBC, it is not the linear property of "leftmostness" or "leftness" which plays a role in the application of transformational rules, but the relational notion of "specifier", where "specifier" refers to those syntactic positions in a tree which are immediately dominated by the maximal projection of a head, except X'. In other words, this notion refers to a hierarchical position within the phrase. So, the property of being in a certain hierarchical position (viz. the specifier position) is the syntactic property determining the immobility of certain constituents. In terms of tree diagram (24), Chomsky's "Specifier Constraint" asserts that all transformations which refer to specifier must apply to the maximal projection immediately dominating this specifier-position.

(24)



(where XP = NP or AP)

A similar reinterpretation of the LBC has been proposed in May (1977). He formulates the following condition:

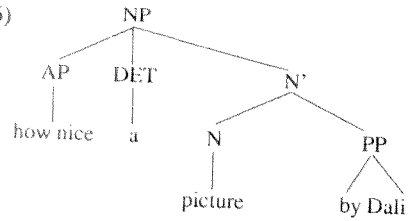
(25) **Condition on Analyzability**

> If a rule ϕ mentions SPEC, then ϕ applies to the minimal [+N]-phrase dominating SPEC, which is not immediately dominated by another [+N]-phrase.

Note that this condition is formulated in such a way that it refers to a natural class, viz. the categories bearing the feature [+N].[9]

Both Chomsky's "specifier constraint" and May's condition on analyzability correctly account for the accessibility of left branch constituents within PP and VP. The non-extractability of prenominal APs is further explained, if these also occur in a specifier position, i.e. a position immediately dominated by the maximal projection of the [+N] category.

(26)



Of course, neither Chomsky's specifier constraint nor May's condition on analyzability can account for the asymmetry in left branch extraction possibilities between languages such as Dutch and English on the one hand and the Slavic languages on the other hand. Besides this shortcoming, the really interesting question why only specifiers of NP and AP are generally inaccessible to movement operations in languages like English and Dutch remains unanswered. Finally, the French *combien*-extractions and the Dutch *wat voor*-extractions, for example, are still problematic for these reinterpretations of the LBC.

So far, I have discussed conditions that account for the impossibility of left branch extractions in English in terms of a property of the extraction site. This could either be the linear property "leftmostness" or "being left to the head", or the hierarchical property of being in the specifier position. The former refers to a string peripheral position, the latter to a hierarchically peripheral position.

Now it is interesting to see that in the linguistics literature we find conditions that claim exactly the opposite. That is to say, these conditions state that (string or structurally) peripheral positions are accessible to transformational operations. An example of a condition according to which string peripheral positions are accessible to movement is De Haan's (1979) Accessibility Condition.[10] An example of a constraint that says that structurally peripheral constituents can be moved out of their containing maximal projection is the so-called Head Constraint (cf. a.o. Van Riemsdijk (1978)). In the next section I will briefly consider these constraints.

2.4 The Accessibility Condition and the Head Constraint

De Haan's (1979) Accessibility Condition is given in (27).

(27) **Accessibility Condition**

No transformational rule can involve X^1, Y, or X^2, Y in the structure
$...X^1...[_{\mathbf{a}}...Y...]...X_2...$

where **a** is a bounding node,
unless Y is left peripheral in **a**, or
Y is right peripheral in **a**, respectively

De Haan proposes this constraint as an alternative to the Subjacency Condition. All maximal projections headed by a lexical category (N, A, P, V) are bounding nodes. With respect to the property of standing in a peripheral position, I will focus on the "left periphery", given the topic of this study. The notion "left peripheral in **a**" should be interpreted as follows:

(28) In the structure
$[_{\mathbf{a}}...Y...]$

Y is said to be left peripheral in **a**,
iff **a** = WYZ, where W = $\underline{e}$, and does not dominate any syntactic features.

In essence, the Accessibility Condition disallows application of movement rules that involve elements not in the periphery of phrases of type X^n. To put it differently, removal of constituents out of phrases of type X^n is permitted if these constituents are peripheral (i.e. leftmost) in X^n. In fact, it is the opposite of Ross's LBC.

What we now see is just the reverse of the conditions discussed above which essentially argued that (string or hierarchically) peripheral positions are inaccessible to movement: For the Accessibility Condition, the left branch extractions in Slavic languages are no problem. Nor are the *combien* and the *wat voor* extraction facts. It is easy to see, however, that this condition does not exclude removal of possessor-NPs and determiners from dominating NPs and extraction of degree words out of APs in languages like Dutch and English.

Let us now turn to the Head Constraint as formulated in Van Riemsdijk (1978):

(29) **The Head Constraint**

No rule may involve X_i/X_j and Y_i/Y_j in the structure
$...X_i...[_{H^n}...[_{H^n}...Y_i...H...Y_j...]_{H^n}...]_{H^n}...X_j...$

(where H is the phonologically specified (i.e. non-null) head and H^n is the maximal projection of H ; and H ranges over V, N, A, P)

Van Riemsdijk notes that the Head Constraint can be interpreted in terms of the c-command relation. An element cannot be extracted out of a maximal projection if it is within the c-command domain of the head of that maximal projection.

Van Riemsdijk proposes the Head Constraint in connection with preposition stranding phenomena in languages like Dutch and English. So, the constraint has not been proposed with the intention of explaining various left branch effects. It is argued that PPs in these languages contain an escape hatch through which a complement of a preposition can move before leaving the containing PP. The PP-internal movement operation, that moves the complement from a position within P' to a position outside P', makes it possible for a complement to leave a PP without violating the Head Constraint. In languages that do not allow P-stranding, the PP does not have an escape hatch. In those languages, P-stranding always involves direct removal of the complement out of the PP, which is in violation of the Head Constraint.

So, the Head Constraint permits direct extraction of a left branch constituent A from within XP as long as A is not within the c-command domain of the head. This implies that complements, being sisters to the head, can never be removed directly from within their dominating maximal projection.[11] Specifiers and modifiers, on the other hand, are generally outside the c-command domain of the head.[12] Note, that this constraint correctly permits extraction of a modifier from within PP, under the assumption that modifiers are sisters of P' (see (10)). It does not block, however, extraction of left branch non-complements from within NP and AP. As far as NPs are concerned this is not problematic in view of the Slavic facts and the exceptional left branch extractions in certain Germanic and Romance languages. But the Head Constraint does not block many left branch effects which are covered by Ross's LBC: possessor extractions, degree word extractions, etc. Recall, however, that the Head Constraint was not proposed with the intention of explaining various types of left branch effects. Van Riemsdijk notes that the constraint is part of a larger system of constraints on transformational rules, containing a.o. the Subjacency Condition as proposed by Chomsky (1973)). So, it could be argued that the frozen character of certain left branch elements follows from some other constraint within the system (e.g. the Subjacency Condition).

So far, my historical overview of the left branch problem has focused on approaches that characterize the accessibility or inaccessibility of left branch elements in terms of a property of the extraction site: (i) the property of being leftmost to the head (Ross, De Haan); (ii) the property of being to the left of the head (Emonds); (iii) the property of being in a hierarchically peripheral position (Chomsky, May, Van Riemsdijk). The fact that researchers have come up with opposite conditions to account for various types of left branch extraction patterns shows the difficulty of "tackling" the left branch extraction problem.

2.5 Approaches in terms of the extraction domain

In the previous sections, I have discussed approaches to the left branch phenomenon that try to characterize the nonextractability of left branch constituents in terms of properties of the syntactic position from which these constituents are removed. In other words, these approaches regard the **extraction site** as the relevant factor. Other approaches to nonextractability have been proposed, which emphasize properties of the **extraction domain**, more in particular the category (or categories) that contains the (left branch) constituent which undergoes movement. In this section, I will briefly discuss two of these: Bresnan's (1976a) Relativized A-over-A Condition and Chomsky's (1973, 1977) Subjacency Condition.[13]

The first constraint that I will discuss is Bresnan's (1976a) **Relativized A-over-A Condition** (RAOAC). This condition is a reformulation of Chomsky's (1964) A-over-A Condition, which states that in structures of the type $...[_A...[_A...]_A...]_A...$ the maximal phrase A be chosen in a factorization. Bresnan (1976a) has modified Chomsky's A-over-A Condition by relativizing it to the structural conditions of transformations. The condition states that a phrase of type A (= the target predicate: the factor involved) that a transformation affects, must be maximal, not in the absolute sense of Chomsky's condition given above, but with respect to the values assigned to the elements in the structural description of the transformational rule that are the context predicates (i.e. the constant factors not operated on by the rule). So, the values of the context predicates in a structural condition are fixed, and then the target predicate must be "maximized" with respect to those context predicates. Bresnan further argues that maximalization should be a function of the syntactic features (+/-N, +/-V) that are mentioned in the structural description, rather than a function of the categories as such.

Consider now Bresnan's rule of question movement:

(30) $[_S, \underset{1}{Q} - \underset{2}{W_1} - [_{X''}, \underset{3}{wh} - \underset{4}{W_2}] - \underset{5}{W_3}] \longrightarrow$

$\quad\quad 3 \quad 4 \quad 2 \qquad\qquad 0 \qquad 5$

(where Q represents the question complementizer)

The maximal projection X" is the target predicate, i.e. it is the constant factor operated on by the transformational rule. The Q (= COMP) is a constant that is not a target predicate, but a context predicate. COMP dominates a dummy node into which the wh-phrase is moved. The variables are neither target nor context predicates. Now, Bresnan argues that the value of a target predicate must be maximal, not in an absolute sense, but with respect to the context predicates of the structural condition. The values of the context predicates are fixed in the structural condition. Then the target predicate must be maximized with respect to those context predicates.

The rule of question movement is a cross-categorial rule. It applies to the constituents N", A", ADV" and Q" that begin with an interrogative morpheme. The structural change in (30) specifies that the X" is moved to replace Q. The RAOAC predicts that the transformational rule of question movement can only apply when a proper analysis assigns a maximal value to X" for fixed values of Q and S'. Now consider, for example, the following question construction:

(31) Who$_i$ did you see t_i?

The question movement rule in (30) together with the RAOAC leads to selection of *who* for the application of wh-movement. It is the only phrase that is the maximal X"-element in relation to the context predicate COMP.

Knowing that the RAOAC states that wh-movement can only apply when a proper analysis assigns a maximal value to X" for fixed values of COMP, let us consider the question constructions in (33) and (34), which have been derived from the underlying structures in (32). The ill-formed examples in (33) show removal of a left branch constituent from a containing AP (33a) and NP (33b,c). In (34), the entire AP or NP has been moved into COMP.

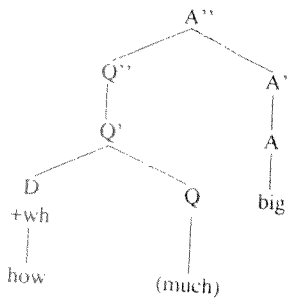
(32) a. It is [how big]
b. You want to buy [how big a car]
c. You saw [how many girls]

(33) a. * How$_i$ is it [t_i big]?
b. * How big$_i$ do you want to buy [t_i a car]?
c. * How many$_i$ did you see [t_i girls]?

(34) a. How big$_i$ is it t_i?
b. How big a car$_i$ do you want to buy t_i?
c. How many girls did you see t_i?

Bresnan assumes that a phrase like *how big* in (32a) should be assigned the following underlying structure:

(35)

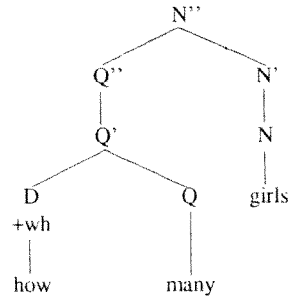


In this structure, the left branch question morpheme *how* is contained within a maximal projection Q", which occupies the specifier position of A" (see Bresnan (1976a) for a motivation of the presence of this Q"-node). Subextraction of Q", which yields example (33a), is not permitted by the RAOAC. Although removal of Q" satisfies the question movement rule since this constituent is a possible value for COMP, subextraction out of A" is ruled out by the RAOAC, because the Q" is not the maximal value of the target predicate in relation to COMP. Movement of A" as in (34a), on the other hand, is in accordance with the RAOAC since the maximalization requirement relative to X" is satisfied.

If an A" like *how big* is embedded within a dominating N", as in (32b), question formations can no longer apply to the A" *how big* (as in (33b)), since this phrase is no longer maximal. N" has become the maximal value of the target predicate and therefore has to undergo movement to COMP, yielding sentence (34b).

Consider finally application of the question movement rule to an underlying structure like (32c), in which the direct object N" is assigned the following internal configuration in Bresnan's analysis:

(36)



Both Q" and N" satisfy the question movement rule, but only N" is maximal. Hence, (34c) can be derived, but (33c) is excluded by the RAOAC.

It is easy to see that Bresnan's approach to left branch effects in terms of the RAOAC faces many problems on the observational level. First of all, the maximization requirement of the RAOAC wrongly predicts that subextraction of adjectival elements from within noun phrases in Slavic languages is impossible. Second, subextractions as given in (15) and (16), in which a Q" or an N" is moved from within a noun phrase or an adjective phrase, are unexpected under Bresnan's analysis since the moved categories are not maximal. The only constructions which can be derived according to the RAOAC are the ones given in (17) and (18), since in these question constructions the target predicate (i.e. the moved category) is maximal, viz. the highest N" or A".

Another constraint which ascribes the impossibility of certain movement operations to the configuration that contains the node to be moved, is Chomsky's (1973, 1977) Subjacency Condition. This locality constraint states that a transformational rule cannot move a constituent from position Y to position X (or conversely) in a configuration like (37), if **a** and **b** are bounding nodes (NP and S being the bounding nodes for English).

(37) ...X...[$_a$...[$_b$...Y...]...]...X...

Chomsky points out that various empirical generalizations such as the Complex NP Constraint, the Wh-island Constraint and the Subject Condition can be derived from the Subjacency Condition. The possibility of deriving the frozen character of the left branch elements inside NP is not discussed in Chomsky (1973). Movement of determiners, possessor-NPs etc. to COMP always crosses two bounding nodes in English, viz. NP and S. So, it seems that at least for English part of the LBC-effects can be reduced to the Subjacency Condition as formulated above.

On the basis of certain subextraction operations from within NPs, it has been argued in the literature that for some languages S' and not S should be considered a bounding node. Sportiche (1981) notes, for example, that S' and not S should be a bounding node in French in order to account for the extractability of *combien* from within NP (see (15a)). Lie (1982) comes to the same conclusion on the basis of the Norwegian equivalent of the Dutch *wat voor (een) N*-extraction.

(38) a. [Hva for bøker]$_i$ leser du t$_i$?
What for books read you
'What kind of books do you read?'

b. Hva$_i$ leser du [t$_i$ for bøker]?

Note that if it is assumed that S' is the bounding node in these languages, then one cannot account for the nonextractability of other left branch elements within NP in terms of the Subjacency Condition:

(39) a. * Cette$_i$ j'aime [t$_i$ fille]!
That I love girls
'That girl I love!'

b. * Son$_i$ j'ai lu [t$_i$ livre]!
His I have read book
'His book I have read!'

(40) a. * Hvilken$_i$ leser du [t$_i$ bok]?
Which read you book
'Which book do you read?'

b. * Hvems$_i$ leser du [t$_i$ bok]?
Whose read you book
'Whose book do you read?'

It is an empirical question whether one should take S or S' as a bounding node. If one adopts the view that S' and not S is a bounding node in French and Norwegian, then some other principle of grammar than the Subjacency Condition must account for the impossibility of the extractions in (39) and (40). If, on the other hand, it is assumed that S is a bounding node in French and Norwegian, something must be said about why the *combien*-extractions and the extraction in (38b) can escape a subjacency violation.[14]

So far, I have only discussed the possibility of accounting for left branch extractions from within noun phrases in terms of the Subjacency Condition. The question, of course, arises how left branch extractions from within other categories such as AP and PP should be interpreted with respect to the Subjacency Condition. As for PPs, it has been proposed in the literature (see a.o. Baltin (1978)) that languages that do not allow P-stranding have PP as a bounding node. This would mean, for example, that many German dialects which exclude fronting of the complement of a preposition have PP as a member of the set of bounding nodes. P-stranding in these dialects would be ruled out by the Subjacency Condition, because movement of the complement of P to COMP crosses two bounding nodes, viz. PP and S (see (41a)). It turns out, however, that in the same dialects it is possible to reorder left branch modifiers out of PPs. This is exemplified in (41b) (Notice, by the way, that the finite verb in (41) has been moved into COMP via Verb Second):

(41) a. * [Welchem Schrank$_i$ hing$_j$ [$_S$ das Bild [$_{PP}$ über t$_i$] t$_j$]]?
Which cupboard hang that picture above

b. [Wieviel Meter$_i$ hing$_j$ [$_S$ das Bild [$_{PP}$t$_i$ über dem Schrank] t$_j$]]?
How-many meters hang that picture above the cupboard

So, the possibility of re oving left branch modifiers from within PPs suggests that it is incorrect to nsider PP a bounding node in these dialects.[15] Of course, in that case the question arises what other principle of grammar blocks P-stranding facts like (41a).

Similar problems arise with APs. Certain extraction phenomena might be interpreted as showing that AP is not a bounding node (e.g. the PP-complement extraction in (42a)), whereas others seem to suggest the opposite (e.g. the left branch degree word extraction in (42b)):

(42) a. Of whom$_i$ is she [$_{AP}$ proud t$_i$]?
b. * How$_i$ is she [$_{AP}$ t$_i$ proud of Bill]?

In sum, it is not easy to decide whether certain left branch effects should be interpreted as being reducible to the Subjacency Condition. Especially with those maximal categories that allow extraction of certain constituents but not of others, it is unclear whether or not to analyze these categories as bounding

nodes. In conclusion, also for approaches that characterize the nonextractability of certain constituents in terms of the containing syntactic configuration, the left branch extraction phenomenon is hard to grasp.

2.6 The left branch extraction problem and the ECP

The Subjacency Condition is not the only condition regulating the distribution of traces. These non-pronominal empty categories left behind after movement must also satisfy the Empty Category Principle (ECP) (cf. a.o. Chomsky (1981)). This principle of grammar, which has played a central role in recent linguistic thought, regulates the distribution of traces by requiring that traces be properly governed (= locally identified) by a proper governor.

(43) **Empty Category Principle** (ECP)

a non-pronominal empty category must be properly governed

In Chomsky (1981), the relation of proper government is defined as follows:

(44) **Proper government**

a properly governs **b** iff **a** governs **b**, and
(i) **a** is lexical (= X^0), or
(ii) **a** locally binds **b**

The ECP accounts among others for the well-known subject-object asymmetry exemplified in (45):

(45) a. * [Who$_i$ do you think [$_{S'}$ t'$_i$ that [$_S$ t$_i$ came]]]?
b. [Who$_i$ do you think [$_{S'}$ t'$_i$ - [$_S$ t$_i$ came]]]?

The ill-formed sentence (45a) illustrates a COMP-trace effect. In Chomsky (1981), this sentence is ruled out by ECP in the following way. The subject trace is not lexically governed by the verb, since it is outside VP. It is not antecedent-governed either, since the antecedent-trace which is adjoined to COMP does not c-command the subject trace and therefore does not bind it. If the complementizer *that* is absent (as in (45b)), the antecedent trace occupies the COMP-position and c-commands and therefore binds the trace in subject-position. In that case, the ECP is satisfied.

Notice that the sentences in (45) exhibit extraction of a left branch constituent.[16] So, in fact, a left branch effect has been derived from the ECP. The question arises whether other LBC-effects can be brought under the ECP as well. That is, is it possible that the frozeness of left branch constituents is caused by the absence of proper government of the trace after the left branch element has been removed?

Chomsky (1981; p. 168) contains a short discussion of the nonextractability of left branch possessor noun phrases from within NPs in English (as in (46a)). It

is proposed that the lexical category N is not a proper governor and therefore does not license a trace in the [Spec,NP] position. This accounts for the obligatoriness of pied piping (as in (46b)).

(46) a. * Whose$_i$ did you see [t$_i$ book]?
b. Whose book$_i$ did you see t$_i$?

So, according to Chomsky's analysis not all lexical heads are proper governors. Notice that the immobility of other left branch elements inside NP (e.g. determiners, attributive APs) is also accounted for by the ECP, if N does not belong to the set of proper governors.[17]

Consider also a language like French. Given the fact that subextraction of left branch elements out of NP is generally not permitted in this language, it might be concluded that N is not a proper governor. In that case, however, the question arises how to account for the *combien* extractions in French. It could be argued that under certain circumstances traces can be properly governed from outside (cf. e.g. Kayne (1984)). One might return to the concept of periphery and argue that the periphery of a phrase is accessible to proper government from outside (cf. Muysken & Van Riemsdijk (1985)). So, peripheral non-heads would be accessible to external governors, whereas non-peripheral ones would not. In essence, this would mean that an outside governor has access to those positions within a phrase XP that are not within the minimal government domain of the head X. In that case, one could say that question phrases like *combien* are extractable in French, because - despite the fact that it is not properly governed NP-internally - it is governed by an external proper governor, e.g. V. Of course, the question arises why only traces of *combien* are accessible to proper government from outside, but not, for example, traces of moved demonstratives (see (39)). This question could also be raised for the example from English in (46a); that is, why is the trace of the fronted possessor NP not accessible to government from outside by the proper governor V? So, essentially the same problems arise as in our discussion of the possibility of analyzing LBC-effects as subjacency-violations. I will not elaborate here on the question of whether and how various types of left branch effects can be accounted for in terms of the different notions of proper government that have been proposed in the generative literature. Instead, I will discuss the left branch extraction problem within Chomsky's most recent version of the government and bounding modules, viz. the Barriers-framework as presented in Chomsky (1986b).

2.7 'Barriers' and the left branch extraction problem

In this section I will briefly place the left branch extraction problem against the background of the Barriers framework as proposed in Chomsky (1986b). The basic idea behind the Barriers theory is that essentially the same concept of barrierhood constrains both movement- and government-relations, and that any maximal projection can be a potential barrier, irrespective of its category type. I will only introduce a small part of the entire Barriers theory developed by Chomsky. The reader is referred to Chomsky (1986b) for fuller exposition.

With Chomsky (1986b), it is assumed in this study that both substitution and adjunction are structure preserving (cf. also Emonds (1976)). For substitution, this means that an Xmax and X^o can only substitute for an Xmax- and an X^o-category, respectively. Similarly, a maximal projection can only adjoin to a maximal projection, and a head (X^o) only to a head.

The relevant conditions of the government-module and the bounding- module which regulate the distribution of traces are the Subjacency Condition and the ECP respectively. The Subjacency Condition is formulated in the following way:

(47) If (a_i, a_{i+1}) is a link of a chain, then a_{i+1} is at most 1-subjacent to a_i

Subjacency is defined as follows:[18]

(48) b is n-subjacent to **a** iff there are fewer than n+1 barriers for **b** that exclude **a**

As we have seen in the previous section, the ECP requires a trace to be properly governed. Chomsky (1986b) assumes that proper government involves antecedent government (i.e. government by a coindexed category). The relation of government is given in (49):

(49) a governs **b** iff **a** m-commands **b** and there is no **g**, **g** a barrier for **b**, such that **g** excludes **a**

The system makes a distinction between two types of barriers: (i) Barriers created by the absence of L-marking (L-barriers);[19] (ii) Barriers created by the presence of a closer governor (M(inimality)-barrier). L-barriers constrain both movement and government relations, and as such have a unifying function with respect to the government and bounding theory. M-barriers on the other hand are only relevant to government relations.

The general idea behind the concept of minimality is that a governor X does not have access to traces contained within the government domain of a closer governor Y. Chomsky (1986b) proposes the following definition of minimality:[20]

(50) **g** is a M-barrier for **b** if **g** is the immediate projection of **d**, a zero-level category distinct from **b**

According to this definition, a complement of a head X^o is always protected from external government by a higher governor.

One consequence of this definition is that it excludes any XP-internal movement from a complement position to a specifier position or to a position adjoined to XP. This seems inappropriate, since there are constructions where such movements are involved. Consider, for example, the noun phrase *the city's destruction*, which is generally analyzed as involving a NP-internal movement operation which moves the theta-assigned NP-complement (*the city*) to a

prenominal specifier position where it receives genitive case (cf. Chomsky (1986, class lectures)). Also, if Van Riemsdijk (1978) is correct in assuming that PPs like *erop* (there-on) in Dutch are derived by a PP-internal movement which moves a complement-pronoun to the specifier position, this definition of minimality seems incorrect. Consider, finally, also the following constructions from Dutch in which a complement has been adjoined to the maximal projection of its governing head:

(51) a. [Zijn zus$_i$ niet alleen vreselijk t_i geplaagd maar ook vreselijk
His sister not only terribly teased but also terribly

t_i getreiterd] heeft Jan tijdens zijn jeugd
baited has John during his youth

b. [Op dat meisje$_i$ niet alleen vreselijk t_i verliefd maar ook
Of that girl not only extremely fond but also

vreselijk t_i trots] zei Jan dat ie was geweest
extremely proud said John that he had been

In both sentences, the string between brackets occupies the [Spec,CP]. In (51a), this string is a VP coordinated by the so-called initial coordinators *niet alleen....maar ook*, which have the property that they can only conjoin maximal projections (cf. Neijt (1979)). Notice now that the direct object-NP *zijn zus* has been moved in an across-the-board fashion to a left peripheral position adjoined to VP. It is the only possible landing position for the extracted direct object, since the [Spec,CP] is already filled by the VP.[21] It is obvious that such a movement operation is not in accordance with the definition of minimality given in (50), because the V' which intervenes between the antecedent adjoined to VP and the complement position occupied by the trace blocks antecedent government of the latter.

The same argument holds for (51b), where the PP-complement *op dat meisje* has been moved in an across-the-board fashion to a position adjoined to the left of the coordinated adjective phrase, which occupies the [Spec,CP]. Under a definition of minimality as in (50), such a movement is incorrectly predicted to be out, because A' would be a M-barrier blocking antecedent government of the complement trace by the moved PP.

Given these arguments against (50), I will assume in this study the following notion of minimality as given by Chomsky (1986, class lectures Fall):[22]

(52) **a** is an M-barrier for **b** iff **a** includes **g** and **d**, where **g** is a maximal projection (not necessarily distinct from **a**) including **b**, and **d** a head c-commanding **b**

This definition of minimality is in accordance with the XP-internal movement phenomena discussed above. The N' and P' in *[the city's$_i$ destruction t_i]* and *[er$_i$ op t_i]* respectively are not M-barriers blocking antecedent government of the trace by the antecedent in specifier position, because they do not include

a maximal projection containing the trace. The same holds for the adjunction structures in (51). Neither V' nor A' constitutes a M-barrier for the trace of the extracted complement, since they do not include a maximal projection that contains the trace. Notice also that the lower VP/AP-segment of the adjunction structures in (51) does not block either antecedent government of the complement trace by the adjoined antecedent, because it is not a M-barrier excluding the antecedent.

Barrierhood of a maximal projection can be circumvented by first adjoining to it before 'leaving' the maximal projection. Chomsky (1986b) assumes that adjunction is only possible to a maximal projection that is a nonargument. This restriction on adjunction sites is rather problematic in view of sentences as (53) and (54) (cf. also Weinberg (1988), Lightfoot & Weinberg (1988)):

(53) * Hoeveel meter$_i$ heb je haar [t_i onder de grond] ontmoet?
How-many meter have you her under the ground met
'How many meters did he meet her under the ground?'

(54) ?? Who$_i$ did she faint [after [kissing t_i]]?

In (53), a measure noun phrase has been removed from within an adjunct-PP. The adjunct-PP is not L-marked, and therefore a BC and a L-barrier. If adjunction were not permitted to this PP, one could account for the ill-formedness of this structure in terms of the ECP. The trace left behind would not be antecedent governed, since the adjunct-PP would include the trace but exclude its potential antecedent-governor. If, however, adjunction is permitted to a nonargument maximal projection, the L-barrierhood of this locative PP could be circumvented by adjoining to it. Via subsequent adjunction to VP, the measure phrase could reach the [Spec,CP] without violating either the Subjacency Condition or the ECP.

In (54), the direct object *who* has been removed from an adjunct-PP. The ill-formedness of this sentence is not expected if a theory of adjunction is adopted in which non-arguments (i.e. the adjunct-PP) can function as hosts for adjunction operations, since in that case the direct object can escape from the adjunct-PP via adjunction to this maximal projection without violating the Subjacency Condition or the ECP.

Following Sportiche (1988), I will stipulate that adjunction is only permitted to nonargument type categories, i.e. categories which typically do not get theta-marked at D-structure (e.g. adjective phrases and verb phrases) (cf. also chapter 3). Adjunction to argument type categories such as NP, CP and PP is barred. In this study, I will further adopt Chomsky's stipulation that IP is not an inherent L-barrier despite of the fact that it is not L-marked.

After this review of certain aspects of the Barriers system, let us briefly consider the question whether left branch effects can be explained in terms of the ECP or the Subjacency Condition. I will confine myself to left branch effects related to noun phrases. Left branch extractions from within maximal

projections of a different categorial type will be dealt with at other places in this study. Consider the following ill-formed sentences:

(55) a. * Whose$_i$ did you see [t_i picture by Dali]?
b. * That$_i$ I saw [t_i picture by Dali]!
c. * How big$_i$ did you see [a t_i picture by Dali]?

The left branch extractions in (55) are represented in (56):

(56) $[_{VP}\,[_{NP}$ spec $[_{N'}$ AP $[_{N'}$ N PP]]]]

In this structure a left branch specifier or modifier is removed from within a direct object NP. Notice that extraction of either constituent does not yield a subjacency violation since no L-barriers intervene between the links of the chain. The direct object NP is L-marked and therefore is not a BC, nor an L-barrier. Via intermediate adjunction to VP, the left branch element can reach the [Spec,CP] without violating the Subjacency Condition.

Removal of the left branch elements does not yield an ECP-violation either. The trace in specifier position or adjunct position will be antecedent governed by the intermediate trace that occurs in a position adjoined to VP. The same reasoning holds as above. NP is not an L-barrier since it is not a BC, nor does it inherit barrierhood. Notice that the derivation is not excluded by the ECP via Minimality either. The N' dominating AP is not a M-barrier for it, because it does not contain a maximal projection containing the trace, nor a head c-commanding the trace. NP is not a M-barrier for a trace in adjunct- or specifier-position, since it does not contain a head c-commanding the trace. The lower VP-segment to which the antecedent of the initial trace is adjoined does not count as a M-barrier excluding the trace either.

Although extraction of left branch elements from within direct object NPs does not yield an ECP or a subjacency violation, the nonextractability of these elements from within subject NPs can be readily accounted for in terms of these conditions. Consider, for example, the following sentences:

(57) a. * Which$_i$ did [t_i picture of Mary] upset you?
b. * How beautiful$_i$ did [a t_i picture of Mary] fascinate you?

These extraction operations violate the Subjacency Condition and the ECP. Since the subject-NP is not L-marked, it is a BC and an L-barrier. If a category is extracted out the subject-NP to [Spec,CP], then the category IP will inherit barrierhood from this NP. So, moving the left branch element to the specifier of CP will cross two barriers. Notice that the barrierhood of the subject-NP cannot be circumvented via adjunction to it, because it is not permitted to adjoin to argument type categories.

So, not all left branch effects can be explained in terms of the Subjacency Condition or the ECP within the Barriers framework. Of course, one could

hold the view that different principles of grammar account for the nonextractability of left branch constituents contained within direct object NPs. It is not so clear, however, how to reduce these left branch effects to existing constraints such as the binding principles, case filter etc.

In this study, I will assume a version of X-bar theory which is different from the "traditional" one (cf. Chomsky (1986b)) in certain respects. More in particular, I will hold the view that the functional category D(eterminer) projects up to its own maximal projection, in which NP is a complement to the head D. Such an analysis will also be adopted for the functional category Deg (degree word). This category has DegP as its maximal projection and takes AP as its complement. It will be shown that on the basis of this different phrase structure various aspects of the left branch extraction problem can be accounted for in terms of such general principles as the ECP and the Subjacency Condition.

2.8 Concluding remarks

The historical overview in the preceding sections has provided us with a range of left branch effects which will be dealt with in this study: determiner extractions, possessive extractions, attributive adjective extractions, left branch extractions from within adjective and prepositional phrases, etc. It was further shown how various approaches tried to account for the (non)-accessibility of left branch constituents in terms of different syntactic factors, e.g. properties of the extraction site (hierarchically peripheral, linearly peripheral), properties of the extraction domain, etc. As will become clear in the course of this study, it is not a single underlying factor which determines the extractability or nonextractability of left branch constituents. It turns out that various syntactic properties are involved, such as categorial type (X-zero or Xmax) of the extracted left branch element, argument or nonargument status of the category containing the left branch element, the possibility of adjoining a left branch constituent to the containing maximal projection, etc.

Further, it should be noted that, although this study focuses on extraction possibilities of left branch constituents, it will also deal with the accessibility of right branch constituents, though far less extensively. One of the questions which arises is whether there is a true left branch right branch asymmetry with regard to extraction possibilities. Is it true, for example, that right branch constituents in English never have a frozen character? As is well-known, the answer is negative. Right branch adjuncts within noun phrases, for example, cannot be fronted either:

(58) * [With red hair]$_i$ I met [a girl t_i]

For those analyses which account for the nonextractability of left branch elements in terms of a linear property (leftmostness or being left to the head), the frozen character of this right branch PP must be due to some other syntactic principle. Of course, whether the frozen character of the right branch PP in (58) on the one hand and the nonextractability of, for

example, left branch attributive adjectives on the other hand, should be accounted for in terms of different syntactic principles, is an empirical question. If, however, the frozen character of the right branch PP in (58) and that of left branch elements within noun phrases can be accounted for in terms of a unifying principle (e.g. the Subjacency Condition) which does not specifically refer to left branch or right branch positions, then such a principle should be preferred, since it increases the overall elegance of the system of constraints.

It should further be noted that elements that occupy a left branch position in English and that are immobile, are often also nonextractable in languages in which they occupy a right branch position.[23] Compare, for example, the following topicalization facts from English and French:

(59) * Very intelligent$_i$ I met [a t_i girl]!

(60) * Très intelligente$_i$ j'ai rencontré [une fille t_i]!
Very intelligent I have met a girl

So, in languages in which (part of) the specifier and modifier system is realized on a right branch, these elements often are frozen too. Instead of simply formulating a right branch condition for these languages, it seems worthwhile to investigate whether a single factor prohibits extraction of these elements.

In the next chapter, I will investigate certain aspects of the internal structure of the categories DP, DegP and PP, whose left branch accessibility will be examined in later chapters. I think it is only possible to dismantle the left branch extraction problem by having a clear or at least clearer view of the internal syntax of phrases.

1. Ross's thesis has recently been published as *Infinite Syntax!*, Ablex, New Jersey, 1986.

2. Words such as *up* and *down* in (i) may be interpreted as left branch prepositional elements within PPs.

(i) a. I found it [down in the cellar]
b. It lies [up in the garret]

3. Ross proposes that constraints such as the LBC and a constraint which prevents removal of an NP out of the environment [P __]$_{NP}$ are part of what he calls a conditions box. This box contains a number of constraints and every constraint has a number of different versions, depending on the variability among languages. Ross argues that the conditions box itself is universal, but that languages may differ from each other as to which conditions they choose from this conditions box. For criticism of Ross's conditions box, see Van Riemsdijk (1978).

4. These examples are taken from Obenauer (1984) and Den Besten (1985).

5. The examples (16b and c) are taken from Rivero (1980) and Grosu (1974) respectively.

6. Emonds (1985) regards NP, PP, AP and VP as X^2-categories. S is analyzed as V^3.

7. Emonds (1980) gives the following sentence supporting the idea that P does not belong to the set of heads which do not permit removal of elements to their left.

(i) How many feet$_i$ shall I put it [t$_i$ behind the wall]?

8. Wilkins (1980; section 4.2) gives a slight revision of Emonds's (1976) GLBC, her "Revised Left Branch Condition". This condition states the following:

(i) If a syntactic element C in N" or A" is the head of that phrase or is to the left of the head in that phrase, then any major transformational operation that reorders C with respect to elements exterior to such N" or A" must also reorder all such N" or A", and no larger X".

This condition incorporates Schwartz's (1972) Fixed Nucleus Constraint, which states that the head of a phrase is inaccessible to movement operations. Note that as opposed to Emonds's GLBC, the Revised Left Branch Condition does not block extraction of elements to the left of V.

9. Culicover & Wilkins (1984) formulate condition (ii) on the rule given in (i) for preposing constituents into COMP. Notice that, as opposed to May (1977), they assume that the [-V]-categories form a natural class.

(i) COMP - SPEC[-V] [+WH] - > 2 - 0

(ii) The reordering of a specifier must be construed so as to reorder the maximal phrase of which that specifier is the leftmost constituent.

Condition (ii), which as they note is basically a positive version of the LBC, assures that the whole [-V] category is moved to COMP. Notice that according to (i) and (ii), movement of the specifier of the natural class [-V] affects the movement of the major categories which contain

it. The [-V] class includes NP and PP. By taking [-V] to be the relevant feature, specifier-extractions from within PPs are incorrectly predicted to be out.

10. Zwarts (1978) proposes a similar constraint for PPs: an element can only be moved leftwards from within a PP if that element is leftmost within that PP. He further notes that the opposite restriction holds for rightward movements, i.e. only the rightmost element within a PP can be moved to the right. Note that this generalization incorrectly predicts that P-stranding is impossible in English, since the extracted complement which is moved to the left (as in *who did you talk [to -]?*) originates in a position which is not leftmost within the PP.

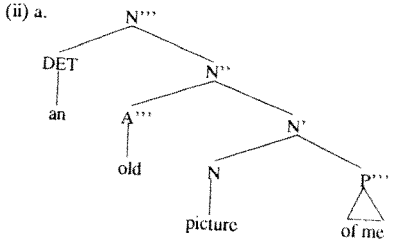
11. Van Riemsdijk (1978) assumes that clauses are projections of V. In his X-bar system V''' expands into COMP and V". So, removal of a complement of V from within a clause containing that V always involves a V'''-internal movement operation to COMP that brings the moved constituent outside the c-command domain of the verb. This way, the moved complement can leave the dominating V'''-constituent without violating the Head Constraint.

12. Van Riemsdijk (1978) adopts Reinhart's (1976) notion of c-command:

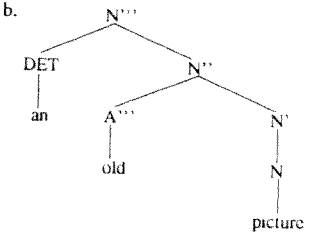
(i) Node A c(onstituent)-commands node B if neither A nor B dominates the other and the first branching node which dominates A dominates B.

Under this definition of command, it is dependent on the presence of a complement whether a specifier or a modifier within XP falls within the c-command domain of the head X. Compare the following configurations:

(ii) a.



b.



In (iia), the A''' is outside the c-command domain of the head noun. As such, its non-extractability does not follow from the Head Constraint. In (iib), the A''' is within the c-command domain of N and hence extraction of it is not allowed by the Head Constraint.

13. See also Horn's (1977) NP-constraint and Koster's (1978) Bounding Condition. The NP-constraint requires that no constituent that is dominated by NP can be moved or deleted from that NP by a transformational rule. Koster's Bounding Condition states that all maximal categories (XP) are bounding nodes.

14. Lie concludes on the basis of the extractability of the question word *hva* from so-called *hva for*-noun phrases, that S' and not S is a bounding node in Norwegian. Den Besten (1985) has given a different interpretation of similar extractions in Dutch. Given the fact that specifiers normally cannot be extracted from within NPs in Dutch, he tries to find out what special property of *wat voor*-phrases makes it possible to escape the Subjacency Condition. For a discussion of his analysis, see chapter 6.

15. In his discussion of the bounding nature of prepositional phrases, Van Riemsdijk (1978) does not consider the maximal projection (i.e. X''' in his X-bar system) to be the bounding node, but X". He needs this interpretation of bounding nodes in connection with P-stranding

facts in Dutch and English. Recall that he assumes that complements of P in English and Dutch can only escape from PP if they are moved PP-internally to an escape hatch position that it is not within the c-command domain of the head (P). This escape hatch is the specifier position under P'''. Now, if one would propose that P''' is a bounding node in Dutch and English, then P-stranding would still be blocked in these languages.

16. In Gazdar (1981) the Generalized Left Branch Constraint is proposed. It is a reconstruction of Ross's Left Branch Constraint within the GPSG-framework and formulated as a constraint on permissible rule rather than on movement operations. The constraint captures both Ross's left branch effects and the that-trace effects (which in fact are also left branch effects).

17. See Huang (1982) and Contreras (1986) for a criticism of Chomsky's proposal.

18. The definition of **exclude** is given as follows:

(i) **a** excludes **b** if no segment of **a** dominates **b**

Domination is defined as follows (cf. also May (1985)):

(ii) **a** is dominated by **b** if it is dominated by every segment of **b**

19. L-marking is defined as follows:

(i) a L-marks **b** iff **a** is a lexical category that theta-governs **b**

A maximal projection **g** is a blocking category (BC) for **b** if **g** is not L-marked and dominates **b**. The notion of '(L-)barrier' is defined in terms of BC:

(ii) **g** is a (L-) barrier for **b** iff (a) or (b):
(a) **g** immediately dominates **d**, **d** a BC for **b**;
(b) **g** is a BC for **b**, **g** is not IP

The L-barriers defined in (iia) are 'barriers by inheritance' (i.e. these maximal projections inherit L-barrierhood from the BC they dominate); the L-barriers defined in (iib) are 'inherent L-barriers'.

20. Chomsky (1986b) also mentions the possibility of a broader concept of minimality, in which a M-barrier can be created by any projection (i.e. immediate and non-immediate) of a head: **g** is a barrier for **b** if **g** is a projection of **d**, a zero-level category distinct from **b**. Under this broader definition of minimality the specifier of a head would never be accessible to an external governor, since it is already within the government domain of the head. On the basis of the possibility of extracting subjects (i.e. specifiers) from within NPs in a Romance language like Spanish, Chomsky adopts the narrower definition of minimality.

21. As I will argue below, adjunction to the matrix-CP is not permitted either, since it is an argument type category.

22. An alternative formulation of this notion of minimality expressing the same idea is the following given in Huybregts (1988):

(i) Weak Minimality: a (non)maximal projection of **a** is a barrier for **b** iff **b** is included in some maximal projection of **g** that does not include **a**

23. See chapter 10.

3 THE INTERNAL SYNTAX OF PHRASES

3.1 Introduction

In this chapter I will give a sketch of the X-bar theory assumed in this study, which various analyses to be presented in the following chapters are based on. The version of X-bar theory assumed here differs at certain points from the X-bar theory that is generally assumed in the generative literature (cf. Chomsky (1986a,b)). The sketch is far from complete and focuses on the position that left branch elements occupy within phrase structure, especially within noun phrases, adjective phrases and prepositional phrases. Without a fairly clear picture of the internal syntax of these categories no precise generalizations can be made with respect to left branch extraction operations.

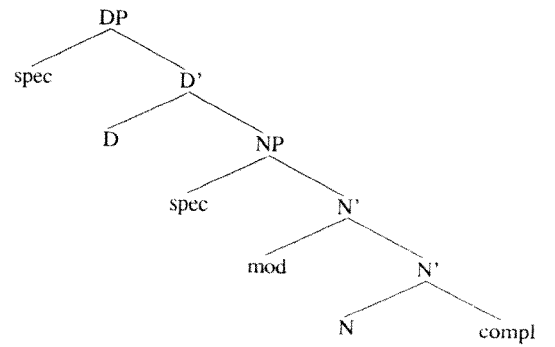
Before I proceed to my discussion of the internal syntax of various categories, I will make some general remarks about the X-bar theory assumed here. I assume the following X-bar theoretic principles: (i) all lexical (N, A, V, P) and functional (D, Deg, C, I) formatives head a projection; (ii) there are three bar-levels. The lowest (X^0) level and the highest (X"/XP) level correspond to the head formative and to its maximal projection, respectively. The intermediary (X') level corresponds to the intermediary projections; (iii) the following satellite positions can be distinguished: complement, adjunct and specifier (cf. also Thiersch (1985), Kolb & Thiersch (forthcoming), Van Riemsdijk (class lectures (1988)). The notions complement, specifier and adjunct are relational notions, not categorial ones (cf. Chomsky (1986b)). They simply refer to structural satellite positions within the hierarchical structure of a maximal projection.[1,2] Following Stowell (1981) and Chomsky (1986a,b), I assume that the satellite positions can only be filled by maximal projections. I will further make the assumption that a theta-assigning head assigns its theta-role under sisterhood (cf. Chomsky (1986b)).[3]

X-bar theory only refers to the hierarchical structure of a phrase. It does not say anything about how the satellites are ordered with respect to the head. In other words, the hierarchical structure is theoretically separate from the relative linear order of the constituents. So, as far as X-bar theory is concerned complements, specifiers and adjuncts can appear on both sides of the projection-line of a head. It is the aim of the GB-system to derive linear order from general principles and parameters, rather than be stipulated by phrase structure rules. This has been achieved to a certain extent for the complement system of heads. In Stowell (1981), Koopman (1984), Travis (1984), for example, it is argued that case and thematic assignment requirements play an important role in the ordering of arguments. How the relative order of nonarguments can be derived from general principles has hardly been studied. This domain of research is also beyond the scope of the present investigation. Eventually, one would hope that an explanatory theory will account for these order phenomena.

3.2 Some notes on the internal syntax of Determiner Phrases

I will assume the Determiner Phrase-hypothesis for nominals.[4,5] According to this hypothesis, a determiner heads its own projection (DP) and selects an NP-complement, as in (1). Different types of elements can occur in the D-position, such as definite and indefinite articles, demonstratives, quantifiers such as *every*, *each* etc., and interrogatives such as *which* and *what*. I will further assume that the genitive marker *'s* (as in *John's car*) stands in D as well.[6,7]

(1)



Before turning to some syntactic arguments in favor of a DP-structure, I mention the semantic similarity between D and I, which makes a parallel syntactic treatment of these functional categories attractive (cf. Abney (1986)). The determiner has the function of specifying the reference of the noun phrase. The noun provides a predicate, and the determiner picks out a particular member of the predicate's extension. Inflection (I) essentially has the same function with respect to VP. The VP provides a predicate (i.e. a class of events) and tense locates a particular event in time.

I will now discuss some syntactic arguments which seem to support the DP-hypothesis. First of all, adoption of the DP-analysis makes it possible to stipulate the basic parallelism between functional categories (cf. Abney (1987)). D projects to a phrasal node and can take a complement and a specifier. Therefore, it is no longer defective with regard to X-bar theory. This analysis is in keeping with Chomsky's (1986b) treatment of the functional categories I and C as obeying the X-bar requirements. So, all in all the X-bar system gets more symmetric when the DP-structure is assumed.

A second argument in favor of a DP-analysis concerns the parallelism in certain languages (e.g. Hungarian, Yupik) between noun phrases and clauses (IP) as far as agreement relations inside these phrases are concerned (cf. Abney (1987)). These parallel agreement relations within noun phrases and clauses can be captured in a straightforward way under a DP-analysis, which ascribes a structure to nominals that is more closely parallel to IP than the traditional NP-structure. Let us briefly consider these agreement phenomena.

As is well-known, there may exist an agreement relation between INFL and the subject of IP. It turns out now that in languages like Yupik (a central Alaska Eskimo language) and Hungarian (i) the possessor of a noun phrase gets the same case as the subject of the sentence (IP), and (ii) the possessed noun agrees with the possessor in the same way as the inflected verb agrees with its subject (examples taken from Abney (1987)).[8]

(2) az én-0 vendég-e-m (Hungarian)
the I-NOM guest-POSSD-1Sg
'my guest'

(3) a. angute-m kiputa-a-0 (Yupik)
man-ERG buy-OM-SM
'The man bought it'

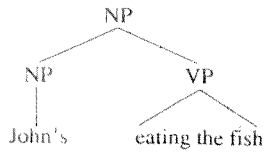
b. angute-m kuiga-0
man-ERG river-SM
'the man's river'

In the example from Hungarian, a nominative-accusative language, the possessor (*én*) shows the case of the subject of IP, viz. nominative, and the head noun (*vendég-em*) agrees with the possessor (*-m*). The examples from Yupik, an ergative-absolutive language, shows that both the subject of a clause and that of a noun phrase bear ergative case (*-m*). Furthermore, the agreement relation within the noun phrase has the same agreement morpheme as the one within the clause, viz. *0* (zero-agreement marker).

These agreement phenomena suggest the existence of AGR within the NP of these languages. Within a DP-hypothesis, there is a natural locus for AGR, viz. the D-position. This way, a similar structural configuration underlies the identical agreement relations in clauses and noun phrases. Also, the parallelism in case assignment is easily explained if parallel structures are assumed for clauses (IP) and noun phrases (DP).

A third argument that supports a DP-hypothesis is the fact that certain noun phrase-structures which do not fit into the X-bar system under a standard NP-analysis, can be accounted for. Abney (1987) shows this for gerundive nominals. The standard analysis of the structure of gerunds has NP immediately dominating VP, as in the following example:

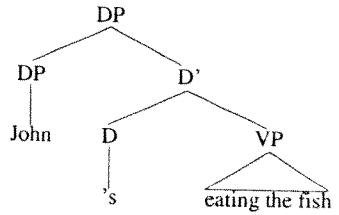
(4)



This structure violates the principle of X-bar theory that a phrasal node must be headed by an X^0-element of the same syntactic category. In (4), there is no noun (N) heading the noun phrase.

Under a DP-analysis, D is a functional element that exceptionally takes VP as its complement. This gives the following structure, which does not violate the X-bar requirements.[9]

(5)



Abney notes that gerunds are also problematic for a standard NP-analysis from the point of view of case assignment. Under a traditional NP-analysis, it is generally assumed that genitive case is assigned under government by N. In gerunds, N is absent, however. Hence, the appearance of genitive case is unaccounted for. Under a DP-analysis, the genitive marking *'s* functions as the case assigner of the subject DP *John* in (5).

A fourth potential advantage of the DP-analysis is that certain ordering phenomena within noun phrases directly follow. Fukui (1986) notes that in the GB-model the linear order of constituents should be derived from general well-formedness principles and parameters of the grammar, rather than determined by the Phrase Structure-rules. If the determiner is the head of the DP, then the order in an English noun phrase like *the dog*, for example, follows from the parameter setting that English is head first. Within a standard NP analysis, the fact that the determiner must precede the noun in English has to be accounted for by some extra mechanism.

Notice also that under a DP-hypothesis the ill-formedness of the following examples can be explained directly:

(6) a. * that Bill's dog
b. * Bill's that dog
c. * the that dog
d. * that the dog
e. * a the dog
f. * the a dog

Under the assumption that determiners, demonstratives and the possessive marking *'s* occur in the D-position, the ill-formedness of the above strings follows from the fact that there are two determiners but only one available D-position. Of course, noun phrases like (6e and f) are also ruled out by the semantics. A noun cannot have a definite and an indefinite interpretation at the same time. The other ill-formed sequences, however, do not seem to be out for semantic reasons. The well-formedness of a phrase like *that dog of Bill's* suggests that the ungrammaticality of (6a,b) is not due to semantics. The fact that determiners and demonstratives can co-occur in certain languages (e.g.

Greek: *afto to vivlio* (that the book))[10] further indicates that the ill-formed examples (6c,d) are not ruled out by some semantic principle.

A sixth potential argument supporting a DP-hypothesis comes from nominals in which an argument phrase originating in a post-determiner position (where it is assigned a theta-role by the noun), appears in a pre-determiner position on the surface. Consider, for example, the following Greek facts (taken from Horrocks & Stavrou (1987)):

(7) a. [to vivlio [tu Chomsky]]
the book the-GEN Chomsky

b. [tu Chomsky$_i$ to [vivlio t_i]]
the-GEN Chomsky the book

In (7a), the argument *tu Chomsky* stands in a position in which it is assigned a theta-role by the noun *vivlio*. In (7b), the argument *tu Chomsky* has been moved into a pre-determiner (non-theta) position. Such a movement operation to a pre-determiner position can be accounted for under a DP-hypothesis, since there is a possible landing site available for the moved category, namely [Spec,DP].[11] Notice now that such movement facts are less easy to capture within a traditional NP-structure which assumes that determiners hang from NP and as such are the most (left) peripheral elements in a noun phrase. One way out would be adjunction to NP, but this is undesirable if we want to stick to the theory-internal assumption that NP, being an argument type category, does not permit adjunction to it.

Also in Dutch it is possible to have elements in a pre-determiner position which originate from within the noun phrase. Consider, for example, the following sentences:[12]

(8) a. [Nergens$_i$ een fatsoenlijk antwoord [t_i op]] kreeg Jan
Nowhere a decent answer to had John
'John had a decent answer to none of his questions'

b. [Niet alleen [overal$_i$ een antwoord [t_i op]] maar ook [overal$_i$ een
Not only everything an answer to but also everything a

mening [t_i over]]] zei Jo dat ie tijdens zijn jeugd had gehad
opinion about said Joe that he during his youth had had
'During his youth, John had not only an answer to every question but also an opinion about everything'

c. [Er$_i$ geen enkel boek [t_i van]] had Jan in zijn kast staan
There no single book by had John in his book-case stand
'John had not a single book by that author in his book-case'

d. [Er$_i$ helemaal geen vertrouwen [t_i in]] had Jan gehad
There entirely no faith in had John had
'John had no faith in it at all'

e. ...en [DAAR$_i$ de broer [t_i van]] is met mijn jongste zus
...and there the brother of is to my youngest sister

getrouwd
maried
'...and the brother of that guy is married to my sister'

f. ..en [met [DAAR$_i$ weer de vader [t_i van]]] heb ik een
..and with there again the father of have I an

boeiend gesprek gehad
interesting conversation had
'..and with the father of that guy, I had an interesting conversation'

In these examples, a so-called R-pronoun (*overal, nergens, er, daar*) stands in front of the determiner. This pronoun is an argument of the preposition that occurs within the noun phrase. So, the R-pronoun originates within the PP and is moved into [Spec,DP] (possibly with movement through [Spec,NP] as an intermediate step). That the R-pronoun occupies a noun phrase internal position in the sentences (8a-e) is shown by the fact that the entire DP occupies the [Spec,CP]-position. So, there is no other landing position available for the R-pronoun under the assumption that adjunction to DP and CP is excluded. In (8f), the R-pronoun occupies the [Spec,DP] of a DP-complement of a preposition. Here again, there is no other landing site available for the moved R-pronoun than the [Spec,DP] if adjunction to DP is not allowed.

It should be noted that the sentences (8e and f) are only acceptable with heavy stress (expressed by capitals) on the R-pronoun. Alternatively, the R-pronoun can remain within the PP-complement of the noun, which yields the sequences *de broer daarvan* and *de vader daar weer van*. For (8c and d), there is the alternative sequence *geen enkel boek ervan* and *helemaal geen vertrouwen erin*, in which the R-pronoun remains inside the PP-complement. Notice, however, that the alternatives of (8a and b) in which the R-pronoun remains inside the PP are - for whatever reason - highly marked or even out.[13]

(9) a. * [Een fatsoenlijk antwoord [nergens op]] kreeg Jan
b. * [Niet alleen [een antwoord overal op] maar ook [een mening overal over]] zei Jo dat ie tijdens zijn jeugd had gehad

Notice also that in (8b), the R-pronouns are part of a coordinate structure. The emphatic coordinating conjunctions *niet alleen...maar ook* conjoin the maximal projection categories DP. In each conjoined DP, the R-pronoun occupies the leftmost position, which is the [Spec,DP]. Notice further that the requirement that only constituents can be coordinated shows that the strings *overal een antwoord op* and *overal een mening over* are in fact syntactic units.

Finally, I would like to mention the fact that the DP-structure as in (1) is in accordance with Neijt's (1979) generalization that emphatic coordinating conjunctions can only conjoin maximal projections. We have already seen that DPs may be emphatically conjoined, since these categories are maximal projections. According to structure (1), it should be possible to emphatically conjoin two NPs, because these are maximal projections too. The following examples illustrate that this is indeed possible with certain nominals.[14]

(10) a. Jan heeft [een [zowel [mooi boek] als [spannend boek]]]
John has a both beautiful book as thrilling book

geschreven
written
'John has written a book which is both beautiful and thrilling'

b. Jan heeft het geluk met [een [niet alleen vreselijk mooie
John has the luck with a not only extremely beautiful

vrouw maar ook vreselijk intelligente vrouw]] te zijn getrouwd
woman but also extremely intelligent woman to be married
'John is lucky being married to a woman who is both extremely beautiful and extremely intelligent'

Notice the meaning of these sentences. The nouns in each of the two coordinated conjuncts refer to the same object. The adjectives in each of the conjuncts are restrictions on these nouns. In (10a), for example, John has written a book which is both beautiful and thrilling. Notice furthermore that this sentence has the same meaning has (11a), but means something different from (11b):

(11) a. Jan heeft [een [zowel mooi als spannend] boek] geschreven
John has a both beautiful and thrilling book written
'John has written a book which is both beautiful and thrilling'

b. Jan heeft [zowel [een mooi boek] als [een spannend boek]]
John has both a beautiful book and a thrilling book

geschreven
written
'John has written both a beautiful book and a thrilling book'

In (11a), two attributive adjective phrases are coordinated. The direct object containing the noun *book* refers to a book which has the properties of being beautiful and thrilling. In (11b), two DPs are coordinated. The sentence can mean that John has written two books, one of which was beautiful and the other thrilling.

Consider also the following nominal infinitive constructions, which possibly can be analyzed as DPs in which the complement of D is a VP-coordination:[15]

(12) a. [DP Het [VP zowel te veel eten als te veel drinken]] is
The both too much eating as too much drinking is

slecht voor de gezondheid
bad for the health
'It is not good for one's health to eat too much and drink too much'

b. [DP Het [VP zowel ermee kunnen schrijven als ermee
The both therewith be-able to-write as therewith

kunnen tekenen]] is een eerste vereiste voor deze opleiding
be-able to draw is a first requirement for this school
'It is a first requirement of this school that one is able to write with it (e.g. a pencil) and to draw with it'

As is shown by tree (1), I assume that adjectival and prepositional modifiers appear inside NP. As far as the [Spec,NP] position is concerned, it might be assumed that it can function as an escape hatch for certain movement operations. It could be argued, for example, that the R-pronouns in (8) are moved successive cyclically from [Spec,NP] to [Spec,DP][16]. The possible occurrence of such local NP-internal movements is also suggested by the following examples from Italian, (taken from Giorgi & Longobardi (forthcoming)):

(13) a. ? [Il [[di lei]$_i$ fratello t_i]]
The of her brother

b. [La [[di lui] madre t_i]]
The of him mother

In these constructions, which are of a literary style, the complement appears to the left of the headnoun and to the right of the determiner. Given the fact that nouns assign their theta-role to the right in Italian, it seems plausible that the complement originates in a position to the right of the headnoun. Consequently, the strings in (13) are possibly derived by a movement operation which moves the complement to a position in between the determiner (D^o) and the headnoun. Under the assumption that adjunction is not permitted to NP (see section 3.5.), the only possible landing position for the moved complement seems to be the specifier of NP.[17]

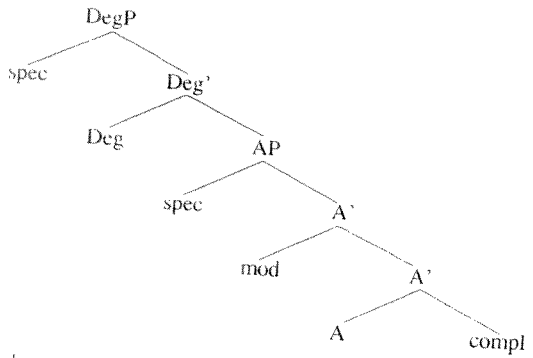
This concludes my presentation of a number of arguments in favor of a DP-structure for nominals. For further arguments supporting the DP-hypothesis, I refer to the literature on this topic mentioned in this section.

3.3 The internal structure of Degree Phrases

I will assume that "full-fledged" adjective phrases in Dutch and English which contain a degree word of the sets given in (14a and b) have a structure as given in (15).[18]

(14) a. Dutch: {hoe, zo, te, even, meer, minder}
b. English: {how, so, too, as, more, less, this, that}

(15)



So, the degree word heads the maximal projection DegP and takes an AP as its complement.[19,20] I further assume that the specifier-position of DegP can be filled with various types of elements (in particular measure phrases; see (16)), and that modifiers like *very* (Dutch: *erg*), *extremely* (Dutch: *vreselijk*) etc. appear inside AP.[21,22]

(16) a. [2 cm te lang]
[2 cm too tall]

b. [zes mijl te ver]
[six miles too far]

c. [vijf keer zo snel]
[five times as fast]

d. [3 centimeter minder lang dan Bill]
[3 centimeter less tall than Bill]

Before presenting evidence in favor of a DegP-structure as given above, I will briefly comment on certain aspects of the PP-complement structure of adjectives in languages such as English and Dutch. In English, complementation to the adjective is straightforward: PP-complements always occur to the right of the adjective (e.g. *proud of Mary*, *angry with Bill*). This order may be derived from the theta-assignment directionality parameter as proposed by Koopman (1984) and Travis (1984): English adjectives assign their theta-role to the right and therefore complements of adjectives are base-generated to the right of them. In Dutch, the complementation of adjectives is

more complex. In general, PP-complements can appear on both sides of the adjectival head, as is exemplified in (17):[23]

(17) a. ...dat Jan [verliefd op Marie]/[op Marie verliefd] is
...that John in-love with Mary / with Mary in-love is

b. ...dat ze [daarvan afhankelijk]/[afhankelijk daarvan] is
...that she there-on dependent/ dependent there-on is

Three analytical options are available for the PPs in (17): (i) the PP-complement is base-generated in a pre-adjectival position at D-structure, and post-adjectival PPs are extraposed and Chomsky-adjoined to AP, forming a theta-chain with a theta-marked PP-trace in pre-adjectival position; (ii) the PP-complement occurs to the right of the adjective at D-structure and is left-adjoined to the AP at S-structure, also creating a theta-chain, but now with a trace in post-adjectival position; (iii) the PP-complement can freely occur in pre- or post-adjectival position, and be governed in that position under government by the adjectival head. If (i) or (ii) were correct, the assignment of a theta-role would be a directional process, and in that case one would expect a different behavior of pre-adjectival and post-adjectival PP-complements. If (iii) were correct, theta-marking would be non-directional for this class of adjectives, and in that case we would expect that the PP-complements behave in a similar way, independently of the superficial position they occupy.

An argument in favor of the non-directionality of theta-role assignment comes from the extractability of R-pronouns from within PP-complements of adjectives. The preposition of both a pre-adjectival and post-adjectival PP may be stranded by R-movement:

(18) a. Het meisje waar$_i$ alle jongens [[t$_i$ op] verliefd] waren geweest
The girl where all boys with in-love had been

heette Marie
was-called Mary

b. Het meisje waar$_i$ alle jongens [verliefd [t$_i$ op]] waren geweest
The girl where all boys in-love with had been

heette Marie
was-called Mary

(19) a. [Er$_i$ vreselijk [t$_i$ op] verliefd] zei Jan dat ie was geweest
There extremely with in-love said John that he had been

b. [Er$_i$ vreselijk verliefd [t$_i$ op]] zei Jan dat ie was geweest
There extremely in-love with said John that he had been

Notice that in (19) the adjective phrase occupies the [Spec,CP] of the matrix clause. This shows that the strings *er vreselijk op verliefd* and *er vreselijk*

verliefd op are constituents. These sentences also illustrate that the R-pronoun *er*, which originates within the PP, can be left adjoined to the adjective phrase.

This P-stranding behavior follows from the theory, if theta-assignment can go in both directions. In that case, both the pre-adjectival and the post-adjectival PP-complement are L-marked (i.e. assigned a theta-role by a lexical category) and therefore accessible to movement operations. If, on the other hand, one of the positions which the PP can occupy is derived, then one expects removal of the R-pronoun to be somewhat worse, since the R-pronoun would be extracted from a non-L-marked category.

Notice that the adjectives in (18) and (19) behave differently from the category V in Dutch. As Koopman (1984) has convincingly shown, theta-marking by V is a directional process. Verbs assign their theta-role to the left in Dutch. Consequently, postverbal PPs are interpreted as forming a chain with a preverbal PP-trace. Those postverbal PPs, which presumably are adjoined to IP, are islands for P-stranding (cf. Koopman (1984)):

(20) a. Waar$_i$ heb jij [t$_i$ op] gerekend?
Where have you on accounted

b. * Waar$_i$ heb jij t$_j$ gerekend [t$_i$ op]$_j$?
Where have you counted on

That removal of an R-pronoun from within an extraposed PP gives somewhat worse results (possibly because of a weak subjacency violation) is shown by the following examples:

(21) a. [Er$_i$ een stuk minder [t$_i$ van] afhankelijk dan Jo]
There a lot less on dependent than Joe

was Jan geweest!
had John been
'John was much less dependent on it than Joe'

b. [Er$_i$ een stuk minder afhankelijk [t$_i$ van] dan Jo]
There a lot less dependent on than Joe

was Jan geweest!
had John been

c. ?? [Er$_i$ een stuk minder afhankelijk t$_j$ dan Jo [t$_i$ van]$_j$] was Jan
There a lot less dependent than Joe on had John

geweest
been

In (21a), the R-pronoun has been removed from within the left branch PP-complement of the adjective to a position left adjoined to DegP. Extraction

from within the PP is permitted, since the PP is L-marked. In (21b), the R-pronoun is reordered out of a right branch PP-complement and is moved to a position adjoined to DegP. Here again, the well-formedness of this structure is expected on the assumption that the PP is L-marked by the adjective. Sentence (21c) is clearly worse than the other two. In this sentence, the R-pronoun is moved out of an extraposed PP-complement which is presumably right adjoined to DegP. The somewhat worse status of this structure may be due to a weak subjacency violation. After extraposition, the PP is no longer L-marked by the adjective and therefore an L-barrier for the fronted R-pronoun.

An extra problem for the assumption that PP-complements are only base-generated to the right of A^o would be the fact that one would predict that the PP-complements after having been moved to the left would always appear in a position peripheral to (i.e. to the left) of the adjuncts, which hang from A'. As the following examples show, however, the PP-complement can occur both to the right and to the left of such adjuncts:

(22) a. [Heel nauw [daaraan] verwant] is Jan
Very closely there-to related is John

b. [[Daaraan] heel nauw verwant] is Jan

(23) a. [Erg [daarvan] afhankelijk] was Jan niet!
Very there-on dependent was John not

b. [[Daarvan] erg afhankelijk] was alleen Jan!
There-on very dependent was only John

(24) a. [Tamelijk goed [daartegen] bestand] is Jan!
Reasonably well there-against proof is John

b. [[Daartegen] tamelijk goed bestand] is Jan!

The order in the a-sentences would be problematic if the adjunct would hang from A'. It would mean that the PP originating from a post-adjectival position would be moved to a position adjoined to A'. Under the assumption that maximal projections (PP) cannot be adjoined to A' because of the structure preservingness requirement on adjunction operations, adjunction of the PP-complement is not possible.[24]

Given the above-mentioned facts, let us make the assumption that PP-complements can be base-generated both to the left and to the right of the adjective in Dutch.[25,26]

After this brief discussion of the PP-complementation system of adjectives, let us return to the DegP-structure given above and provide some arguments supporting this structure. Let us first try to determine in what way degree words differ from modifiers such as *very*, *extremely*, etc. Are their syntactic contexts in which degree words behave differently from these modifiers?

One piece of evidence which suggests that degree elements form a special class and should be distinguished from modifiers such as *very*, *extremely* etc. is their behavior in *though*-preposing contexts. It is impossible for adjective phrases containing degree words to be moved in a position immediately before *though*, whereas it is generally permitted to move an adjective phrase containing an adjectival modifier like *very* into the same structural position. This contrast is exemplified in (25) and (26) (the examples in (26) are taken from Culicover (1980)):

(25) a. Though the house is very expensive, ...
b. Very expensive though the house is, ...

c. Though John is extremely keen on sports, ...
d. Extremely keen on sports though John is, ...

(26) a. Though Fred is that tall, he cannot slam drunk
b. * That tall though Fred is, he cannot slam drunk

c. Though Fred is so tall, he rarely tries to touch the rim
d. * So tall though Fred is, he rarely tries to touch the rim

e. Though Mary is too shy (for her own good), she manages to get along
f. * Too shy (for her own good) though Mary is, she manages to get along

g. Though diamonds are (much) harder than glass is, this one couldn't cut a thing
h. * (Much) harder than glass is though diamonds are, this one couldn't cut a thing

Whatever the explanation for this contrast, it turns out that only those adjective phrases can undergo fronting that do not contain a degree word of the above-mentioned set.

This common behavior of adjective phrases containing degree words is also shown by the following strings, in which the adjective phrase containing a degree word appears in a position preceding the indefinite article.[27]

(27) a. So big a car
b. Too big a car
c. How big a car
d. Less big a car than this one
e. That big a car

It is impossible for adjective phrases containing an adjectival modifier to occur in a position preceding the indefinite article:

(28) a. * Very big a car
b. * Extremely big a car

Given these facts, I assume that the degree words should not be treated on a par with modifiers such as *very* and *extremely*.

Dutch also distinguishes the class of degree words from the class of adjectival modifiers. The former cannot appear in so-called exclamative wh-phrases, the latter can:

(29) a. * Wat een te/minder/zo mooie vrouw!
What a too/less/so beautiful woman

b. Wat een erg/belachelijk/ontzettend/vreselijk mooie vrouw!
What a very/ridiculously/terribly/extremely beautiful woman

In chapter 5, the internal syntax of exclamative phrases will be discussed more extensively.

If it is assumed that degree words occupy a position different from modifiers such as *very* and *extremely*, then it should be possible syntactically to have structures in which both a degree word and a modifier appear. In fact, there are such structures:

(30) a. [How [very interesting]]!
b. [How [very nice of you to invite me]]!
c. The talk was [so [very interesting]]

In these exclamative degree phrases the Deg-position is filled by the exclamative degree words *how* and *so*. Presumably these words are not modifiers contained within the AP *very*, since normally *very* cannot be modified:[28]

(31) * The play was [incredibly very interesting]

Similar facts can be found in Dutch:

(32) a. [Zo [[heel erg] knap]] is ze anders niet!
So quite very pretty is she however not
'She is not that pretty at all'

b. [Zo [[heel erg] warm]] zijn die worstjes niet!
So quite very warm are those sausages not
'Those sausages are not that warm at all!'

c. Ik vond haar [zo uitermate geschikt voor deze baan dat ik
I considered her so extremely capable of that job that I

haar meteen in dienst nam]
her immediately took-on

In these constructions, the degree word *zo* is the head of the DegP. In (32a), it takes the AP *heel erg knap* as its complement, in (32b) the AP *heel erg*

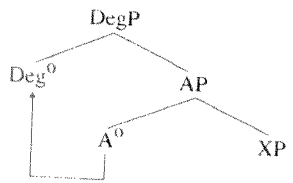
warm and in (32c) the AP *uitermate geschikt voor deze baan*. The APs *heel erg* and *uitermate* function as modifiers within AP. Notice that the degree word *zo* cannot be interpreted as modifying *heel* or *uitermate*, since, as far as I know, these elements cannot be combined with modifiers expressing a degree:

(33) a. * Jan was [[vreselijk heel] boos]
John was terribly very angry

b. * Jan was [[vreselijk uitermate] boos]
John was terribly extremely angry

I will now discuss some facts which seem to support a DegP-structure as given in (15). A first advantage of the DegP-structure is that it makes it possible to derive comparative forms like *taller* and *sicker* by the general head to head movement rule. As is well-known, the comparative morpheme *-er* alternates with the pre-adjectival *more*. I will assume that both elements are base-generated in the Deg^0-position. The comparative morpheme *-er*, however, must be attached to a head. This happens after left adjunction of the adjectival head (e.g. *tall*, *sick*) to it. This formation of the comparative form is an instance of a much more general head to head movement phenomenon, which we also find, for example, in the formation of inflected verbs (V to I).[29]

(34)



In a standard AP analysis, it is generally assumed that the comparative morpheme is base-generated in the spec-position of AP (cf. Emonds (1976)), i.e. the position that also contains *more* as in *more anxious*. There are two possibilities to create a form like *taller*. Either one moves the *-er* morpheme to the adjectival head, or one moves the adjectival head to the comparative morpheme that occupies the spec-position of AP. Both movement operations are quite unusual and I know of no equivalent operations for other syntactic phenomena. The head to head movement operation as it occurs in the DegP-structure, on the other hand, is a much more general movement pattern.

Another phenomenon which is explainable under a DegP-analysis, but not so easily under a standard AP-analysis concerns the possibility of having an empty complementizer in English tensed degree clauses. As Stowell (1981) has pointed out, complementizers of declarative clauses can be empty if they are within the government domain of an appropriate head.[30] Consider, for example, the following sentences:

(35) a. John realized [that he was a fool]
b. John realized [he was a fool]

(36) a. John was aware [that he had to eat well]
b. John was aware [he had to eat well]

(37) a. [That Bill was lying] was obvious
b. * [Bill was lying] was obvious

In (35b) and (36b), the complementizer can be empty because it is within the government domain of a proper head, viz. V and A respectively. In (37b), the complementizer is governed by INFL. The ill-formedness of this sentence shows that INFL is not a proper licenser of an empty complementizer.

Consider also the following examples:

(38) a. John realized during the party that he was a fool
b. ?* John realized during the party he was a fool

(39) a. John was aware yesterday that he had to eat well
b. ?* John was aware yesterday he had to eat well

The impossibility of having an empty complementizer in these sentences is caused by extraposition of the tensed clause. After extraposition the tensed clause is adjoined to VP. V does not govern elements adjoined to VP. Hence, an empty complementizer cannot occur there since it will not be governed by the head by which it is selected.[31]

Now look at the following examples containing a clause which is selected by a degree word:

(40) a. John is [so tall *that* he can look over everyone]
b. John is [so tall - he can look over everyone]

The b-sentence shows that the complementizer of the degree clause can be empty. In a standard AP-analysis, the degree clause is extraposed from within a Degree Phrase occupying the [Spec,AP]-position and subsequently adjoined to AP. As we have seen, normally empty complementizers are impossible if the CP has been extraposed, since it is no longer within the government domain of the head of which it is a complement. This is also shown by the following examples, in which the sentential complement of *so* is adjoined to VP and therefore no longer within the government domain of Deg^0.

(41) a. ?* Jan was [so tired t_i] [after the game] [- he fell asleep]$_i$
c. ?* John was [so tall t_i] [during his youth] [- he could look over everyone]$_i$

The contrast between (40) and (41) is problematic for a traditional AP-analysis of these structures. One would expect that (40b) is ill-formed as well, since the CP containing the empty complementizer has been extraposed and therefore is no longer within the government domain of the head (Deg) by which it is selected.

Notice that under a DegP-analysis, the Deg-head always governs the selected CP in structures like (40). No extraposition has taken place. So, the COMP is always within the government domain of the degree word. Hence, the complementizer can be absent, as long as the clause is DegP-internal.

Another phenomenon supporting a DegP-structure concerns P-stranding within *than*-phrases. Under a standard AP-analysis, the *than*-phrase is a sister of the comparative formative (*more*, *-er*) that occupies the specifier position of AP. AP-internal extraposition derives the surface order *taller than Bill* from the underlying order *[[-er than Bill] tall]*. It is assumed that the *than*-phrase is adjoined to AP (cf. Bowers (1975)). In general, extraction possibilities get worse after extraposition of the constituent containing the element that must undergo movement. This is exemplified below:

(42) a. * Who$_i$ was John [proud t_j] yesterday [of t_i]$_j$?
b. * Which girl$_i$ did you see [a picture t_j] yesterday [of t_i]$_j$?

(43) a. Who$_i$ was John [proud [of t_i]] yesterday?
b. Which girl$_i$ did you see [a picture [of t_i]] yesterday?

Given the islandhood of extraposed PPs, one would expect the same for extraposed prepositional *than*-phrases. It turns out, however, that complements of *than* can be reordered out of the *than*-phrase:

(44) a. Who$_i$ is John [taller [than t_i]]?
b. Which man$_i$ do you consider Bill [stronger [than t_i]]?

Notice that extractions are impossible if the *than*-phrase is extraposed to a position outside the DegP.

(45) a. John was taller [at the time] than me
b. I considered Bill stronger [at the time] than me

(46) a. * Who$_i$ was John [taller t_j] at the time [than t_i]$_j$?
b. * Who$_i$ do you consider John [stronger t_j] at the time [than t_i]$_j$?

Under a DegP-analysis, no extraposition of the *than*-phrase has taken place. The *than*-phrase can be base-generated as a right branch constituent within the DegP-projection (as in (47)). In that case, no island is created because of extraposition.

(47) [$_{DegP}$ [$_{Deg'}$ -er [$_{AP}$ tall]] [than who]]

I will now discuss a second extraposition argument which seems to support a DegP structure. It concerns the structure of Dutch adjectival phrases in which the head is surrounded by the degree word *zo* ('so') and the adjective *mogelijk* ('possible'). An example is given in (48):

(48) Ik zoek een [zo lang mogelijke] jongen
I search (for) a so tall possible boy
'I am looking for a boy as tall as possible'

That *mogelijk* in constructions like (48) really is an adjective is shown by the fact that it bears the agreement marker (inflection *-e*) of the attributive adjective. There is a selectional relation between the degree word and the adjectival modifier. This is shown by the fact that the adjectival modifier cannot occur within the DegP without the degree word, as is exemplified in (49):

(49) * Ik zoek een [lang mogelijke] man
I search (for) a tall possible man

In a traditional AP-structure, the adjective *mogelijk* presumably originates as a complement of the degree word *zo*, which is the head of the right branch specifier Degree Phrase of AP:

(50) [$_{AP}$ [$_{DegP}$ zo mogelijk] lang]

In order to get the superficial structure *zo lang mogelijk*, the adjective phrase *mogelijk* must be extraposed and adjoined to AP. So, the operation is very similar to prepositional *dan*-phrase-extraposition. The problematic part of this analysis, however, is that normally adjectival elements do not undergo extraposition in Dutch. The following sentences, for example, show that an adjective phrase cannot be moved from a preverbal position to a postverbal one:

(51) a. Ik geloof dat Jan [sterk] is
I believe that John strong is

b. * I geloof dat Jan t_i is [sterk]$_i$

Notice further that if one assumes that *mogelijk* can be extraposed, then one also expects that it can be extraposed to a position outside of the AP, for example a postverbal position. Comparison of the extraposition behavior of the AP *mogelijk* and the prepositional *dan*-phrase shows, however, that *mogelijk* cannot be moved further rightwards to a postverbal position.

(52) a. Ik geloof dat Jan zich [[zo t_i] klein [mogelijk]$_i$] maakte
I believe that John himself so small possible made

b. * Ik geloof dat Jan zich [zo klein t_i] maakte [mogelijk]$_i$

(53) a. Ik geloof dat Jan zich [minder [t_i] klein [dan Piet]$_i$] maakte
I believe that John himself less small than Pete made

b. Ik geloof dat Jan zich [minder klein t_i] maakte [dan Piet]$_i$

In the a-examples, extraposition has taken place AP-internally. The b-examples show that the AP *mogelijk* cannot be extraposed to a postverbal position as opposed to the prepositional *dan*-phrase. If the AP *mogelijk* can undergo extraposition, then it is unclear why it cannot be moved further rightwards.

So, generating sequences like *zo lang mogelijk* within a traditional AP-structure has some problems. Under a DegP-structure as in (15), *mogelijk* can be base-generated in a position within the Degree Phrase to the right of the adjective, as in (54). This way, no extraposition is needed within the adjective phrase. Furthermore, the generalization that adjective phrases cannot be extraposed is without exceptions under this analysis.

(54) $[_{DegP}\ [_{Deg'}$ zo $[_{AP}$ lang]] mogelijk]

Another argument supporting the DegP-structure comes from Neijt's (1979) generalization that emphatic coordinating conjunctions (e.g. *niet alleen .... maar ook* ('not only .... but also')) may only conjoin maximal projections. Consider the following sentences:

(55) a. De vorst zocht [een [zo [niet alleen [rijk] maar ook
The king looked-for a so not only rich but also

[dapper]] mogelijke] ridder] voor zijn dochter
brave possible knight for his daughter
'For his daughter, the king was looking out for a knight who was both as rich as possible and as brave as possible'

b. Ik zoek een [zo [hetzij [rijk] hetzij [mooi]] mogelijke] vrouw
I search a so either rich or pretty possible woman
'I am looking for a woman who is either as rich as possible or as beautiful as possible'

c. [Er$_i$ heel wat [minder [zowel [verliefd t_i op] als [trots t_i
There very much less both in-love with and proud

op]]]] was Jan geweest!
of had John been
'Muchless in love with her and proud of her was John!'

d. [Heel wat [minder [er$_i$ zowel [verliefd t_i op] als [trots t_i
Very much less there both in-love with and proud

op]]]] was Jan geweest!
of had John been
'Much less in love with her and proud of her was John!'

Although complex, the sentences are acceptable to my ear. The APs are conjoined by the emphatic coordinating conjunction *niet alleen ... maar ook*, *zowel...als*, and *hetzij...hetzij*. The entire complex coordinated AP is a

complement of the degree word *zo* in (55a,b) and of the degree word *minder* in (55c,d). The well-formedness of these examples affirms the structure in (15), in which a maximal projection (AP) appears as sister of the degree word *zo*.

Under a traditional AP-analysis the well-formedness of these sentences is unexpected, since in that case the degree word would occupy the [Spec,AP]-position and the emphatic conjunctions would conjoin two non-maximal categories (viz. A'), which is not in accordance with Neijt's generalization.

Notice also that in (55c) and (55d), an R-pronoun, which has been moved in an across-the-board fashion from within the PP-complements, is adjoined to DegP and AP respectively. So, these examples also indicate that adjunction to AP and DegP (which are both non-argument type categories) is permitted.

Another potential argument which seems to support a DegP-structure comes from *so*-pronominalization in English. As is well-known, the pronominal element *so* can replace the maximal projection VP. In the following sentence, for example, it replaces the VP *stuck his finger into his mouth*.

(56) John stuck his finger into his mouth, and Peter did *so* too

The pronominal element *so* can also replace adjective phrases, as is illustrated below (example (57a) is taken from Radford (1988)):

(57) a. Many people consider John [extremely rude], but I've never found him *so*
b. John is [very intelligent], and Peter is *so*, too

Notice now the following examples in which the pronominal element *so* replaces the non-maximal category A'.

(58) a. * John is [very proud of Mary] and Bill is [extremely *so*], too
b. * John seems [very exhausted] and Bill seems [terribly *so*], too

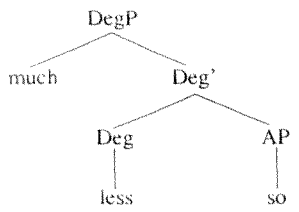
The ill-formedness of these sentences suggests that *so* cannot replace the non-maximal projection A', but that it must replace the maximal projection of the adjective.

Consider next the sentences in (59) ((59a) taken from Radford (1988)) and (59b) from Quirk e.a. (1972)):

(59) a. John used to be very fond of Mary, but now he is much less *so*
b. Although the poor girl was exhausted, she was less *so* than we feared
c. ? John found her very rude, but Peter found her less *so*
d. John was very afraid of the pope, but the archbishop of Canterbury was much less *so*

If *so* can only replace the maximal projection of an adjective, then these facts are problematic for a traditional AP-analysis in which the degree elements *less* and *more* are in [Spec,AP] and sisters of A'. Under a DegP-structure, the well-formedness of the examples in (59) can be accounted for. The pronominal element *so* simply replaces the maximal projection AP, which is a complement of the degree word. So, the DegP *much less so* in (59d), for example, has the following structure.[32]

(60)



This concludes my presentation of a number of arguments which seem to justify the structure in (15). Before turning to the next section, one final note should be made concerning the specifier position within AP. So far, I have not said anything about which elements might fill this position. The problem is that it is not easy to find examples of "full-fledged" DegPs in which all satellite positions are lexically filled. A possible candidate is the complex DegP is sentence (61) below:

(61) [Iets minder [én [die kritiek$_i$ vreselijk t_i beu] én
Somewhat less both that criticism terribly sick-of and

[die opmerkingen$_j$ vreselijk t_j moe]], dat leek me
that remarks terribly tired-of, that seemed to-me

alleen jullie Jan!
only your Johnny
'It seemed to me that only John was both terribly sick of all that criticism and terribly tired of those remarks'

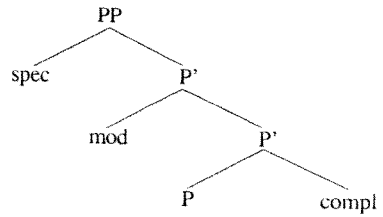
This sentence is a left dislocation construction, in which the largest string between brackets is a DegP that occupies a left peripheral position (sometimes referred to as the TOP-position) and that is followed by a demonstrative pronoun which occupies [Spec,CP]. The structure of this complex DegP is the following: The head of DegP is the degree word *minder*. Its specifier position is filled by the nominal element *iets*. The degree word has as its complement an emphatically coordinated AP. The AP-conjuncts are coordinated by the conjunctions *en .. en*. These coordinated APs are headed by adjectives which select a noun phrase (DP) as their complement. The adjective *beu* has *die kritiek* as its complement, and *moe* has *die opmerkingen* as its complement. As Van Riemsdijk (1983) has pointed out, one of the striking properties of these adjectives is that adjectival modifiers generally appear closer to the adjectival head than the DP-complement in this type of APs (see also Hoekstra (1984)).

This suggests that the DP-complement is moved from its D-structure position (i.e. sister to A°), where it is assigned a theta-role, to a position peripheral to the adjectival modifiers. Notice further that the moved complements occupy a position to the right of the degree word heading the complex Degree Phrase, which suggests that they are located inside the AP-conjuncts. A possible landing position which comes to mind here is the [Spec,AP]-position.[33]

3.4 Left branch elements within PP

In this section, I will give an analysis of the internal structure of prepositional phrases. I will assume the following structure for prepositional phrases in Dutch and English:[34]

(62)



Following Van Riemsdijk (1978), I will assume that the specifier position functions as an escape hatch for complement extractions in languages permitting preposition stranding.

Turning to the left branch modifier position within PP, notice that it can be occupied by various types of elements in Dutch and English:[35]

(63) a. Het lijk ligt [PP [2 meter] onder de grond]
The body lies 2 meter under the ground

b. Het lijk ligt [PP [diep] onder de grond]
The body lies deep under the ground

c. De hond dook [PP [bij Marie] onder de rok]
The dog dived with Mary under the skirt
'The dog jumped under Mary's skirt'

d. Jan zat [PP [pal] in de zon]
John sat right in the sun

(64) a. That animal lives [PP [2 meters] under the ground]
b. He went [PP [deep] into the woods]
c. It lies [PP [right] behind you]

A question which arises is whether the modifiers in the strings given in (63)-(64) are really part of the PP. It could be argued, for example, that the

modifier does not form a constituent with the preposition and its complement, but that it occurs in a PP-external position attached to V'. A number of facts, however, indicate that these modifiers can and should be analyzed as being part of the PP. First of all, the string consisting of the modifier, the preposition and the complement of the preposition can be moved into [Spec,CP]:

(65) a. [Hoeveel meter onder de grond] ligt het lijk?
How-many meters under the ground lies the body

b. [Hoe diep onder de grond] ligt het lijk?
How deep under the ground lies the body

c. [[Bij Marie] onder de rok] dook de hond!
With Mary under the skirt dived the dog
'The dog jumped under Mary's skirt'

d. [[Pal] in de zon] zat Jan!
Right in the sun sat John

(66) a. [[How many meters] under the ground] does that animal live?
b. [[How deep] into the woods] did John go?
c. [[Right] behind you] lies a dog

Note that in Dutch main clauses the finite verb moves into COMP, and in English wh-interrogative main clauses some form of the verb *do* occupies the C-position (if the wh-phrase is not the subject of the matrix clause). Since there is only one landing site available to the left of the COMP, viz. [Spec,CP], the fronted elements in the sentences above must form a constituent.

Second, the following PP-extraposition facts suggest that the modifier is part of the PP:

(67) a. Jan heeft het lijk [diep onder de grond] gevonden
John has the body deep under the ground found

b. Jan heeft het lijk t_i gevonden [diep onder de grond]$_i$
John has the body found deep under the ground

c. * Jan heeft het lijk [diep] gevonden [onder de grond]
John has the body deep found under the ground

(68) a. Hewent [deep into the woods] yesterday
b. ? He went t_i yesterday [deep into the woods]$_i$
c. * He went [deep] yesterday [into the woods]

If the P and its complement are moved rightwards, the modifier has to move along. Under an analysis in which strings like *diep onder de grond/deep into the woods* are analyzed as two separate maximal projections hanging from V',

it is not clear what rules out the c-examples: They would simply involve extraposition of a PP.

Third, if these modifiers are not part of the PP, it is not clear what rules out the ill-formedness of the following sentences, since these could be analyzed as constructions in which a PP is fronted:

(69) * Onder de grond$_i$ heeft Jan het lijk diep t_i gestopt
Under the ground has John the body deep put

(70) * Into the woods$_i$ he went deep t_i yesterday

Of course, these sentences are acceptable if the modifier is absent:

(71) Onder de grond heeft Jan het lijk gestopt
(72) Into the woods he went

Under an analysis in which the modifiers in (67)-(70) occupy a position within the PP that is a sister of P', the ungrammaticality of these sentences may follow from a number of factors: First of all, movement of P' is not in accordance with the stipulation that only maximal projections and X-zero categories can undergo movement (see Chomsky (1986b)). Furthermore, it would violate the structure preservingness constraint on substitution operations in the topicalization constructions, since a P' (i.e. a non-maximal category) is moved into [Spec,CP], a position which only allows maximal projections. Finally, if the sentences in (69)-(70) involve extraction of a P'-constituent, the Subjacency Condition and the ECP will always be violated within the Barriers system: P' (a non-maximal projection) cannot escape the potential barrierhood of the dominating maximal projections VP and IP (the latter by inheritance). The barrierhood of these maximal projections cannot be voided via adjunction, given the structure preservingness requirement on adjunction operations: a P' cannot adjoin to a maximal projection. So, removal of the P' to the left periphery of the clause crosses two L-barriers: VP and IP. Consequently, the ECP is violated since the P'-trace is not antecedent-governed, and the Subjacency Condition is not satisfied because of the two L-barriers that intervene between the initial trace and the nearest antecedent of the moved category.

Fourth, the following complex PPs from Dutch and English clearly show that modifiers can be part of a PP.

(73) a. [tot [5 minuten voor de voorstelling]]
till 5 minutes before the performance
b. [sinds [enkele dagen na dat ongeluk]]
since a-few days after that accident

(74) This vase dates [from [several years before the war]]

In these examples, the measure phrase is contained within a PP-complement of another preposition.

Fifth, the following coordination facts suggest that the left branch modifier must be part of the PP:

(75) a. * ..dat Jo zijn duim diep zowel in mijn mond als in
..that Joe his thumb deep both in my mouth and in

jouw mond stak
your mouth stuck

b. * John stuck his finger deep both into Mary's mouth and into Pete's mouth

If the modifiers *diep* and *deep* in these sentences are base-generated outside of the PP, then it is not clear what blocks emphatic conjunction of the two PPs involved in these sentences. Notice that absence of the adjectival modifiers yields well-formed sentences:

(76) a. ..dat Jan zijn duim zowel in mijn mond als in jouw mond stak
b. John stuck his finger both into Mary's mouth and into Pete's mouth

If, however, the adjectival modifiers in (75) are part of the PP, then the ungrammaticality of these strings can be accounted for in the following way: The adjectival modifier is attached to P'. This means that the emphatic coordinating conjunctions in (75) conjoin two P'-constituents. This violates Neijt's (1979) generalization that emphatic coordinating conjunctions can only conjoin maximal projection categories.

Given the considerations above, I will assume that the modifiers in (63)-(64) are contained within the PP.

Having established the constituenthood of strings like *diep onder de grond/2 meter onder de grond*, a second question concerning the internal structure of these strings should be addressed, namely: Which element is the head of this constituent. The structural analyses given in (63) and (64) already show that I will consider these strings PPs, which - in accordance with X-bar theory - are headed by P, and in which the modifier occupies a left branch adjunct position. An alternative structural analysis of these strings which comes to mind, is one in which the strings *diep onder de grond* and *2 meter onder de grond* are considered an adjective phrase and a noun phrase respectively in which *onder de grond* functions as a sort of post-adjectival or post-nominal prepositional modifier.

(77) a. [NP 2 meter [PP onder de grond]]
b. [AP diep [PP onder de grond]]

On the basis of a number of syntactic arguments, I will show that this alternative structural analysis is inappropriate.

A first argument in favor of analyzing these sequences as PPs and not as noun phrases or adjective phrases containing a PP-modifier comes from subcategorization. Consider, for example, the following sentences:

(78) a. Jan woont [2 meter/diep onder de grond]
John lives 2 meter/deep under the ground

b. John lives [2 meters/deep under the ground]

If the string between brackets had the noun *meter/meters* or the adjective *diep/deep* as heads with *onder de grond/under the ground* as some sort of a right branch modifier within the maximal projection of these heads, then we would expect that the noun and the adjective could also appear alone, i.e. without the PP-modifier, given the optionality of modifiers. The following sentences, however, show that neither the noun phase *2 meter(s)* nor the adjective phrase *diep/deep* can occur as a complement subcategorized for by the verb:[36]

(79) a. * Hoeveel meter$_i$ woont Jan t_i?
How many meter lives John

b. ?* Hoe diep$_i$ woont Jan t_i?
How deep lives John

(80) a. * How many meters$_i$ does he live t_i?
b. ?* How deep$_i$ does he live t_i?

The following sentences show that the PP *onder de grond/under the ground* can occur as complements of the verb *wonen/live*.

(81) [Onder de grond] woont Jan
Under the ground lives John
(82) [Under the ground] he lives

On the basis of these facts, it is clear that a structural analysis as in (77) is incorrect, and that the correct analysis is one in which the phrase *2 meter/diep* is a left branch modifier within the PP.

A second argument for regarding these sequences as PPs (and not as noun phrases or adjective phrases containing a PP-modifier) is already illustrated by the examples in (67) from Dutch. Dutch is an SOV language and it only allows CP and PP in extraposed position. So, if in the sequence *diep onder de grond* the adjective *diep* were the head of this phrase, then we would expect that this phrase, being an AP, could not occur in extraposed position. (67b), however, shows that the string *diep onder de grond* can occur in an extraposed position, which suggests that it is a PP rather than an adjective phrase.

My third argument against structures as in (77) is based on the fact from English that fronting of a sequence like *deep into the woods* may trigger

inversion of a nonpronominal subject with a verb that is in the simple past or present in English. This inversion can occur with fronted directional PPs, but never with fronted APs (cf. Emonds (1976)).

(83) a. * Fast ran this gnu!
b. Into the woods ran a herd of gnus!

Consider now the following well-formed example:

(84) [Deep into the woods] ran a herd of gnus!

The grammaticality of this sentence suggests that a sequence like *deep into the woods* is a PP containing an adjectival modifier, rather than an adjective phrase that contains a prepositional modifier.

My last argument in favor of a PP-analysis is the fact that the strings at issue can appear in focus position in so-called cleft constructions. As Jackendoff (1977) has pointed out, NPs and PPs can occur in this position, but not APs:

(85) a. It was [under the ground] that I found the body
b. * It was [carefully] that John stuck his finger into his mouth

Consider now the following example:

(86) It was [deep under the ground] that I found the body

The grammaticality of this sentence shows that the string in brackets should be analyzed as a PP containing an adjectival modifier, and not as an adjective phrase containing a PP-modifier.

From the arguments above I conclude that strings like *2 meter/diep onder de grond* should be considered PPs in which the elements *diep* and *2 meter* function as left branch modifiers.

I will now turn to a discussion of the internal structure of PPs like *bij Marie onder de rok* in Dutch (see (63c)). It should be noted that the PP headed by *bij* has a locative interpretation and specifies the location/direction expressed by *onder de rok*. I assume that the PP headed by *bij* should be analyzed as a left branch modifier within the complex PP in this sentence.[37] So, I will not propose an analysis in which the preposition *bij* is considered the head of the complex PP and the string *onder de rok* a sort of right branch PP-modifier. A first argument in favor of analyzing the PP headed by *bij* as a left branch adjunct comes from selection restrictions. Consider, for example, the following sentences (notice that the string in brackets occupies the [Spec,CP]-position, which suggests that it is one constituent):

(87) a. [Bij Marie onder de rok] dook de hond
With Mary under the skirt dived the dog
'The dog dived under Mary's skirt'

b. [Bij Marie in de huid] trok de zalf
With Maryinto the skin soak the ointment
'The ointment got into Mary's skin'

c. [Bij Marie in de keel] stak de tandarts zijn vinger
With Mary in the throat stuck the dentist his finger
'The dentist stuck his finger into Mary's throat'

If *bij* were the head of the entire PP in these examples, we would expect that the modifying phrases *onder de rok*, *in de huid* and *in de keel* could be absent given the optionality of modifiers. The ill-formedness of the following examples, however, shows that this is impossible:

(88) a. * Het kind dook bij Marie
b. * De zalf trok bij Marie
c. * De tandarts stak zijn vinger bij Marie

The ungrammaticality is caused by the fact that the verbs *duiken* ('to dive'), *trekken* ('soak') and *steken* ('stick') select directional PPs, and not locative PPs. Notice now that the following sentences, in which the string *bij Marie* is absent, are well-formed:

(89) a. Het kind dook onder de rok
b. De zalf trok in de huid
c. De tandarts stak zijn vinger in de keel

This suggests that the PP, of which *bij* is the head, should be interpreted as a left branch modifier within a dominating PP.

A second piece of evidence which shows that the PP headed by *bij* can occur as left branch modifier within complex PPs comes from certain ordering facts within such PPs. Consider, for example, the following sentence, in which the complex PP occupies the [Spec,CP] position:

(90) [PP[Zo ver mogelijk] bij Marie in de keel] stak
As far possible with Mary into the throat stuck

Jan zijn vinger
John his finger
'John stuck his finger as far as possible into Mary's throat'

If the preposition *bij* is considered the head of this complex PP, then the adjective phrase (i.e. DegP) *zo ver mogelijk* can only be analyzed as a left branch modifier occupying an adjunct position within the PP headed by *bij*. Such an interpretation is not very plausible, however, because normally this adjective phrase cannot function as a modifier of the locative preposition *bij*. In fact, the string *zo ver mogelijk* in (90) can only be interpreted as modifying *in de keel*, which expresses a direction. The only plausible structure of the complex PP is one in which the preposition *in* is the head of the entire PP. The phrases *zo ver mogelijk* and *bij Marie* are both left branch modifiers

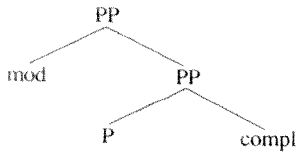
within this PP. The correctness of this analysis is supported by the possibility of permuting the modifiers (as in (91)).[38]

(91) [[Bij Marie] [zo ver mogelijk] in de keel] stak Jan zijn vinger

Given the arguments above, I will assume that PPs headed by *bij* can occur as left branch adjuncts within PPs in Dutch.

I will end this section with some considerations concerning the hierarchical position of left branch modifiers in such strings as *diep onder de grond* and *2 meter onder de grond*. So far, I have simply assumed that left branch modifiers like *diep* and *2 meter* are sisters of P'. So, I will not adopt a structure in which the modifier is base-adjoined to PP (as in (92)):

(92)



If structure (92) were adopted, one would expect that syntactic rules operating on maximal projections can apply to both PPs in (92), since they are both maximal. It turns out, however, that various syntactic processes can operate on the higher PP-segment, but not one the lower one. Topicalization (93), extraposition (94) and pronominalization (95), for example, can only apply to a string which includes the modifier, but not to one which does not contain the relevant modifier:[39,40]

(93) a. [Diep onder de grond]$_i$ heeft Jan het lijk [t_i] gestopt!
Deep under the ground has John the body put

b. * [Onder de grond]$_i$ heeft Jan het lijk [diep t_i] gestopt!

(94) a. Jan heeft het lijk [t_i] gevonden [diep onder de grond]$_i$
John has the body found deep under the ground

b. * Jan heeft het lijk [diep t_i] gevonden [onder de grond]$_i$

(95) a. Jan ontmoette Marie [3 meter onder de grond] en Piet
John met Mary 3 meter under the ground and Pete

ontmoette haar *daar* ook
met her there too

b. * Jan ontmoette Marie [3 meter onder de grond] en Piet
John met Mary 3 meter under the ground and Pete

ontmoette haar 2 meter *daar* ook
met her 2 meter there too

Under a structure in which a left branch modifier is a sister of P', the ill-formedness of the b-sentences directly follows. For the constructions in (93) and (94), this has already been pointed out above in my discussion of the examples (69)-(70). The ill-formed pronominalization in (95b) may be due to the fact that *daar* can only replace maximal projections (i.e. PPs).

A second reason for not adopting structure (92) comes from the impossibility of modifier extractions out of adjunct-PPs. If an adjunction structure as in (92) is assumed, then one expects removal of left branch modifiers (e.g. measure phrases) from within adjunct-PPs to be possible within a Barriers system, since the higher (non-L-marked) PP-segment does not count as a BC and an L-barrier for the left branch modifier trace, because it does not dominate that trace. So, the measure phrase can be freely removed without violating the ECP. As is illustrated by the following examples, however, it is impossible to reorder a measure phrase out of an adjunct-PP:

(96) a. * Ik vraag me af [hoeveel meter$_i$ hij Marie [t_i onder
I wonder REFL PRT how-many meter he Mary under

de grond] ontmoet heeft]
the ground met has

b. * How many meters$_i$ did he meet Mary [t_i under the ground]?

Under an analysis in which a left branch modifier is a sister of P', the modifier cannot be reordered out of the adjunct-PP, since the modifier-trace left behind after extraction will not be properly governed because of the L-barrierhood of the dominating adjunct-PP. Recall that the barrierhood of the adjunct-PP cannot be circumvented by adjoining to it, since PP is an argument type category.

A last potential argument against structure (92) comes from coordination constructions involving emphatic conjunctions. Under structure (92), it is not clear what causes the ill-formedness of the coordinated structure *ver zowel voor zonsopgang als voor zonsondergang* in (97a). This string could be analyzed in the following way: The lower PP-segment consists of a coordinate structure in which the emphatic conjunctions *zowel...als* conjoin two PPs (i.e. two maximal categories). So, the ill-formedness of the coordinated structure in (97a) cannot be explained in terms of Neijt's generalization that only maximal projections can be coordinated by emphatic conjunctions, since the PP-conjuncts are maximal under structure (92). Of course, if the left branch modifiers are sisters of P', the ungrammaticality of (97a) can be accounted for, because in that case the emphatic conjunctions conjoin two P'-constituents (i.e. non-maximal categories), which is not allowed. Notice, finally, that the

coordinate structure in sentence (97b) is in accordance with Neijt's generalization. In this sentence, a left branch modifier is contained in each of the two PP-conjuncts.

(97) a. * [Ver zowel voor zonsopgang als voor zonsondergang] hoor
Far both before sunrise and before sunset hear

je de mees
you the titmouse

b. [Zowel ver voor zonsopgang als ver voor zonsondergang] hoor je de mees

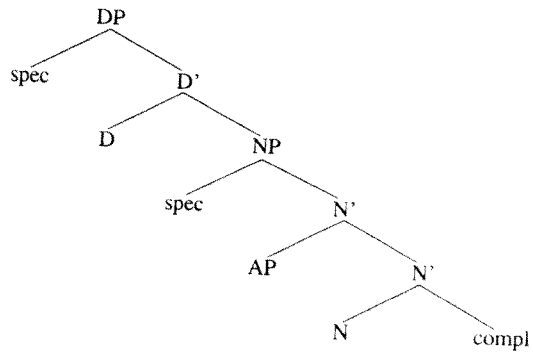
This concludes my presentation of a number of arguments supporting the PP-structure in (62), which will be assumed in the rest of this study.

3.5 The internal syntax of phrases and barrierhood

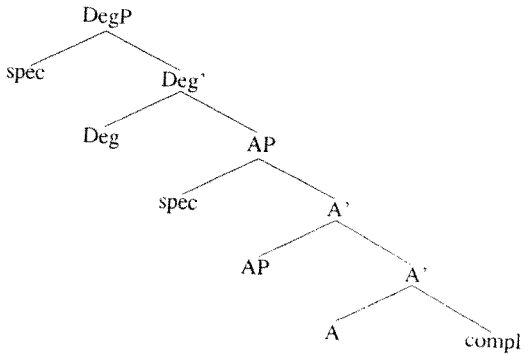
Having motivated certain aspects of the internal syntax of DP, DegP and PP, let us consider how these structures interact with the definitions of barrierhood within the Barriers system.

Consider again the main structures in Dutch and English as given in (98) below. As has been noted in the previous chapter, Chomsky's Barriers theory claims that maximal projections can become L-barriers in one of two ways: (i) an XP is an inherent L-barrier if XP is not L-marked; (ii) an XP is an L-barrier by inheritance if it dominates a non-L-marked category. This theory has the following implications for removals from DP. Suppose DP is a direct object. In that case, DP is L-marked by the verb and therefore not an L-barrier. NP, however, is not L-marked, since D is not a lexical category assigning a theta-role to NP. Consequently, NP is an inherent L-barrier. It also means that DP can become an L-barrier by inheritance if an element is reordered directly out of the NP to a position external to DP. As far as adjunction is concerned, I will assume that the category DP cannot function as a host for adjunction operations, since it is an argument type category. Furthermore, the L-barrierhood status of the NP cannot be voided either via adjunction to this maximal projection. Following Torrego (1988), I will assume that adjunction to NP is not permitted, since it would block transfer of agreement features (e.g. gender, number) from D^o to N^o.[41] The lower NP-segment and N^o would become, as it were, invisible to percolation of agreement features from D^o.

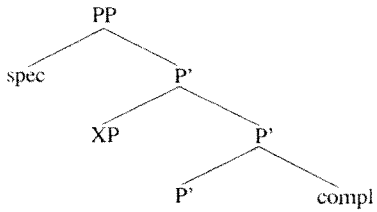
(98) a.



b.



c.



Consider next, how the Barriers system applies to the DegP-structure. Suppose that DegP is a complement of a copular verb. In that case, DegP is not L-marked, under the assumption that copular verbs do not assign a theta-role to the predicative DegP. Since it is not L-marked, DegP is an L-barrier. As far as AP, the complement of Deg^o, is concerned, this maximal projection is not L-marked, because Deg^o is not a lexical category assigning a theta-role to AP. Therefore, AP is a BC and an L-barrier. With respect to adjunction, it should be noted that both DegP and AP are nonargument type categories and therefore permit adjunction to them.

Consider finally PP. If it is assigned a theta-role by some lexical category, it is not an L-barrier. Adjunct-PPs, however, are not assigned a theta-role, and therefore behave like L-barriers. Since PPs are considered argument type categories, adjunction to PP will not be allowed.

In the remaining chapters of this study, it will be shown how the (non-) extractability of various types of left branch elements from within DP, DegP and PP can be accounted for in terms of such general principles as the Subjacency Condition and the ECP.

Before ending this chapter, I would like to point out that this study is limited in certain respects. First of all, I will concentrate on the extraction possibilities of left branch elements in Dutch and English. Furthermore, I will focus on the left branch extractability of constituents contained within the above-mentioned structures, i.e. DP, DegP and PP. So, left branch extractions from CP, IP and VP will not be discussed very extensively. Note, however, that these are precisely the categories that have been studied in (more) detail in the literature. Left branch extraction from CP can be found in sentences in which an element, contained within an embedded clause (CP), is moved successive cyclically through [Spec,CP] to the next landing site in the higher clause (e.g. (99)). An example of left branch extraction from IP is subject-noun phrase removal. In (100a), the subject of the IP-clause, which is selected by the ECM-verb *believe*, has been fronted. Sentence (100b) illustrates the well-known *that*-trace effect, which can be reduced to the ECP (cf. Chomsky (1986b)): extraction of a left branch subject-noun phrase from within an embedded CP of which the COMP-position is lexically filled, yields an ill-formed structure, because the lexical complementizer blocks antecedent government of the subject-trace by the antecedent in [Spec,CP].[42]

(99) Who$_i$ do you think [$_{CP}$ t_i that [$_{IP}$ Bill saw t_i]]]?

(100) a. Who$_i$ do you believe [$_{IP}$ t_i to come]?
b. Who$_i$ do you believe [$_{CP}$ t_i (*that) [$_{IP}$ t_i will kiss her]]]?

Finally, left branch extractions from within VP can be found in Dutch. Consider, for example, the following sentence in which a direct object-noun phrase has been moved into [Spec,CP].

(101) Jan vroeg zich af [$_{CP}$ wie$_i$ [$_{IP}$ hij [$_{VP}$ t_i haatte]]]
John wondered REFL PRT who he hated
'John wondered who he hated'

Despite these limitations, I hope that this study deepens our insight into the syntax of left branch extractions.

Notes to chapter 3

1. Various interpretations have been given to the notions 'complement' and 'specifier' in different versions of X-bar theory. In Jackendoff (1977), for example, it is argued that specifier positions are positions preceding the projection-line of the head of the dominating maximal projection. Complement-positions, on the other hand, follow the main projection line. In later versions of X-bar theory, the notions specifier and complement got interpreted in a more hierarchical way, rather than in a linear way. Chomsky (1981, 1986a/b), for example, refers to maximal projections hanging from X' as complements. Specifiers hang from X" (= Xmax). In Van Riemsdijk (1989) a version of X-bar theory is proposed in which specifiers are considered zero-level categories which are immediately dominated by a maximal projection: Determiner (= Det^o) is the canonical specifier of NP, I^o or AUX^o is the canonical specifier of VP.

2. I will adopt Chomsky's (1986b, 4) proposal that the intermediate X-bar level (i.e. X') may be absent if a specifier/modifier is missing. In that case, the specifier/modifier position and the complement position fall together. The absence of empty intermediate projections can be described in a system as developed in Muysken (1983), in which bar-levels are defined in terms of the features [+/- maximal] and [+/- projection] (cf. also Thiersch (1985)). This yields the following classification of bar-level categories: zero-level categories are [X,-proj,-max]; intermediate projections are [X,+proj,-max], and maximal projections are [X,+proj,+max]. The fourth possible combination is : [X,-proj,+max]. That is, a category that does not have a projection at all: Possibly, particles belong to this class.

3. Under the assumption that small clauses exist, base-adjunction to maximal projections seems to be required as well:

(i) [$_{XP}$ Subject [$_{XP}$ ..]]

In this small clause structure, the predicate phrase is a maximal projection, to which the subject is adjoined (cf. a.o. Manzini (1983)). One would not need base-adjunction to Xmax, if a small clause structure is adopted as in Stowell (1981, 1983):

(ii) [$_{XP}$ Subject [$_{X'}$ ..]]

Structure (i) seems to be preferred to (ii), however, given the fact that it is possible to move the predicate phrase of the small clause:

(iii) [How intelligent]$_i$ do you consider [him t_i]?

If it is assumed that intermediate projections (i.e. X'-categories) cannot be moved, as opposed to maximal projections, then structure (i) must be preferred (cf. also Stowell (1989)).

4. For more information about the DP-hypothesis, see among others: Brame (1981), (1982), Hudson (1984), Abney (1985), (1986), (1987), Hellan (1985) , Reuland (1985), Thiersch (1985), Fukui (1986), Speas (1986), Fukui & Speas (1986), Hale & Selkirk (1986), Haider (1987), Torrego (1988), Bowers (1987), Stowell (1989).

5. I will use the notion 'noun phrase' as a term covering both DPs and NPs.

6. The assumption that 's occupies the D^o-position will be motivated in more detail in chapter 7.

7. I will tentatively assume that plural indefinite noun phrases as in (i) have a D-position which is not lexically filled. Possibly, it is filled by a null-determiner (cf. Kraak & Klooster (1968), Verkuyl (1981)):

(i) John likes [fast cars]

See also Beninca (1980) for a discussion of determinerless noun phrases.

8. "SM" and "OM" abbreviate respectively "subject agreement marker" and "object agreement marker".

9. Jackendoff (1977) observes that it is possible to have determiners associated with the gerundive:

(i) [This chasing butterflies of John's] must cease
(ii) There's [no stopping him]

Possibly, Dutch nominal infinitive constructions as in (iii) (cf. Van Haaften e.a. (1985)) could be assigned a structure as in (iv), in which the determiner takes a VP-complement:

(iii) [Het met een vulpen kunnen schrijven] is een vereiste
The with a fountain-pen to-be-able to-write is a requirement

voor deze baan
for this job
'Being able to write with a fountain pen is required for this job'

(iv) $[_{DP}$ het $[_{VP}$ met een vulpen kunnen schrijven]]

10. See Horrocks & Stavrou (1987).

11. As far as I know, it is only possible to move one phrase in front of the determiner. This follows if only the specifier position of DP can function as a landing site for elements moved into a pre-determiner position.

12. R-pronouns in Dutch can also occupy a left peripheral position within a determinerless noun phrase. Consider, for example, the following examples:

(i) a. [Nergens$_i$ zin [t_i in]] had Jan die dag gehad
Nowhere desire for had John that day had
'That day, John didn't feel up to anything'

b. [Nergens$_i$ anders behoefte [t_i aan]]$_j$ zei Jan dat ie t_j had gehad
Nowhere else need of said John that he had had
'John said that he didn't need anything else'

13. That R-pronouns such as *nergens* and *overal* can appear in [Spec,PP] in other syntactic environments is shown by the following examples:

(i) a. [Nergens anders aan] denkt Jan!
Nothing else about thinks John
'John thinks about nothing else'

b. ..omdat de baby [niet alleen [overal op] maar ook [overal
..because the baby not only everywhere on but also everywhere

onder]] kroop
under crawled
'..because the baby crawled not only on everything but also underneath of everything'

In (ia), the string *nergens anders aan* occupies the [Spec,CP], which shows that it is a constituent, namely PP. In (ib), the strings *overal op* and *overal onder* are coordinated by the emphatic conjunctions *niet alleen....maar ook*. This coordination structure also shows that these strings are constituents (viz. PPs).

14. Notice, however, that sometimes these emphatic coordinations are not permitted (cf. also Neijt (1979)):

(i) a. * Jan kende [de zowel man als vrouw]
John knew the both man and woman

b. * Jan vindt [de zowel groene auto's als blauwe auto's] mooi
John considers the both green cars and blue cars beautiful

At the moment, I have no idea what principle accounts for the contrast between these examples and the ones given in (10).

15. Notice that an R-pronoun can be moved in an across-the-board fashion to the left periphery of the coordinated VP-complement of the determiner:

(i) [Het [er$_i$ zowel [t_i mee] kunnen schrijven als [t_i mee] kunnen
The there both with being-able-to write as with being-able-to

tekenen]] is een eerste vereiste voor deze opleiding
draw is a first requirement for this schooling
'For this schooling, one must be able to write with it (e.g. a crown pen) and draw with it'

16. If R-pronouns move through [Spec,NP], one of the questions which arises is why these R-pronouns cannot remain in [Spec,NP]:

(i) a. [Helemaal geen zin erin] had Jan gehad
Entirely no desire there-for had John had

b. * [Helemaal geen er$_i$ zin [t_i in]] had Jan gehad

c. [Er$_i$ helemaal geen t_i zin [t_i in]] had Jan gehad

I have no answer to this question. Notice, however, that this is a much more general question which also arises in connection with successive cyclic movement through [Spec,CP]:

(ii) a. Ik denk [dat ie Jan [daarmee] zal slaan]
I think that he John there-with will hit
'I think that he will hit John with it'

b. * Ik denk [daar$_i$ dat ie Jan [t_i mee] zal slaan]
c. Daar$_i$ denk ik dat ie Jan [t_i mee] zal slaan
There think I that he John with will hit

These sentences show that although the R-pronoun can be moved to the highest [Spec,CP]-position via successive cyclic movement through the [Spec,CP] of the embedded clause, the R-pronoun cannot stay within the [Spec,CP] of this embedded clause. Notice that this cannot be due to the doubly filled COMP-filter, since in other contexts it is permitted to have both an element occupying the [Spec,CP] and a complementizer:

(iii) Ik weet niet [waar$_i$ of ie Jan [t_i mee] geslagen heeft]
I know not where whether he John with hit has
'I don't know with what object he hit John'

17. Giorgi & Longobardi assume a traditional NP-structure. They assume that extraction of possessive NPs involves movement through [Spec,NP]. See also Sportiche (1988).

18. See also Brame (1982), Abney (1987), Bowers (1987), Dasgupta (1988).

19. Following Bowers (1987), I will tentatively assume that the DegP-projection can be absent in strings like *proud of Bill*, in which no degree word is present. An alternative analysis would be to say that there is an empty DegP-projection on top of the AP (cf. Abney (1987)). Actually, both approaches are compatible with my analysis of left branch extractions from within APs as presented in chapter 8. One might think that it makes a difference, since Deg^0 does not L-mark AP and therefore creates an L-barrier. However, the L-barrierhood of AP can always be circumvented via adjunction to this category (AP is a nonargument type category). Consequently, both options are much the same with regard to extraction.

20. In this study, I will use the notion 'adjective phrase' as an 'umbrella' term for DegPs and APs.

21. An alternative analysis of a string like *2 cm te lang* ('2 cm too tall') would be one in which *te lang* is analyzed as a postnominal modifier of the preceding measure noun. So, the string would be assigned the following structure:

(i) [$_{NP}$ 2 cm [te lang]]

Such an analysis is implausible for the following reasons: First of all, if *cm* would be the head of this string, then a nominal could appear as a left branch modifier within another noun phrase in Dutch:

(ii) [Jans [2 cm te lange] vriend]
John's 2 cm too tall friend

Normally, nominals cannot appear as left branch modifiers of nouns however, as is shown in (iii). This is unexpected under an analysis as in (i).

(iii) * Jans 2 meter vriend

A second argument against the structures in (i) comes form verbs that are subcategorized for an adjective phrase and can never take a noun phrase-complement. One such verb is the verb *eruit zien* ('to look') in Dutch:

(iv) a. Marie ziet er jong uit
Mary sees there young PRT
'Mary looks young'

b. Marie ziet er [10 jaar jonger] uit
'Mary looks younger by ten years'

c. * Marie ziet er [10 jaar] uit
'Mary looks ten years'

The ungrammaticality of (ivc) shows that the noun phrase *tien jaar* cannot appear as a complement of the verb *eruit zien*. Consequently, analyzing the string *10 jaar jonger* as a noun phrase in which *jonger* is some sort of a postnominal modifier is not very plausible, since it would mean that in that case the verb *eruit zien* takes a nominal complement.

22. Notice that measure phrases also occur in the specifier position of DP: *a week's holiday/two hours' delay*

23. There is a small class of adjectives which only permits right branch PP-complements (cf. Van der Lubbe (1978), Hoekstra (1984)):

(i) a. ...dat Jan [dol op kersen]/*[op kersen dol] is
...that John fond of cherries/*of cherries fond is

b. ...dat Jan [gek op kinderen]/*[op kinderen gek] is
...that John crazy about children/ *about children crazy is

I will assume that it specified in the lexical entry of these adjectives that they can only take PP-complements to their right (cf. also Hoekstra (1984)).

24. In certain environments the PP-complement must occur to the left of the adjectival head, namely if the AP occurs as an attributive modifier inside NP:

(i) a. [een [[op Marie] verliefde] jongen]
a with-Mary in-love boy

b. * [een [verliefde [op Marie]] jongen]

The ill-formedness of (ib) may be accounted for in terms of the Head Final Filter as proposed by Williams (1982).

25. A question that is raised is: Why do verbs but not adjectives assign their theta-roles uni-directionally. It could be that the bi-directional theta assignment property of adjectives is related to their [+N,+V] status. It is imaginable that adjectives, being both nominal and verbal in a way, have the theta-assignment properties of verbs and nouns. As we have seen, Dutch verbs always assign their theta-role to the left, while nouns assign their theta-role to the right. In English, adjectives always assigns their theta-role to the right, just like nouns and verbs. It should be noted that this is all rather speculative. For the moment, however, I will assume that adjectives can assign a theta-role to the right and to the left in a language like Dutch. Another possibility would be to say that adjectives are unspecified for theta-role assignment and therefore permit PP-complements to occur on both sides at D-structure. See Travis (1989) for a discussion of unspecified parametric values.

26. It should be noted that certain adjectives in Dutch can take noun phrase complements (cf. Den Besten (1981), Van Riemsdijk (1983)). Adjectives that are subcategorized for these noun phrase-complements require them to occur in a pre-head position. Consider, for example, the following sentence:

(i) ...dat Jan [die kritiek beu]/*[beu die kritiek] was
...that John that criticism tired/*tired that criticism was
'..that John was tired of that criticism'

That the noun phrase complement (as opposed to PP-complements) of an adjective must occur to the left of it can be accounted for in terms of directionality of case assignment: case is assigned to the left by these adjectives.

27. See chapter 10 for a short discussion of this type of structure.

28. I assume that *very* is an adjective. This assumption is motivated by the following facts. First, it can appear as an attributive modifier of the noun (see (i)). Second, sporadically it appears in a comparative or superlative form (see (ii)).

(i) a. John used this very pen
b. John found it at the very bottom of the trunk

(ii) a. The veriest child should be able to understand such a simple thing (taken from Longman Dictionary of Contemporary English)

b. A verier tyrant never lived (taken from Wolters-Noordhoff English Dictionary))

The Dutch equivalent of *very*, *erg*, also exhibits adjectival properties. First, it can appear as an attributive modifier of the noun (see (iii)). Second, it has comparative and superlative forms (see (iv)). Third, it can bear inflection even when it appears as a modifier of an adjective (see (v)). The possibility of bearing the inflection marker *-e* is typical of adjectival elements.

(iii) Jan maakte een erge vergissing
John made a very/terrible mistake

(iv) a. Jan was [nog erger gewond]
John was still more wounded

b. Jan was [het ergst gewond]
John was the most wounded

(v) Jan was een [[erg(-e) rijk-e] man]
John was a very-infl rich-infl man
'John was a very rich man'

29. Notice that AP is not L-marked by Deg^o, since Deg^o is not a lexical category. Hence, one would expect movement of A^o to Deg^o to produce an ECP-violation, since AP should be an L-barrier to antecedent government. One could propose, however, that after A^o-raising the newly formed element is lexical and can L-mark the AP (cf. also Chomsky (1986b, 70) for a similar discussion of the V to I raising operation).

30. I will leave open here whether the licensing of this empty complementizer should be considered an instance of proper government by a theta-assigning category (see Stowell (1981)). The data suggest that at least some connection between the empty COMP and a head is required (cf. also Aoun e.a. (1987)).

31. Notice that even if the CP remains within the adjective phrase the sentence is out:

(i) a. [As afraid as Bill that they would kill him] John certainly was!
b. *? [As afraid t_j as Bill $[_{CP}$ - they would kill him$]_j$] John certainly was!

In the b-sentence, the CP, which originates as a complement of A^o, occurs in a position adjoined to DegP. Since it is no longer within the government domain of the head by which it is selected after extraposition, the complementizer cannot be empty.

32. The constituenthood of the string *much less so* is shown by the possibility of topicalizing it into [Spec,CP] in literary style. This is illustrated in (i):

(i) John was very afraid of the pope, but [much less so] was the archbishop of Canterbury

33. Under the assumption that adjunction to AP is permitted, an alternative landing site would be a position adjoined to AP. It is not easy to find evidence in favor of one or the other analysis.

34. For detailed analyses of the internal syntax of PPs, see Jackendoff (1973, 1977), Van Riemsdijk (1978) and Emonds (1985).

35. Van Riemsdijk (1978) calls these elements 'specifiers'.

36. Sometimes, the verb *wonen* ('to live') can cooccur with an adjective phrase. An example is given in (i):

(i) Jij woont ook hoog!
You live also high
'Do you live high up!'

37. It should be noted that in a sentence like (i) it is less obvious which preposition is the head of the complex PP, since both prepositions are locative and therefore satisfy the subcategorization requirement of the verb *ligt*.

(i) [Bij Marie op het bureau] ligt jouw trui
With Mary on the desk lies your sweater
On Mary's desk lies your sweater'

If *bij* is the head of the complex PP, then *op het bureau* is interpreted as a right branch PP-modifier. If *op* is head of the PP, *bij Marie* is a left branch modifier. It turns out that the string *bij Marie op het bureau* can be pronounced with two intonation patterns, suggesting that there may be two underlying syntactic structures. If *bij Marie* is a modifier, then this element is slightly emphasized. If *op het bureau* is interpreted as specifying the location expressed by *bij Marie*, then there is short pause between *bij Marie* and *op het bureau*. Possibly, it should be analyzed as a sort of appositive.

38. Notice that this example shows that a PP can contain more than one modifier. This means that the P'-level is iterative. In fact, the structure of a PP can be very complex. Consider, for example, the following structure from Dutch:

(i) [Ergens diep bij Marie achter in de keel] zit een zweer
Somewhere deep with Mary back in the throat is an abscess

39. Emonds (1985: fn. 19, p. 303) gives the following ungrammatical examples:

(i) a. * Behind which wall should we plant the bushes three feet?
b. * After which meal should we leave right?

He argues that examples like these are excluded by the prohibition on extracting an X' from within an Xmax which contains other lexical material such as the above-mentioned modifiers, which are analyzed as occupying the specifier position of PP in his analysis.

40. It might be argued that the A-over-A principle (Chomsky (1964)) blocks application of the relevant syntactic processes to the lower PP-segment. As is well-known, however, this principle

meets various empirical problems and therefore its status as a universal principle of grammar is open to question.

41. An alternative explanation of the impossibility of adjoining to NP would be to say that it prevents percolation of the theta-role, which is assigned to DP, to the NP.

42. See a.o. Koster (1987) for a discussion of *that*-trace effects in Dutch.

4 AGAINST WH-MOVEMENT IN DUTCH AND ENGLISH SUBCOMPARATIVES

4.1 Introduction

In this chapter, I consider the question of whether subcomparative constructions in Dutch and English should be analyzed in terms of syntactic wh-movement of a left branch quantifying element from within a compared noun or adjective phrase to COMP (i.e. [Spec,CP]), as has been proposed in Chomsky (1977). On the basis of a number of arguments, it will be concluded in section 4.2 that subcomparatives should not be treated as involving left branch extraction of a quantifying element. Thereupon, I will examine what seems to be an important property of subcomparative constructions: their coordinative character. I should say that a full investigation of the syntactic intricacies of this problematic construction is beyond the scope of this study. The main purpose will be to provide evidence against analyzing subcomparative formation in terms of syntactic wh-movement of a left branch constituent.

Before turning to some evidence against a wh-movement analysis in the next section, I will briefly discuss certain properties of the subcomparative construction. According to the classical analysis of this construction, developed in Bresnan (1975, 1976a,b, 1977), a left branch quantifier ("x-many/x-much") of the compared noun phrase or adjective phrase in the subcomparative clause has been removed. Consider, for example, the following sentences from Dutch and English (the gap position is indicated by the dash):[1]

(1) a. Marie heeft [*meer* boeken] dan ik [- platen] heb
Mary has more books than I records have

b. Mary owns [*more* books] than I own [- records]

(2) a. Deze auto is [lang*er*] dan hij [- breed] is
This car is longer than it wide is

b. This car is [long*er*] than it is [- wide]

(3) a. Marie heeft [*evenveel* boeken] als ik [- platen] heb
Mary has as-many books as I records have

b. Mary owns [*as many* books] as I own [- records]

(4) a. Deze auto is [*even* lang] als hij [- breed] is
This car is as long as it wide is

b. This car is [*as* long] as it is [- wide]

The sentences (1) and (2) are subcomparatives of inequality, whereas (3) and (4) are subcomparatives of equality. In plain English, these sentences have the following interpretation:

(5) a. the extent to which Mary owns books exceeds the extent to which I own records
b. the extent to which this car is long exceeds the extent to which the car is wide
c. the extent to which Mary owns books equals the extent to which Mary owns records
d. the extent to which this car is long equals the extent to which the car is wide

Bresnan's (1975) strongest argument for assuming removal of a left branch quantifying element in the subcomparative clause, is the fact that an overt quantifier cannot appear in the compared constituent:[2]

(6) * John knows as many Romance languages as Bill knows three Germanic languages

Under the assumption that there is a gap in the compared constituent of the subcomparative clause, the question arises what syntactic process is responsible for creating this gap. According to Bresnan (1977), the gap is formed by the (unbounded) rule of comparative subdeletion, which is also used to describe the formation of comparative constructions in which the entire compared element is removed, as in (7):

(7) John owns [more books] than I own [-]

While in subcomparatives the subdeletion rule only deletes the left branch quantifier of the compared constituent, in comparatives like (7) the entire compared constituent is deleted under identity with a constituent in the antecedent clause (*more books* in (7)).

Chomsky (1977) presents a different approach to comparative and subcomparative formation. With respect to the former type, he argues that it should be treated as involving syntactic wh-movement of the compared constituent to the COMP-position of the comparative clause. This analysis of comparative clauses is based on the fact that comparative formation exhibits a configuration of properties which Chomsky considers to be characteristic of the wh-movement rule. The properties of this rule are the following: (i) It leaves a gap; (ii) Where there is a bridge verb, there is an apparent violation of the Subjacency Condition because of successive cyclic movement; (iii) It observes the island constraints (e.g. Complex NP Constraint (CNPC), Wh-island Condition, Sentential Subject Condition). Chomsky suggests that where we find these properties in some system of data, it can be explained in terms of wh-movement.

So, consider the following sentences:

(8) a. John ate [more cookies] than O_i Bill believed [t'_i that Mary had eaten t_i]
b. * John ate [more cookies] than O_i Bill wondered [why Mary had eaten t_i]
c. * John ate [more cookies] than O_i Bill believed [the claim [t'_i that Mary had eaten t_i]]
d. * John ate [more cookies] than O_i [t'_i that Mary had eaten t_i] was likely

Obviously, the first property is satisfied by these sentences; the moved compared element (O) leaves a gap (t_i). Sentence (8a) exhibits the diagnostic criterion (ii), i.e. the complement of *eaten* has been moved to the highest [Spec,CP]-position of the comparative clause via successive cyclic movement through the intermediate [Spec,CP]-position. Sentences (8b), (8c) and (8d) show respectively a violation of the Wh-island Condition, the CNPC, and the Sentential Subject Condition.[3]

Chomsky notes that this wh-movement approach to comparatives might also apply to subcomparative constructions, depending on whether subcomparatives really exhibit the wh-diagnostics. He argues that it is not entirely clear whether subcomparatives exhibit diagnostic (ii), and related to that (iii). The relevant point is that for some speakers there is a decay in acceptability when subcomparative formation applies in an embedded context. This decay in acceptability does not hold for comparative formation. Thus, for these speakers the subcomparative counterpart of (8a) is less acceptable:

(9) % John ate more cookies than O_i Bill believed [t'_i that Mary had eaten [t_i candies]]

Now, if a subcomparative like (9) should be interpreted as having a less acceptable status, then this type of comparative construction should not be described in terms of wh-movement. The island sensitivity (diagnostic (iii)) of the subcomparatives in (10) would be apparent in that case; it should be accounted for in terms of some as yet unknown complexity condition on the process (possibly deletion according to Chomsky) underlying subcomparative constructions.

(10) a. * John ate more cookies than O_i Bill wondered [why Mary had eaten [t_i candies]]
b. * John ate more cookies than O_i Bill believed [the claim [t'_i that Mary had eaten [t_i candies]]]
c. * John ate more cookies than O_i [t'_i that Mary had eaten [t_i candies]] was likely

If, on the other hand, a subcomparative construction like (9) is considered acceptable, then it could be interpreted as involving the process of syntactic wh-movement: According to Chomsky, a left branch "bare" wh-element would be subextracted from the compared constituent and be moved into COMP. In that case, the ill-formedness of the sentences in (10) would be interpreted as island-violations (which are derivable from the Subjacency Condition).

Chomsky notes that "[T]he choice between these two alternatives will have to await a better understanding of the condition on complexity and parallelism involved in C-Sub [Comparative Subdeletion, N.C.] constructions." Unfortunately, it seems that we have not come to a much deeper understanding of this condition since the mid-1970s. Instead of examining the complexity factors, it may be possible to exclude one of the alternatives on the basis of other syntactic arguments. This will be our goal in the next section. Evidence will be presented which suggests that subcomparatives should not be treated in terms of syntactic wh-movement of a left branch wh-element.

4.2 On the absence of wh-movement in subcomparatives

This section provides some arguments against analyzing subcomparative constructions in terms of a syntactic wh-movement operation which sub-extracts a left branch element from within the subcompared constituent and moves it into [Spec,CP]. The counter-argumentation will be based on the following facts: the nonextractability of other left branch constituents from similar syntactic configurations, the violation of certain island conditions, the possibility of having multiple subcomparison within the subcomparative clause and the possibility of having subcompared constituents within syntactic domains that do not include a [Spec,CP] position which should function as the landing site for the moved left branch quantifier.

Let us start with the first type of counterargument, i.e. the nonextractability of other left branch elements from similar syntactic environments. Bresnan (1975) pointed out that one of the main problems for a wh-movement analysis of subcomparatives is that in general left branch quantifying constituents cannot be extracted from the containing maximal projection by known movement rules. This is shown for English by the following examples:

(11) a. * [How many] did they eat [- cookies]?
b. * [How] is she [- pretty]?

In Dutch, the same contrast holds. Compare, for example, the following embedded wh-interrogative clauses with the subcomparatives (3a) and (4a):

(12) a. * Ik vraag me af [$_{CP}$ hoeveel$_i$ ik [t_i platen] heb]
I wonder REFL PRT how-many I records have
'I wonder how many records I own'

b. * Ik vraag me af [$_{CP}$ hoe$_i$ mijn auto [t_i breed] is]
I wonder REFL PRT how my car wide is
'I wonder how wide my car is'

Chomsky (1977) responds to Bresnan's point of criticism by saying that the left branch quantifiers can be moved away when they are lexically empty. Of course, this is a stipulation. Bresnan (1976b; fn 7) correctly raises the question:" Why should movement of lexically empty phrases, rather than lexically filled ones, be permitted to disobey the left branch condition?"

Furthermore, the following question also immediately arises with respect to the exceptional behavior of nonovert left branch quantifiers: If lexically empty quantifiers are "invisible" for the Left Branch Condition, why not as well for other island constraints, such as the CNPC and the Wh-island condition?

Notice also that there is a problem for the Subjacency Condition as formulated in Chomsky (1977): If you remove the empty left branch quantifier from a noun phrase and move it to COMP (as in (1)), then you cross two bounding nodes in Chomsky's (1977) theory of bounding, viz. NP and S. So, in fact one would expect a subjacency violation. Of course, one could say here again that the empty left branch quantifier is invisible for the bounding nodes, but then one would expect that it is also invisible for the CNPC, the Wh-island constraint etc., i.e. the island constraints that are subsumed under the Subjacency Condition. But, as Bresnan (1975) has pointed out, subcompared constituents are not allowed inside complex noun phrases, wh-clauses, and sentential subjects. For English, this has already been illustrated in (10). For Dutch, this is exemplified in (13) (cf. also Bennis (1978)):

(13) a. * Jan spreekt evenveel Romaanse talen als ik [een vrouw
John speaks as-many Romance languages as I a woman

[die [- Germaanse talen] spreekt]] ken
who Germanic languages speak know

b. * Jan heeft meer fietsen gerepareerd dan Marie zich afvroeg
John has more bikes fixed than Mary REFL wonders

[wanneer hij [- auto's] zou gaan slopen]
when he cars would go cannibalize

c. * Jan heeft meer appels gegeten dan [dat Marie [- peren] moet
John has more apples eaten than that Mary pears must

eten] nodig lijkt
eat necessary seems

It should be noted that the contrast between wh-question constructions like (11) and (12) on the one hand and subcomparative constructions like (1)-(4) on the other hand remains problematic for a government and bounding theory as presented within the Barriers system (see Chomsky (1986b)). Consider, for example, an ill-formed construction as in (11a) and assume, for the sake of illustration, a traditional NP-analysis. Removal of *how many* is not ruled out by the Subjacency Condition within a Barriers system, because the direct object NP is L-marked and therefore not an L-barrier which may trigger a subjacency violation. However, it could be argued that the trace which is left behind after removal of *how many* is not properly governed by the nearest potential antecedent (which is presumably an intermediate trace adjoined to VP) because of minimality: NP could be interpreted as a M-barrier for the trace if a definition of minimality is adopted in which a projection (in this

case, the maximal projection) of a zero-level category creates a barrier for a trace contained within that projection (see Chomsky (1986b)).[4] The point now is that if the trace of the extracted quantifier is not properly governed in (11a), then it is neither in a subcomparative construction in which a left branch quantifier is reordered out of a direct object NP.[5]

Let us now turn to the second type of argumentation against a wh-movement analysis of subcomparative constructions: the fact that subcompared constituents may sometimes occur in typical island configurations. As has been observed by Bresnan, subcomparatives seem to obey the CNPC, the Wh-island condition and the Sentential Subject Constraint. If these constraints are diagnostics for wh-movement, one might interpret this as evidence for a wh-movement analysis. The problem, however, is that there are other configurations that are generally considered to be islands for wh-movement operations as well, that may contain subcompared constituents. The configurations I have in mind are: subject NPs and PPs.

To start with subject noun phrases, as pointed out in Grimshaw (1987), that-trace effects have much less effect in subcomparatives than in comparatives in English. This is illustrated by the following examples ((14a and b) taken from Grimshaw (1987)):[6]

(14) a. Even fewer books were published than we expected that [- magazines] would be
b. Even fewer books were published than we expected (*that) [-] would be

(15) a. ? As many men were hired as you said that [- women] would be
b. As many men were hired as you said (*that) [-] would be

The comparative constructions (14b) and (15b) are strongly out if the complementizer *that* is present, but are well-formed if *that* is absent. Under the assumption that comparatives are derived via wh-movement of the compared phrase into [Spec,CP], this contrast can be explained in terms of the ECP: If *that* is present the antecedent trace in [Spec,CP] does not antecedent govern the trace in subject position, because of the intervening Minimality-barrier C'. If the complementizer position is not lexically filled, C' does not create a M-barrier so that the trace in [Spec,CP] can antecedent govern the trace in subject position.

If wh-movement is at the basis of subcomparative formation, we would expect the sentences (14a) and (15a) to violate the ECP as well. In both sentences, a left branch element is extracted from a subject noun phrase to the [Spec,CP]. Under the assumption that adjunction to noun phrases and IP is not permitted, the left branch element must move directly to the [Spec,CP]. This movement step crosses two L-barriers: the non-L-marked subject noun phrase and the category IP (by inheritance). So, the moved wh-element in [Spec,CP] does not antecedent govern the left branch trace contained within the noun phrase. Notice furthermore that the left branch trace and its antecedent are not subjacent, since they are separated by two intervening L-barriers. Thus, both

the ECP and the Subjacency Condition are violated. Of course, this does not tally with the fairly acceptable status of (14a) and (15a).

Also in Dutch it is not impossible to have a subcompared subject noun phrase in an embedded clause introduced by the complementizer *dat* ('that'), although I should say that these sentences sound a bit odd.

(16) ?? [Meer meisjes] kregen een onvoldoende dan ik dacht dat
More girls got a C than I thought that

[- jongens] een voldoende zouden krijgen
boys an A would get

Since extraction of a subject noun phrase from a *dat* ('that')-clause often yields (fairly) acceptable sentences in Dutch,[7] sentences in which the embedded subject is a subcompared phrase do not contrast or at least not as strongly as in English with sentences in which the embedded subject is a compared constituent (e.g. (17)).[8]

(17) ?? [Meer meisjes] kregen een pop dan ik dacht dat [-] een
More girls got a doll than I thought that a

springtouw zouden krijgen
skipping-rope would get

It seems to me, however, that a sentence like (16) is more acceptable than the following so-called split *wat voor*-construction, in which the left branch question element *wat* has been extracted from the subject *wat voor*-noun phrase of an embedded clause:[9]

(18) * Wat_i denk je [t'_i dat [t_i voor jongens] een voldoende zullen
What think you that for boys an A will

krijgen]?
get
'What kind of boys do you think will get an A?'

As will be shown in chapter 6, subextraction of *wat* from within a *wat voor*-noun phrase having the grammatical function of subject violates the ECP. IP will always inherit L-barrierhood from the non-L-marked subject. The L-barrierhood of IP will block proper government of the left branch trace contained within the subject noun phrase by the nearest antecedent t'_i in the [Spec,CP]-position of the embedded clause.

If the derivation of (16) would also involve subextraction of a left branch constituent from a subject noun phrase, then one would expect this sentence to be strongly out as well, since it would violate the ECP. Its less unacceptable status suggests that ECP is not violated here, and therefore that no syntactic movement has taken place. A question which remains is why a sentence like (16) still has a question mark status. Possibly, this is related to

the fact that the subject noun phrase occurs within an embedded clause. If in Dutch the acceptability of subcomparative formation also decreases in embedded contexts, then this question mark status may be interpreted as being due to some as yet unknown "complexity condition" (see Chomsky (1977)).[10]

A second island configuration in which subcompared constituents seem reasonably acceptable are PPs. As Van Riemsdijk (1978) has pointed out, in general PPs are islands for wh-movement in Dutch. It is, for example, impossible to extract a non-R-pronominal noun phrase like *wie* ('who') from within a PP:

(19) * Wie_i heeft Jan [naar t_i] gekeken?
Who has John at looked

It turns out, however, that for certain speakers of Dutch a subcompared noun phrase can reasonably well occur inside a noun phrase which is the complement of a preposition:[11]

(20) a. ?? Jan heeft tijdens het feest [met [meer jongens]] gesproken dan
John has at the party with more boys spoken than

hij [met [- meisjes]] gedanst heeft
he with girls danced has

b. ? Jan heeft [voor [meer voetbalclubs]] gevoetbald dan hij
John has for more soccerteams played-soccer than he

[voor [- tennisclubs]] getennist heeft
for tennisclubs played-tennis has

At least, they are much better than their comparative equivalents, which according to Chomsky's (1977) proposal should be analyzed as involving wh-movement of the complement noun phrase of the preposition.

(21) a. * Jan heeft tijdens het feest [met [meer meisjes]] gesproken dan
John has at the party with moregirls spoken than

hij [met -] gedanst heeft
he with danced has

b. * Jan heeft [voor [meer clubs]] gevoetbald dan hij [voor -]
John has for more teams played-soccer than he for

getennist heeft
played-tennis has

Furthermore, a sentence like (20a) is considered better than a sentence like (22a), in which the left branch element *wat* has been reordered out of a *wat voor*-noun phrase which is the complement of a preposition. Fronting of the interrogative element *wat* requires pied piping of the PP (see (22b)).

(22) a. * Wat$_i$ heeft hij [met [t$_i$ voor meisjes]] gedanst?
What has he with for girls danced
'What kind of girls did he dance with?'

b. [Met [wat voor meisjes]]$_i$ heeft hij t$_i$ gedanst?

If syntactic wh-movement were at the basis of subcomparative constructions, then it would not be clear what causes the contrast between the sentences in (20) on the one hand and a *wat voor*-construction like (22a) on the other.

Lining up the various island effects, we get the following picture: it is impossible for subcompared constituents to appear in clausal islands (Wh-island, CNPC, etc.). Then there is the observation that there is a decay in acceptability when subcompared constituents are embedded in direct object clauses. Importantly, this decay does not hold for comparative formation. Finally, we have the non-clausal island configurations such as PP-islands. A compared constituent in Dutch cannot appear as a complement of a preposition. Subcompared constituents, however, are fairly acceptable in this position for certain speakers. This asymmetric behavior between comparative formation and subcomparative formation suggests that these are different syntactic processes. The fact that subcomparative formation is better in non-clausal islands, but still "has a funny taste" might indicate involvement of some complexity factor (see Chomsky (1977)). Furthermore, the different behavior of *wat voor*-phrases and subcompared constituents does not seem to be in accordance with an analysis in which subcomparative constructions are derived by the same syntactic process (i.e. wh-movement). However, given the variation in acceptability judgments of these sentences, it does not suffice to establish the absence of syntactic wh-movement in subcomparatives solely on the basis of these island constraints. Therefore, I will now turn to a possibly more convincing argument against the involvement of wh-movement in the derivation of subcomparatives: the existence of multiple subcomparative formation in the subcomparative clause.

Consider the following sentences from Dutch (23) and English (24) in which there appears to be multiple removal in the subcomparative clause:

(23) a. Jan heeft [meer meisjes] [meer peren] gegeven dan Marie
John has moregirls morepears given than Mary

[- jongens] [- appels] heeft verkocht
boys apples has sold

b. Ik denk dat er [meer mannen] [meer vrouwen] bedriegen dan
I think that there more men more women cheat than

er [- vrouwen] [- mannen] bedriegen
there women men cheat

c. Dat besluit maakte [evenveel meisjes] [even blij] als het
That decision made as-many boys as happy as it

[- jongens] [- ongelukkig] had gemaakt
boys unhappy had made

(24) a. Santa Claus gave [more girls] [more dolls] than he had given [- boys] [- pencils]
b. I've made [as many girls] [as happy] as you've made [- boys] [- unhappy]
c. In this class, [more girls] know [more Romance languages] than [- boys] know [- Germanic languages]

In each of these sentences, the subcomparative clause contains two subcompared constituents.

I take it that a sentence like (23a) has the following interpretation (cf. also Von Stechow (1984)):

(25) The number of girls that John has given pears is greater than the number of boys that Mary has sold apples & the number of pears that John has given to girls is greater than the number of apples that Mary has sold to boys

This means, for example, that the ratio 'girls : boys' can be 5 : 3, and the ratio 'pears : apples' can be 4 : 2.

I agree with Von Stechow (1984), that sentence (23a) cannot have the following reading:

(26) The number of those <x,y> such that x is a girl and y is a pear and John gave x y is greater than the number of those <z,w> such that z is a boy and w is an apple and Mary has sold z w

This interpretation is not correct. Suppose that John gave five girls one and the same pear (they share it) and that Mary has sold one boy two apples. In that case, (26) would be satisfied, since we would have more pear-receiving girls than apple-receiving boys. Intuitively, however, sentence (23a) is false in this situation, since the number of apples (= 2) that were sold to boys is greater than the number of pears (= 1) that were given to girls. So, the second part of (25) is not satisfied.[12]

The problem which these multiple subcomparatives pose for a derivation in terms of syntactic wh-movement is obvious. If subcomparatives in Dutch and English are derived by a syntactic movement operation that moves an underlying quantifying element to the [Spec,CP], then multiple subcomparatives are problematic since they would involve a multiple wh-movement to the specifier of CP. As is well-known, multiple wh-movement to the [Spec,CP] is excluded, since there is only one landing position available.

(27) a. * Ik vroeg [[wie]$_i$ [in welk bos]$_j$ Jan t_i t_j ontmoet had]
I asked who in which forest John met had

b. * I don't know [[who]$_i$ [at what time]$_j$ John will meet t_i t_j]

So, multiple subcomparison within a subcomparative clause is problematic for a wh-movement analysis. Notice now that multiple comparison within a comparative clause is predicted to be impossible, under the assumption that the derivation of comparative constructions involves wh-movement to [Spec,CP]. In fact, this seems to be true, as is shown by the following examples from Dutch and English.[13]

(28) a. * [Meer mannen] hebben [meer gedichten] gelezen dan
More men have more poems read than

[-] [-] hebben geschreven
have written

b. * Jan heeft [evenveel meisjes] [evenveel dokters] aangeraden
John has as-many girls as-many doctors advised

as hij [-] [-] had afgeraden
as he had dissuaded

c. * Jan heeft meer meisjes meer appels gegeven dan ik [-] [-]
John has more girls more apples given than I

heb afgepakt
have snatched-away-from

(29) a. * [More men] sold [more apples] than [-] had bought [-]
b. * [More women] dress [more elegantly] than [-] behave [-]
c. * John has given [as many boys] [as many parcels] as I have sent [-] [-]
d. * I consider [as many boys] [as intelligent] as you consider [-] [-]

The question arises whether the multiple gap constructions in (23) and (24) can be interpreted as parasitic gap constructions. That is, is it possible to interpret one of the gaps in these multiple gap constructions as a parasitic gap. Such an interpretation is impossible under a chain composition analysis as defended in Chomsky (1986b), because such an analysis assumes a one to one correspondence between operators and gaps. Under the assumption that operators belong to clauses and given the fact that there is only one clause for two operators (viz. the comparative clause) in the sentences in (23) and (24), these subcomparatives cannot be analyzed as involving a parasitic gap phenomenon under a chain composition analysis.

A clear argument against a parasitic gap interpretation of these multiple gap constructions is the fact that the left branch quantifier gaps are not allowed in "normal" parasitic gap environments (e.g. inside an adverbial clause).

Consider, for example, the following sentences from English which clearly show that the gap of a subcompared constituent cannot license a parasitic gap ((30b) taken from Grimshaw (1987)):

(30) a. * John read more books than I've bought [- records] without listening to [- CD's]

b. * I threw away more books than I filed [- papers] without reading [- abstracts]

Thus, the multiple subcomparison phenomenon seems to be one of the more convincing arguments against a wh-movement to [Spec,CP] approach to subcomparative formation.

Let us now turn to the last piece of evidence against a movement to [Spec,CP] analysis for subcomparative constructions: the possibility of having subcompared constituents within syntactic domains that do not include a [Spec,CP] position which should function as the landing site of the moved left branch constituent.

Consider, first of all, the following Dutch sentences:

(31) a. [[Meer meisjes] gekust dan [- jongens] geslagen] had Jan
More girls kissed than boys hit had John

b. [[Meer stoelen] gemold dan [- tafels] gerepareerd]] had Jan
More chairs destroyed than tables repaired had John

c. [[Evenveel boeken] gelezen als [- gedichten] geschreven], dat
As-many books read as poems written that

heeft alleen Jan
has only John

In the sentences (31a-b), a VP has been topicalized into [Spec,CP], and in (31c) a VP stands in a left dislocated position within the clause.[14] As will be shown later in this section, there is evidence for analyzing these topicalized VPs as consisting of two coordinated VPs, each containing a compared noun phrase. The two VP-conjuncts are conjoined by *als/dan*, which functions as a coordinator. For the moment, what is important is the fact that no wh-movement of a left branch quantifying element to [Spec,CP] is involved in the derivation of these subcomparative constructions. In (31a-b), the topicalized VP occupies the [Spec,CP]. In (31c), the left peripheral VP occupies a position to the left of the [Spec,CP] (possibly, in a TOP-position). The [Spec,CP] is filled by the pronoun *dat*. So, despite the absence of a [Spec,CP] which can function as a potential landing site for the left branch quantifying element, the subcomparative constructions are well-formed. This shows at least that subcomparatives need not involve movement to [Spec,CP].

Notice also that multiple subcomparison is possible within fronted VPs:

(32) Evenveel meisjes evenveel boekengegeven als [- jongens]
As-many girls as-many books given as boys

[- platen] verkocht had Jan
records sold had John
'John had given as many books to as many girls as he had sold records to boys'

The possibility of having subcomparative formation in spite of the absence of a [Spec,CP] landing site can also be shown on the basis of a number of other facts. A first fact comes from independent utterances as in (33).

(33) Wat heeft Jan gedaan? een boek gelezen
What has John done? a book read

It is generally assumed that the string *een boek gelezen* is a VP-constituent. Given that assumption, consider the following sentences:

(34) Wat heeft Jan gedaan?
What has John done?

a. [VP [Evenveel boeken] gelezen als [- platen] gekocht]
As many books read as records bought

b. ?? [VP [met [evenveel meisjes]] gedanst als [met [- jongens]]
with as-many girls danced as with boys

gevochten]
fought

The independent utterances in (34a and b) are VP-constituents. Here again, this structure should be interpreted as being coordinated. At issue here is that it is shown that subcompared constituents can occur in syntactic environments where there is no [Spec,CP] position for a left branch quantifying element to be moved into. In other words, movement to [Spec,CP] is not crucially involved in the derivation of subcomparatives.

Two other constructions by which this is shown are the following:

(35) a. [Het [[evenveel Germaanse talen] kunnen spreken] als
The as-many Germanic languages being-able to speak as

[[- Romaanse talen] kunnen verstaan]] is een hele
Romance languages being-able-to understand is a big

prestatie
achievement
'Being able to speak as many Germanic languages as write Romance languages is quite an achievement'

b. [Het [[evenveel Germaanse talen] sprekende als [- Romaanse
The as-many Germanic languages speaking as Romance

talen] schrijvende meisje]] ging naar een school voor
languages writing girl went to a school for

vertalers
translators
'The girl who spoke as many Germanic languages as she could write Romance languages, went to a school for translators'

In (35a), the subcompared noun phrases are contained within a VP which is a complement of the determiner *het*. So, there is no [Spec,CP] position which can function as a landing site for the quantifying element in the subcomparative VP. The same holds for (35b), in which the subcompared elements are contained within a participial phrase which functions as a modifier of the noun.

Given the above-mentioned facts, it may be concluded that subcomparative formation need not involve syntactic wh-movement to [Spec,CP] in Dutch. For English, the same conclusion can be drawn from the following sentences, which are considered fairly acceptable.

(36) ? What will he do? [kick as many dogs as beat cats]

(37) a. And [give [more girls] an apple than [- boys] a pear] John certainly will
b. [[Destroyed [as many cities]] as [built [- castles]]] the Romans certainly have!
c. And [eat [as many apples] as drink [- beers]] John certainly will!

(36) is an example of subcomparison within an independent VP-utterance. The sentences in (37) illustrate the possibility of having subcomparative formation within VP-constituents that are moved into [Spec,CP].[15]

In conclusion, the facts discussed in this section suggest that no syntactic movement of a left branch quantifying element to [Spec,CP] is involved in the derivation of subcomparative constructions. This means that there is no dependency between a moved constituent and a wh-trace at S-structure. If this conclusion is correct, subcomparative formation does not contravene the general law that left branch quantifying elements cannot be reordered out of noun phrases and adjective phrases in languages like Dutch and English.

Now that there seems to be some evidence that subcomparative formation should not be described in terms of syntactic wh-movement, the question is raised what other process might be responsible for the quantifier gap. Possibly, some deletion rule is involved which removes the left branch quantifier. Given the absence of a detailed deletion theory, I will not attempt to formulate any such rule here.[16] I will finally mention some facts which may make for a better understanding of the interesting but elusive phenomenon of

subcomparative formation. These facts point to what seems an important property of subcomparative constructions: their coordinative character.[17]

So, let us turn to some facts indicating the coordination-like behavior of subcomparatives. A first indication is the fact that subcomparative constructions allow Gapping, i.e. deletion of the verb (cf. a.o. Thiersch (1982), Torris (1983), Huang (1977)). Compare, for example, the coordination construction (38a and b) with the subcomparative construction (39a and b):

(38) a. John eats bagels and Mary muffins

b. Jan spreekt Romaanse talen en Marie Germaanse talen
John speaks Romance languages and Mary Germanic languages

(39) a. John eats more bagels than Mary muffins

b. Jan spreekt meer Romaanse talen dan Marie Germaanse talen
John speaks more Romance languages than Mary Germanic languages

It has been noted that gapping applies between coordinate, but never between subordinate structures. Consider, for example, the following sentence from Jackendoff (1971):

(40) * John kissed Mary when Bill Sue

A second indication of the coordinative character of subcomparative constructions is the presence of across the board (ATB) movement effects.

Ross (1967) formulated his Coordinate Structure Constraint (CSC) as in (41):

(41) **The Coordinate Structure Constraint**

In a coordinate structure, no conjunct may be moved, nor may any element contained in a conjunct be moved out of that conjunct.

The first part of this condition accounts for the ill-formedness of the sentences in (42), and the second part for the ungrammaticality of those in (43).

(42) a. * What did John eat muffins and -?
b. * Who did John see - and her son?

(43) a. * What did John sell a car and Mary bought -?
b. * Which actor does John like - and Bill hates that actress?

Ross noticed that extraction is permitted out of a coordinate structure if the same element is extracted out of both conjuncts, i.e. in an across the board

fashion. In order not to violate the CSC, Ross added the following 'across the board' exception to this constraint:

(44) unless the same element is moved out of all the conjuncts

This way, the following sentences are permitted:

(45) a. What did John sell - and Mary buy -?
b. Which actor does John like - and Bill hate -?

The following sentences show that ATB-extraction is allowed in subcomparative constructions, which suggests that the clauses behave as coordinate conjuncts.

(46) Waar$_i$ heeft Jan evenveel boeken [t_i aan] gegeven als Marie
Where has John as-many books to given as Mary

foto's [t_i van] heeft gekregen?
pictures from has got

(47) Which actor$_i$ do as many women hate t_i as men like t_i?

Sentence (46) illustrates across the board movement of the R-pronoun *waar* from within the PP of the two conjuncts to [Spec,CP]. (47) is an example of ATB-extraction of the wh-phrase *which actor*.

Related to this ATB-effect is the parallelism requirement. As Williams (1978) has noted, ATB-extraction is only possible from structurally parallel positions. This is exemplified in (48):

(48) a. This is the man who John saw - and Mary kissed -
b. This is the man who - saw John and - kissed Mary
c. * This is the man who John saw - and - kissed Mary
d. *? This is the man who - kissed Mary and John saw -

In (48a), the object has been extracted from both conjunctions, in (48b), the subject. In the ill-formed sentences (48c and d), the moved wh-phrase *who* has not been extracted from parallel syntactic positions within the two conjuncts.

George (1980) observes that these parallelism effects also hold for subcomparative constructions.[18] That is to say, there is a parallelism in interpretation of the subcompared constituents. If in the antecedent clause the subject contains the comparative morpheme, then the subject of the comparative clause is subcompared. From a descriptive point of view, if the quantifier is contained within a compared phrase bearing grammatical function Y, then the other quantifier within the subcomparative clause must also be contained within a maximal projection bearing the same grammatical function.

(49) a. John killed more Englishmen than the Inquisition burned Frenchmen
b. * John killed more Englishmen than Frenchmen fought the Inquisition
c. More Frenchmen revered John than Englishmen adored Sir Thomas
d. * More Frenchmen revered John than Sir Thomas More converted Englishmen

A third fact showing the coordination-property of subcomparative clauses is that they exhibit right node raising (RNR) effects as in (50). This RNR-effect in subcomparative constructions is illustrated in (51):

(50) John hates, and Mary likes [the man with the red beard]

(51) As many women like, as men hate [the man with the red beard]

Thus, subcomparative constructions turn out to have a coordinative character. The elements *than/as* in English and *dan/als* in Dutch seem to be able to function as coordinators conjoining the antecedent clause and the subcomparative clause.

This coordinative character of subcomparative constructions is also found with VPs. Consider the following construction, in which the subcompared constituents are contained within a VP which occupies the [Spec,CP].

(52) [Evenveel boeken aan haar geschonken als platen aan haar
As-many books to her donated as records to her

verkocht] zei Jan dat ie had
sold said John that he had

I will assume that *als* functions as a coordinator here as well. Notice that it is impossible to have the string *als platen aan haar verkocht* as being subordinated to *evenveel boeken*:

(53) * [Evenveel boeken [als platen aan haar verkocht] aan haar geschonken] zei Jan dat ie had

A clear indication that structures like (52) have a coordinative character is that they admit ATB-extraction of the R-pronoun from the PPs of the two conjuncts.

(54) [Er$_i$ evenveel boeken [t$_i$ aan] geschonken als platen [t$_i$ aan]
There as-many books to donated as records to

verkocht] zei Jan dat ie had
sold said John that he had

This sentence shows that the R-pronoun can be moved in an ATB-fashion to the left periphery of the coordinated VP. It ends up in a position left adjoined to the VP.

Notice further that these subcomparative VPs also exhibit the parallelism effects, i.e. the subcompared phrases must have the same grammatical function:

(55) a. [[Evenveel meisjes een appel gegeven] als [[- jongens] een boek
As-many girls an apple given as boys a book

verkocht] had Jan
sold had John

b. [[Deze meisjes [evenveel appels] gegeven] als [deze jongens
These girls as-many apples given as these boys

[- peren] verkocht]] had Jan
pears sold had John

c. * [[Evenveel meisjes] een appel gegeven] als [Marie [- boeken]
As-many girls an apple given as Mary books

verkocht] had Jan
sold had John

d. * [Dit meisje [evenveel appels] gegeven als [- jongens] een boek
This girl as-many apples given as boys a book

verkocht] had Jan
sold had John

Thus, subcomparative structures clearly have coordinative properties. This fact seems to make an interpretation of subcomparative formation in terms of some elliptic rule worthwhile to explore. Such a comprehensive exploration is far beyond the scope of this study, however. Therefore, I will not deal with the complexities of subcomparative formation any further here. An answer has been found to the main question of this chapter: whether subcomparative formation should be interpreted as involving syntactic wh-movement of a left branch quantifier in languages such as Dutch and English. The answer is no.

4.3 Conclusion

Subcomparative formation remains a mystery. The only way this chapter may have contributed to a better understanding of this phenomenon is by attempting to show what syntactic process is *not* at the basis of this construction: namely syntactic wh-movement. Trying to find evidence against such an analysis was also the main purpose of this chapter. Since no extraction is involved, subcomparative formation does not run counter to the (descriptive) law that left branch quantifying elements that are contained within noun and adjective phrases are not accessible to movement operations in languages like Dutch and English.

Notes to chapter 4

1. It has often been observed that in (sub)comparative constructions a variety of constituents can be removed under identity to the head clause. (i) gives examples of some types of such subcomparative sentences:

(i) a. More women bought these apples than [- men] bought these pears
b. More women bought these apples than [- men] did these pears
c. More women bought these apples than [- men] these pears
d. More women bought these apples than [- men] did
e. More women bought these apples than [- men]

In all these sentences, the subject noun phrase of the subcomparative clause is the subcompared element. So, a left branch quantifying element has been removed from this NP. All the other reductions of the subcomparative clause are the result of various types of reduction processes. In (ia), only the left branch quantifying element of the subject NP has been removed. In other words, only "subcomparative formation" has operated. In (ib-e), a number of other processes has applied besides subcomparative formation: pseudogapping (ib), gapping (ic), VP-deletion (id), comparative ellipsis (ie). In this chapter, I will focus on sentences of type (ia), i.e. sentences in which only the left branch quantifier of the subcompared constituent has been removed.

2. See Grimshaw (1987) for a critical discussion of the arguments which Bresnan presents to support her proposal that there is an empty position within the compared constituent.

3. Alternatively, a lexical wh-element is moved into [Spec,CP] and subsequently deleted by some local deletion rule.

4. This is what Chomsky (1986b, 42) calls the broader concept of minimality. According to the narrower concept of minimality, only the immediate projection of a head can create a M-barrier for a trace contained within that projection. It should be noted that there might be some problems for ruling out sentences as in (11) under a narrow definition of minimality. If *many* is analyzed as a specifier within the noun phrase, then there must be an intermediate projection N' under Chomsky's assumption that choice of X' is forced when there is a specifier. In that case, extraction of *many* is not excluded by the ECP under narrow minimality, since *many* is not contained within the immediate projection of N, i.e. N'. If *many* is considered an adjectival adjunct rather than a specifier, then there still seem to be problems for ruling out extraction of *many* in terms of minimality (=ECP). Of course, if we have a structure as in (ia), then NP is a M-barrier for the trace of the extracted quantifier *many*, since it is the immediate projection of the nominal head. However, if choice of X' is optional when there is only an adjunct-satellite within the NP, then it is not excluded to assume a structure as in (ib) for a string like *many records*. Notice that under this structure, extraction of *many* is not blocked by the narrow concept of minimality: After extraction of *many*, the first projection of N, i.e. the immediately dominating N', does not contain the trace of the extracted quantifier.

(i) a. $[_{NP}$ many $N^0]$
b. $[_{NP}\ [_{N'}$ many $[_{N'}\ [_{N^0}$ records$]]]]$

Given these problems with the narrow definition, I will adopt the broader concept of minimality here for the sake of the argument.

5. See chapter 7 for an account of the b-facts in (11) and (12), and chapter 10 for a discussion of the a-examples.

6. The fact that the sentences in (14) and (15) sound awkward for certain speakers may be caused by the complexity factor hinted at in section 4.1 (see Chomsky (1977)).

7. See a.o. Koster (1987) for a discussion of complementizer-trace violations in Dutch.

8. To my ear, a sentence like (17) is somewhat worse than an interrogative sentence like (i):

(i) Welke meisjes denk je [dat - een springtouw hebben gekregen]?
Which girls think you that a skipping-rope have got

The somewhat less acceptable status might be caused by the preference of having an expletive R-pronoun *er* in subject position when the "real subject" is indefinite.

9. Chapter 6 discusses the extractability of the left branch question element *wat* from within *wat voor*-phrases.

10. In Bennis (1978), the following examples are given of subcompared constituents within an embedded context:

(i) a. Deze kubus lijkt hoger dan Jan zegt dat hij [- breed] is
This cube seems higher than John says that he wide is

b. Jan heeft meer boeken dan Marie zei dat ze [- platen] had
John has more books than Mary said that she records had

He considers them well-formed. I for one find these sentences somewhat less acceptable than the non-embedded counterparts of the sentences in (i):

(ii) a. Deze kubus lijkt hoger dan hij breed is
This cube seems higher than he wide is

b. Jan heeft meer boeken dan Marie platen heeft
John has more books than Mary records has

Evidently, there is some variation in the acceptability judgments of the sentences in (i).

11. Also with these sentences, there seem to be variation among speakers of Dutch. In Zwarts (1978), similar constructions as in (20) are considered ungrammatical.

12. The following sentences suggest that each compared element in the matrix clause needs a compared element in the comparative clause:

(i) a. * Santa Claus gave [as many girls] [as many dolls] as he had given [three boys] [- pencils]
b. * Santa Claus gave [as many girls] [as many dolls] as he had given [- boys] [three pencils]

(ii) a. *? Ik denk dat [meer mannen] [meer vrouwen] bedriegen dan [deze jongens]
I think that more men more women cheat than these boys

[- meisjes] bedriegen
girls cheat

b. *? Ik denk dat [meer mannen] [meer vrouwen] bedriegen dan [- jongens]
I think that more men more women cheat than boys

[deze meisjes] bedriegen
these girls cheat

13. The fact that multiple subcomparative formation is possible as opposed to multiple comparative formation shows that Bresnan's proposal that the rule of comparative subdeletion underlies both comparative formation and subcomparative formation is incorrect.

14. The impossibility of having a quantifier in the compared constituent suggests that there is a gap position:

(i) * [*Evenveel boeken* gelezen als *veel gedichten* gelezen] had Jan
As-many books read as many poems read had John

15. It should be noted that the possibility of having subcomparative formation within VPs (as in (31) and (37)) does not show in itself that syntactic wh-movement is not involved in the derivation of subcomparative constructions. It could be argued that the moved left branch quantifier ends up left-adjoined to the VP at S-structure after syntactic movement.

Notice, however, that if it is assumed that a left branch quantifier can get adjoined to VP via syntactic movement, then one would expect comparative formation to be possible as well within these coordinated VPs. The following facts from English, however, show that it is impossible to remove the entire compared constituent within such syntactic environments:

(i) * What will he do? [kick as many cats as beat]

(ii) a. * [Beaten [as many dogs] as kicked -] John certainly hasn't
b. * [Destroyed [as many cities] as built -] the Romans certainly have
c. *? And [buy [as many cars] as sell -] John certainly will

This might be interpreted as evidence against an adjunction to VP-analysis of subcompared constituents within coordinated VPs. However, the ill-formedness of these sentences may also be due to the independent requirement that verbs may not appear in isolation in elliptic conjuncts (Gertrud de Vries (p.c.)).

16. If some sort of elliptic rule which creates a gap in the quantifier position of the compared constituent is at the basis of comparative formation, then the obvious question arises why the same position cannot be elliptic in a coordinate structure like (i):

(i) * John bought [*many* books] and Bill sold [- records]
'John bought many books and Bill sold many records'

17. This coordinative behavior has been pointed out elsewhere as well: Huang (1977), Hendrick (1978), Thiersch (1982), Napoli (1983).

18. See also Pinkham (1982) for an extensive discussion of the parallelism requirement.

5 SPLIT AND NON-SPLIT 'WAT'-EXCLAMATIVE CONSTRUCTIONS IN DUTCH

5.1 Introduction

This chapter discusses the derivation of two types of exclamative constructions in Dutch which are characterized by the presence of the exclamative word *wat* ('what'): the non-split *wat*-exclamative construction (as in (1a)) and the split *wat*-exclamative construction (as in (1b)).

(1) a. *Wat een auto's* heeft Jan gekocht!
What a cars has John bought
'What cars John has bought!'

b. *Wat* heeft Jan *een auto's* gekocht!
What has John a cars bought
'What cars John has bought!'

In (1a), a non-split exclamative wh-phrase occupies the [Spec,CP] position. It is followed by the finite verb *heeft* which has been moved into the COMP-position via Verb Second. In (1b), only the exclamative *wat* occurs in [Spec,CP].

With regard to the derivation of these exclamatives, the question arises whether wh-movement is involved. In other words, is there a dependency relation between a moved exclamative phrase and a wh-trace at the level of S-structure? Of course, given the general topic of this study (i.e. the left branch extraction problem), this question is particularly relevant for the split exclamative construction. If the split pattern should be described in terms of wh-movement, then subextraction of a left branch constituent (viz. *wat*) takes place. As we will see in later chapters, subextraction from within nominals in Dutch is generally not possible. So, that would make these split exclamatives exceptional. However, it will be shown that these constructions are not exceptional with respect to movement at all: Left branch extraction is only apparent. On closer investigation, it turns out that *wat* in a split exclamative construction like (1b), is simply base-generated in [Spec,CP].

This chapter is structured in the following way. In section 5.2, I will discuss the internal structure of the non-split exclamative phrase. Then I will argue in section 5.3 that non-split exclamative structures are derived by syntactic wh-movement of the entire exclamative phrase to [Spec,CP]. Thereupon, I will show in section 5.4 that the split counterpart is not the result of application of syntactic wh-movement. In section 5.5, I will argue that the exclamative element *wat* should be analyzed as an exclamation morpheme in the sense of Baker's (1970) theory of abstract question morphemes, which is base-generated in [Spec,CP].

5.2 Some notes on the internal structure of the non-split exclamative wh-phrase

A non-split exclamative phrase like *wat een auto's* in (1a) consists of the following elements: an exclamative marker *wat* ("the exclamator") and what I call "the exclamand", i.e. that part of the exclamative phrase which expresses the quality or the quantity exclaimed at (cf. Bolinger (1972)). *Wat* is an intensifying word that expresses a surprise or astonishment etc. directed to the extent of some quantity or quality referred to by the exclamand. So, in *wat een auto's* the exclamative word *wat* indicates something about the extent of the number of cars which John has bought. The exclamand is generally considered to be an element which is gradable. This gradable element can have different forms, e.g. nominal, adjectival, verbal:

(2) a. [Wat een boeken] heeft Jan gekocht!
What a books has John bought
'What a lot of books John bought!'

b. [Wat een benen] heeft Marie!
What a legs has Mary
'What legs Mary has!'

c. [Wat mooi] was ze vroeger!
What beautiful was she formerly
'How beautiful she was in the past!'

d. [Maar wat getranspireerd] had Jan!
But what perspired had John
'How John had perspired!'

In these examples, the phrase containing the exclamator *wat* occupies the [Spec,CP]-position. In (2a), *wat* exclaims at the quantity of books. In (2b) it exclaims about the quality of Mary's legs. Of course, given the fact that human beings have two legs, an interpretation in which surprise is expressed about the number of legs is excluded. In (2c), the exclamation is directed to a quality expressed by the adjective *mooi*. Finally, sentence (2d), in which a VP containing the exclamator occurs in [Spec,CP], is an exclamation about the extent to which *Jan* perspired.

Let us now turn to the internal structure of exclamative phrases, starting with exclamative nominals. I will assume the following structure for a string like *wat een boeken*:

(3) $[_{DP}\ [_{DegP}\ \text{wat}]\ [_{D'}\ [_{D}\ \text{een}]\ [_{NP}\ \text{boeken}]]]$

The exclamator *wat* occupies the [Spec,DP]. I will tentatively assume that it is a degree word-like element. The D-position is filled by the obligatory exclamative article *een* (see Droste (1970)). This exclamative article also shows up with mass nouns (as in (4)) and non-count nouns (as in (5)):

(4) a. Wat een zand zat er op die aardbeien!
What a sand was there on those strawberries

b. Wat een geld heeft hij!
What a money has he

(5) a. Wat een schrik hadden deze kinderen!
What a fear had these children

b. Wat een lol hadden we toen!
What a fun had we then

Another question which arises in connection with the internal syntax of the non-split exclamative phrase is, whether the exclamative marker *wat* in the following exclamative nominals (DPs) originates in a position inside the attributive adjective phrase and is subsequently moved to the specifier of DP:

(6) a. [Wat een slimme dochter] heeft Jan!
What a smart daughter has John

b. [Wat een mooi uitzicht] hadden we vanaf die bergtop!
What a beautiful view had we from that mountain-top
'We had such a nice view from that mountain-top!'

The alternative would be to say that *wat* is simply base-generated in the specifier of DP and has scope over the entire NP (included the adjective phrase) from that position.

Notice that it is possible in Dutch to have the exclamator *wat* within the attributive adjective phrase.

(7) a. Jan heeft [een [*maar wat* slimme] dochter!
John has a but what smart daughter
'John has such a smart daughter!'

b. We hadden [een [*wat* mooi] uitzicht] vanaf die
We had a what beautiful view from that

bergtop!
mountain-top
'We had such a nice view from that mountain-top!'

Evidence that the exclamative marker may be interpreted as 'exclaiming' at the attributive adjective phrase despite of occupying the specifier of DP comes from English. The English wh-exclamative phrase looks very much like the Dutch one: *what a beautiful woman*. In this string *what* is interpreted as modifying *beautiful*. It is unlikely that *what* originates within the adjective phrase, since the normal exclamative marker of an adjective is *how* (as in *How beautiful she is!*). It would also be unclear why the exclamator *what* can never occur together with an adjective in other syntactic environments:

(8) * What beautiful she is!

Furthermore, if *what* could be moved from within the adjective phrase to the [Spec,DP], one would expect the same movement operation to be possible for *how*. Strings like *how a beautiful woman* are completely out, however.

A similar argument which shows that base-generation in the specifier position of DP does not exclude exclamation with respect to an attributive adjective comes from the following archaic exclamative constructions in Dutch:

(9) a. [*Welk* een fraai uitzicht]!
Which a beautiful view
'What a beautiful view!'

b. [*Welk* een tragisch lot] moest hij ondergaan!
Which a tragic fate had he to-undergo
'What a tragic fate he had to undergo!

In these exclamative constructions *welk* is the exclamation word. These sentences have the same interpretation as their *wat*-counterparts. *Welk*, however, cannot possibly originate inside the attributive adjective phrase, since it never appears as a degree word of an adjective. Still, it can be interpreted as exclaiming at the quality mentioned by this adjective. If this interpretation is possible, it is not clear why the same could not hold for exclamative *wat*.

Notice finally that removal of *wat* from within the attributive adjective phrase to [Spec,DP] would violate the ECP, since it would cross the L-barrier NP, which is a non-L-marked category. So, if movement were involved, the nonargument trace in the adjective phrase would not be antecedent governed, and therefore would violate the ECP.

Let us now briefly consider the structure of exclamative adjective phrases (10):

(10) a. [Wat hard] ijdt Jan!
What fast drives John
'How fast John drives!'

b. [Wat vervelend] is Marie!
What tiresome is Mary
'How tiresome Mary is!'

I will tentatively assume that *wat* in (10) occupies the Deg-position of the Degree Phrase, i.e. the position which can also be filled by degree words like *hoe* and *zo* in Dutch (see (12)):

(11) $[_{DegP}\ [_{Deg}$ wat$]\ [_{AP}$ vervelend$]]$

(12) a. [DegP [Deg Zo] [AP vervelend]] is Marie!
So tiresome is Mary

b. [DegP [Deg Hoe] [AP vervelend]] is Marie?
How tiresome is Mary

The fact that degree words like *hoe* and *zo*, which were said to be possible heads of Degree Phrases in chapter 3, exhibit the same distribution as the exclamative element *wat* in certain syntactic contexts (see (13)) might be interpreted as supporting an analysis in which *wat* occupies the Deg°-position in (11). In the following sentences, for example, the elements *hoe*, *zo* and *wat* can all precede the article *een/'n*, while modifying the attributive adjective phrase.[1]

(13) a. Wat een vervelend kind is Marie!
What a tiresome child is Mary

b. Zo'n vervelend kind is Marie!
Such a tiresome child is Mary

c. Hoe'n vervelend kind is Marie?
How a tiresome child is Mary

A second fact which might support structure (11) comes from the ill-formedness of the following sentences, in which the exclamator *wat* and the comparative elements *-er* and *minder* occur within one and the same DegP:

(14) a. * [Wat vervelender] is Marie!
What more-tiresome is Mary

b. * [Wat minder vervelend] is Marie!
What less tiresome is Mary

In chapter 3, it was argued that comparative elements occupy the Deg°-position. Now, under the assumption that the exclamator *wat* is a degree word-like element which must occupy the Deg°-position of the Degree Phrase (as in (11)), the ill-formedness of these examples might follow from the fact that there are two degree words (*wat* and the comparative element) but only one Deg°-position.[2]

As far as the exclamative *wat* in VPs (as in (15a)) is concerned, I assume that it hangs from V' just like other degree elements modifying the verb (see (15b)):

(15) a. Ik heb haar (maar) wat verwend!
I have her (but) what spoiled
'How I have spoiled her!'

b. Ik heb haar zo verwend!
I have her so spoiled
'How I have spoiled her!'

So much for the discussion of the internal syntax of exclamative phrases.

5.3 Wh-movement in non-split 'wat'-exclamatives

In this section, it will be argued that the non-split *wat*-exclamative construction should be described in terms of wh-movement (Move alpha). This means that a non-split 'wat'-exclamative construction like (16) is derived by moving the entire exclamative nominal to the specifier of CP (see also Krijgsman (1982)).

(16) [Wat een boeken]$_i$ heeft Jan t_i gelezen!
What a books has John read
'What books John has read!'

As is well-known, wh-movement is a relation between two positions X and Y that exhibits the following characteristic properties (cf. Chomsky (1977)):

(17) a. The moved phrase c-commands the trace it leaves behind;
b. Where the appropriate bridge conditions are met, there is an apparent violation of the Subjacency Condition;
c. The distance between the moved phrase and its trace is governed by a cluster of island conditions (a.o. the Complex NP Constraint, the Wh-island Constraint. the Subject Condition, the Adjunct Condition, etc.)

Interpreting these properties as a diagnostic for movement, one can determine whether the non-split exclamative construction in Dutch should be analyzed in terms of Move alpha. As far as the diagnostic criterion (17a) is concerned, it is clear that a sentence like (16) satisfies this criterion. The exclamative DP occupies the [Spec,CP] and from that position it c-commands its direct object trace.

Before answering the question whether the second an third diagnostic is satisfied, one must find out whether it is possible to have embedded exclamative clauses in Dutch. So, are there indirect exclamative constructions besides direct ones? The following sentences show that indirect non-split *wat*-exclamatives exist in Dutch:

(18) a. Ik weet best [[wat een inspanning]$_i$ dat t_i kost]
I know well what an effort that costs

b. Jan ontdekte later [[wat een vreemde vrouw]$_i$ Marie t_i was]]
John discovered later what a strange woman Mary was

c. Jan zag in [[wat een bedrieger]$_i$ Wim t_i was]]
John realized what an impostor William was

As for interrogative complements, the distribution of exclamative sentential complements in Dutch and English shows that it depends on the governing predicate whether or not the [Spec,CP] can be filled by an exclamative wh-phrase. Elliott (1974) notes for English that the predicates that take exclamatory complements are factive ones, in the sense of Kiparsky & Kiparsky (1970). The contrast between the examples in (19) and (20) illustrates this for English, and the contrast between (21) and (22) for Dutch:

(19) a. John realized what a fool he was
b. John found out what a nice person Bill was

(20) a. * John thought what a fool he was
b. * John hoped what a nice person Bill was

(21) a. Jan realiseerde zich wat een aardige vrouw hij had
John realized REFL what a nice wife he had

b. Jan vertelde wat een boeken hij moest lezen
John told what a books he had-to read

(22) a. * Jan dacht wat een aardige vrouw hij had
John thought what a nice wife he had

b. * Jan hoopte wat een boeken hij moest lezen
John hoped what a books he had-to read

A speaker using a sentence with a factive predicate presupposes that the embedded clause expresses a true proposition, and makes some assertion about that proposition (cf. Kiparsky & Kiparsky (1970)). So, by using factive predicates the speaker implies that he knows that the complement is true. The use of non-factive predicates makes no such presupposition. That is, non-factives do not allow their complements to be presupposed. According to Grimshaw (1977), the incompatibility of non-factive predicates with exclamatory complements has a semantic explanation. Non-factives do not allow the propositional content of their complements to be presupposed, and the propositional content of an exclamation is always presupposed: combining a non-factive predicate and an exclamation will necessarily result in violating one of these conditions, and ill-formedness will be the result.

So far, we have seen that indirect non-split *wat*-exclamatives exist in Dutch. The following sentences show that the moved exclamative phrase occupies the specifier of CP, since the COMP-position is occupied by the complementizer *of* ((23b) is taken from Paardekoper (1986)).[3]

(23) a. Ik weet [wat een inspanning$_i$ of [dat t_i kost]]
I know what an effort whether that costs

b. Kijk es [wat een mensen$_i$ of [er toch t_i zijn]]
Look now what a people whether there yet are
'Look, the large number of people there are!'

Now that we know that exclamative phrases can occur in the specifier position of an embedded CP, let us return to the question whether the non-split *wat*-exclamative construction exhibits the second diagnostic typical of wh-movement configurations, i.e. can the exclamative wh-phrase circumvent the boundedness imposed by the Subjacency Condition by moving successive cyclically through the specifier of CP, which functions as an escape hatch. If it can, the diagnostic criterion (17b) is satisfied.

Consider the following sentences:

(24) a.(?) [Wat een boeken]$_i$ zei Jan dat hij moest t_i kopen!
What a books said John that he had-to buy

b.(?) Ik herinner me nu weer [wat een boeken]$_i$ Jan zei dat
I remember REFL nowagain what a books John said that

ie t_i gelezen had
he read had

Although hard to judge, these sentences are considered fairly acceptable by speakers of Dutch that I consulted. For some speakers, however, these sentences sound a bit odd compared to their interrogative counterparts.[4]

(25) a. Welke boeken$_i$ zei Jan dat hij t_i moest kopen?
Which books said John that he had-to buy

b. Ik herinner me nu weer welke boeken$_i$ Jan zei dat ie t_i
I remember REFL nowagain which books John said that he

gelezen had
read had

Let us now see whether extraction of the non-split exclamative phrase is sensitive to the island constraints:

(26) a. * Wat een boeken$_j$ wilde Jan weten [wanneer$_i$ ik t_i t_j gekocht
What a books wanted John to-know when I bought

had]!?
had
'John wanted to know when I had bought so many books!'

b. * Wat een talen$_i$ wist Jan [wat een meisjes$_j$ t_j t_i spraken]!
What a languages knew John what a girls spoke
'John knew that so many girls spoke so many languages!'

(27) * Wat een boeken$_i$ hoorde Jan het bericht dat Marie t_i gekocht
What a books heard John the message that Mary bought

had!
had

In (26), the wh-exclamative phrase is extracted across a wh-island. In (26a), the [Spec,CP] is filled by an interrogative wh-phrase, and in (26b) by an exclamative wh-phrase. In (27), the exclamative phrase has been removed from a complex noun phrase. Clearly, these exclamative sentences are much worse than those in (24). This suggests that the second island-diagnostic is satisfied as well.[5]

Thus, although non-split exclamative wh-phrases seem to undergo long distance movement somewhat less easily than interrogative wh-phrases, their sensitivity to the clausal island constraints suggests that they are derived by the syntactic operation of wh-movement, which moves the exclamative phrase to [Spec,CP] and leaves behind a trace.

There is another, non-clausal island configuration in Dutch which can be used as a diagnostic test for movement, namely the PP-island configuration. As Van Riemsdijk (1978) has pointed out, preposition stranding in Dutch is possible for (left branch) R-pronouns (e.g. *er*, *daar* ('there'), *waar* ('where')), but not for right branch nominal complements. This contrast is illustrated in (28):

(28) a. Waar$_i$ heb je [t_i op] geschoten?
Where have you at shot

b. * Welk hert$_i$ heeft de jager [op t_i] geschoten?
Which deer has the hunter at shot

If wh-movement is involved in the derivation of the non-split exclamative construction, the prediction is that the exclamative wh-phrase (which is not an R-pronoun) cannot be moved out of the PP to [Spec,CP]. This prediction is indeed borne out:

(29) * Wat een herten$_i$ heeft de jager [op t_i] geschoten!
What a deers has the hunter at fired

In conclusion, the derivation of non-split *wat*-exclamatives involves the syntactic operation of wh-movement, which moves the exclamative phrase to [Spec,CP] and leaves behind a wh-trace.

5.4 On the absence of wh-movement in split 'wat'-exclamatives

In this section, I will investigate the syntactic properties of split *wat*-exclamative constructions like (30) in Dutch:

(30) *Wat* heeft Jan *een auto's* gekocht!
What has John a cars bought
'What a lot of cars John bought!'

In particular, I will try to determine whether syntactic wh-movement of the exclamative element *wat* underlies this type of exclamative construction. On the basis of a number of syntactic phenomena, it will be concluded that no movement is involved in the derivation of this exclamative construction, and that *wat* is base-generated in [Spec,CP] in split *wat*-exclamatives (see also Krijgsman (1982)).

As we have seen in the previous section, one of the more straightforward diagnostics for movement is island sensitivity. It was shown that non-split *wat*-exclamatives in Dutch obey the PP-island constraint. Consider, now, the following split *wat*-exclamative structures (see also Krijgsman (1982)):

(31) a. *Wat* heeft deze jager [op [- een herten]] geschoten!
What has this hunter at a deers fired

b. *Wat* woon jij [in [- een rotstad]]!
What live you in a rotten city

c. *Wat* beschikte Jan [over [- een hoop informatie]]!
What had-at-his-disposal John about a lot of information
'What a lot of information John had at his disposal!'

These sentences, in which the exclamative marker *wat* stands in a relation to the complement of the preposition, clearly argue against an analysis involving syntactic wh-movement. Straightforward evidence for this hypothesis is the fact that in the so-called *wat voor (een) N*-construction (what for a N; meaning 'what kind of N') in Dutch subextraction of the left branch question element *wat* out of the noun phrase is completely out in the same syntactic environment (see also chapter 6):

(32) * *Wat* heeft deze jager [op [-- voor een herten]] geschoten?
What has this hunter at for a deers shot
'What kind of deers did the hunter shoot at?'

It is even possible to have split exclamative phrases with adjunct PPs. This also suggests that syntactic movement is not involved in the derivation of the split exclamative construction, since normally it is impossible to extract constituents (especially nonarguments) out of adjunct-PPs (see chapter 9).[6]

(33) a. *Wat* heb je dit [op [- een klungelige manier]] afgehandeld!
What have you this in a bungling way settled

b. *Wat* heeft Jo [voor [- een mensen]] dit formulier in moeten
What has Joe for a people this form in must

vullen!
fill
'John had to complete this form for so many people!'

c. *Wat* heeft Jo z'n carrière [om [- een vreemde reden]]
What has Joe his career for a strange reason

afgebroken!
finished

How can we be sure that the exclamator *wat* exclaims at the adjunct (or better some element inside of the adjunct) and not at some element external to it? Given the optionality of these adjuncts, we can leave them out of these sentences. If the sentences become ungrammatical, then we have evidence in favor of associating the exclamator with the adjunct. Consider now the following sentences in which the adjunct-PP is absent:

(34) a. * Wat heb jij dit afgehandeld!
b. * Wat heeft Jo dit formulier in moeten vullen!
c. * Wat heeft Jo z'n carrière afgebroken!

The ill-formedness of these sentences suggests that the exclamator *wat* in (33) is associated with the adjunct. The ungrammatical status of the sentences in (34) is due to the fact that there is no exclamand within the clause which the exclamator *wat* can exclaim at. To put it differently, exclamation is vacuous in these sentences. There must always be an element within the scope of the exclamator *wat* which functions as its exclamand. So, a sentence like (34a), for example, gets well-formed again if the demonstrative pronoun *dit* is replaced by a noun phrase which can function as an exclamand:

(35) *Wat* heb jij *een zaken* afgehandeld!
What have you an affairs settled
'You have settled so many affairs'

A last fact concerning the islandhood of PPs seems to be an insurmountable barrier to any attempt to analyze split exclamative constructions in terms of application of Move alpha. Consider the following sentences:

(36) a. Wat strekt dit weiland zich [tot [- ver achter
What stretches this grassland REFL till far behind

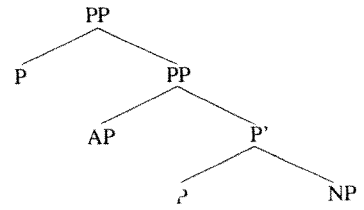
de greppel]] uit!
the trench PRT

b. Wat dateert deze vaas [van [- ver voor de oorlog]]!
What dates this vase from far before the war

c. Wat bleef Jan [tot [- diep in de nacht]] weg!
What stayed John till deep into the night away

In these sentences, the exclamative marker *wat* enters into a relation with an adjectival modifier inside a PP which is the complement of another preposition. The configuration is given in (37).

(37)



It is impossible to move the adjectival adjunct from within the complex PP:

(38) a. * Hoever$_i$ dateert deze vaas [van [t$_i$ voor de oorlog]]?
How far dates this vase from before the war

b. * Hoe diep$_i$ bleef Jan [tot [t$_i$ in de nacht]] weg?
How far stayed John till into the night away

Whatever one's account of these facts (cf. chapter 9), it is hard to see how the facts in (36) and (38) can be reconciled with each other under a movement approach. It suggests that movement is not at the basis of split exclamatives.

That *wat* exclaims at *ver* and *diep* in (36) is shown by the fact that the sentences get ungrammatical as soon as you leave these modifiers out:

(39) a. * Wat strekt dit weiland zich tot achter de greppel uit!
b. * Wat dateert deze vaas van voor de oorlog!
c. * Wat bleef Jan tot in de nacht weg!

Here again, there is no gradable element within the scope of the exclamator *wat* which can function as its exclamand. Exclamation is vacuous, yielding an ill-formed sentence.

Another well-known island for movement operations is the Subject Condition: no element can be reordered out of a subject noun phrase. As will be discussed more extensively in chapter 6, the left branch question word *wat* cannot be extracted from within a *wat voor (een) N*-phrase which functions as a subject:

(40) a. * Wat$_i$ hebben [t$_i$ voor meisjes] hem gezoend?
What have for girls him kissed
'What kind of girls kissed him?'

b. * Wat$_i$ weten [t_i voor een mensen] de belasting te ontduiken?
What know for a people the taxes to dodge
'What kind of people know how to dodge taxes?'

Consider now the following split exclamatives in which the exclamator is associated with the subject noun phrase:

(41) a.(?) *Wat* hebben [- een meisjes] hem gezoend!
What have a girls him kissed

b.(?) *Wat* hebben [- een meisjes] hem lastig gevallen!
What have a girls him annoyed

c.(?) *Wat* konden [- veel kinderen] hun fietsje niet meer vinden!
What could many children their bike not anymore find

d.(?) *Wat* wisten [- een mensen] toendertijd de belasting te ontduiken!
What knew a people then the taxes to dodge

e.(?) *Wat* hebben [- een mensen] die ramp overleefd!
What have a people that disaster survived

Judgments on these examples are quite delicate. If subextraction of *wat* took place in these sentences, we would expect these sentences to be strongly out, since it would violate both the Subjacency Condition and the ECP. The fronted *wat* occupying the [Spec,CP], would not be able to antecedent govern the trace contained within the subject noun phrase, since the subject noun phrase and IP are L-barriers (the former by not being L-marked, the latter by inheritance) including the trace but excluding *wat*. Because of the same two L-barriers, *wat* and its trace further would not be subjacent to each other, and therefore would violate the Subjacency Condition. Thus, if movement is involved, the fairly acceptable status of the above-mentioned sentences is quite unexpected. At this point it is worthwhile to compare the sentences in (41) and those in (40). To my ear, there is a clear contrast in acceptability between these sentences. I tend to judge the sentences in (41) to be much better than those in (40). This contrast suggests that the derivation of the split wh-exclamatives in (41) does not involve subextraction of the exclamator *wat*.

The question remains why certain people consider these sentences somewhat less acceptable than, for example, sentences in which the exclamator is associated with a direct object exclamand. I presume that this is caused by the general preference of having the expletive *er* inserted in subject-position, when the real subject has an indefinite status.

Another piece of evidence against a wh-movement analysis of split exclamatives is that if one assumes that *wat* is moved from within an exclamative phrase to the [Spec,CP], the question arises why the same is not possible for Dutch *welk* in exclamative phrases like *welk een fraai uitzicht* ('which a beautiful view') and the English exclamator *what* in *what a big car* (see also Krijgsman (1982)). Presumably, these elements occupy the same position within the noun phrase (DP). So, why don't we have, for example, the following split exclamatives:

(42) a. * Welk$_i$ heb jij [t_i een fraai uitzicht] vanaf het balkon!
Which have you a beautiful view from the balcony

b. * What$_i$ he has [t_i a big car]!

A similar problem arises with the exclamator *wat* which is associated with a degree phrase. If the assumption that the exclamator *wat* occupies the Deg^o-position of the DegP is correct, then the following question is raised: Why is it impossible for degree words like *hoe* ('how') and *zo* ('so') to leave the dominating DegP?

(43) a. *Wat* is ze *mooi*!
What is she beautiful
'How beautiful she is!'

b. * Hoe$_i$ is ze [t_i mooi]?
How is she beautiful
'How beautiful is she?'

c. * Zo$_i$ is ze [t_i mooi]!
So is she beautiful
'She is so beautiful!'

In chapter 7, it will be argued that the nonextractability of degree words such as *hoe* and *zo* is caused by their X-zero category status. Being heads, these degree words cannot escape the barrierhood of dominating maximal projections (e.g. the non-L-marked VP) and therefore will always yield a subjacency- and an ECP-violation.

Another phenomenon which shows that no syntactic wh-movement is involved in split exclamative constructions is that of multiple exclamation. It turns out that one exclamator *wat* can be associated with more than one exclamand.

(44) a. *Wat* hebben er *een meisjes een jongens* gezoend!
What have there a girls a boys kissed
'What a large number of girls have kissed what a large number of boys!'

b. *Wat* heeft Jan *een meisjes een appels* gegeven!
What has John a girls an apples given
'What a large number of girls did John give what a large amount of apples'

c. *Wat* hebben er *een meisjes een jongens een appels* laten
What have there a girls a boys an apples let

schillen!
pare
'So many girls made so many boys pare so many apples!'

In these sentences, *wat* exclaims at more than one DP-exclamand. Movement of the exclamator *wat* is highly unlikely in these sentences, since it would originate in different positions at the same time, which is impossible. Notice, for example, that the split *wat voor*-counterpart in (45) is completely out:

(45) * *Wat* hebben er *voor een meisjes voor een jongens* gezoend?
What have there for a girls for a boys kissed
'What kind of girls kissed what kind of boys?'

One might, of course, propose that the exclamator in (44) is extracted from within one noun phrase and that the other noun phrases contain a parasitic gap. Such an analysis is not very likely, however, since normally only fronted argument noun phrases can license a parasitic gap in Dutch. So, a non-split exclamative wh-nominal can license a parasitic gap, when it is an argument:

(46) [Wat een tijdschriften]$_i$ heeft Jan [zonder e_i in te hebben
What a magazines has John without in to have

gekeken] t_i weggegooid!
looked thrown-away
'What a lot of magazines did he throw away without having read!'

Notice now that the exclamator *wat* in the split exclamative wh-construction cannot license a parasitic gap:

(47) * *Wat* heeft Jan [zonder *een tijdschriften* in te hebben gekeken]
What has John without a magazines in to have looked

een boeken weggegooid!
a books thrown-away

So, a parasitic gap analysis of the examples in (44) is implausible. Hence, the multiple exclamation argument against a wh-movement analysis is still valid.

In Krijgsman (1982), it is also reported that the split variant, as opposed to the non-split variant, cannot appear in embedded exclamative clauses. In other words, indirect split wh-exclamatives do not exist. This is exemplified in (48):[7]

(48) * Jan vertelde *wat* hij *een boeken* moest lezen
John told what he a books had-to read
'John told what a large amount of books he had to read'

Notice here again, that the split *wat voor*-construction exhibits a behavior different from the split exclamative. As is illustrated in (49), the split *wat voor (een) N*-pattern may appear in embedded clause.

(49) Jan vroeg zich af *wat* hij *voor een boeken* moest lezen
John wondered REFL PRT what he for a books had-to read
'John wondered what kind of books he had to read'

This asymmetry between split exclamatives on the one hand and non-split exclamatives and *wat voor*-constructions on the other hand suggests that different processes are at the basis of these constructions.

Given the considerations above, it seems fair to conclude that split exclamative wh-constructions are not derived by wh-movement of the exclamator *wat* from within the exclamative noun or adjective phrase it is associated with. However, before I claim that *wat* is base-generated in [Spec,CP] in the split exclamative wh-construction, I should raise the question whether an analysis is defendable in which the exclamator *wat* is base-generated as a modifier hanging from V', which can have scope over the noun or adjective phrases which function as exclamands. One could then propose that the split pattern is derived by fronting of the exclamator hanging from V'. In that case, there is no subextraction of a left branch constituent out of a noun or adjective phrase.

As we have already seen above, it is possible to have the exclamator *wat* in a clause-internal position. Consider, for example, the following sentence:

(50) a. Ik heb toen maar *wat* om die mop moeten lachen!
I have then but what about that joke must laugh
'I really had to laugh at that joke!'

b. Jan heeft toen maar *wat* op haar lopen foeteren!
John has then but what at her walk grumble
'John grumbled at her so much!'

If it was assumed that in split exclamative constructions in which the exclamator *wat* is associated with a noun phrase or an adjective phrase, the exclamator is base-generated as a VP-internal adjunct, then it would be expected that the following sentences are permitted as well:

(51) a. * Jan heeft toen maar *wat* [om *een moppen*] moeten lachen!
John has then but what about a jokes must laugh
'John had to laugh at so many jokes!'

b. * Jan heeft toen maar *wat* [op *een meisjes*] lopen foeteren!
John has then but what at a girls walk grumble
'John grumbled at so many girls!'

It is impossible, however, to associate the VP-internal exclamative *wat* with the exclamative noun phrase contained within the PP. This makes an analysis in which the exclamator *wat* is base-generated within VP having scope over the potential nominal or adjectival exclamand less plausible.[8]

It can be claimed now that *wat* is base-generated in [Spec,CP] in the split exclamative *wat*-construction. So, no left branch extraction of the exclamator *wat* is involved in the derivation of this construction. This means that syntactically the split and non-split *wat*-exclamatives should be treated in different ways.

5.5 'Wat' as an exclamation morpheme

In the previous section it was shown that split exclamatives are not derived by syntactic wh-movement of a left branch element *wat*. It was concluded that the exclamative *wat* is base-generated in [Spec,CP]. The question now arises what sort of an element *wat* is. In line with Baker's (1970) hypothesis that questions (both direct and indirect) contain an abstract question morpheme Q, I will assume that exclamations contain an exclamation morpheme, let us say E.[9,10] This abstract morpheme distinguishes exclamatives from declaratives and interrogatives, and it triggers the proper intonational structure at PF and the proper interpretation at LF (see Chomsky (1988)).[11] The idea will be now that *wat* is a phonetic realization of the exclamation morpheme in the [Spec,CP] position. In non-split *wat*-exclamatives, the fronted exclamative wh-phrase is moved into [Spec,CP] and the abstract exclamation morpheme is not phonetically realized.

The exclamation morpheme *wat* must 'bind' one or more phrases within its scope (i.e. c-command domain) which it can exclaim at. If there is no element within the tree it can exclaim at, then exclamation is vacuous. Vacuous exclamation is excluded (see (52)), just like vacuous wh-interrogation (see (53)) (cf. Chomsky (1982)).

(52) a. * Wat heb jij Karel ontmoet!
What have you Charles met

b. * Wat heb jij deze vrouwen ontmoet in je leven!
What have you these women met in your life

(53) * Wie heb jij Karel ontmoet?
Who have you Charles met

In the sentences in (52), there is no expression that can be exclaimed at and therefore they are ungrammatical. Notice, that the sentences in (52) get well-formed when the verb or the noun is replaced by an element that can be exclaimed at:

(54) a. Wat heb jij Karel bedonderd!
Wh.t have you Charles fooled

b. Wat heb jij een vrouwen ontmoet in je leven!
What have you a women met in your life

Notice that if *wat* is base-generated in [Spec,CP], then strings like *een vrouwen* must form independent nominals. The question might arise whether such nominal constituents consisting of an exclamative article and a noun, can appear independently, i.e. without the exclamative marker *wat*. The following sentences show that these forms are in fact well-formed nominal structures, which can be generated as such in D-structure:

(55) a. Jan heeft me toch *een vrouwen* ontmoet in zijn leven!
John has me yet a women met in his life
'John has met so many wifes during his life!'

b. Jan heeft toch *een geld*!
John has yet a money
'John owns so much money!'

In (55a), the nominal consists of the exclamative article and a count-noun, and in (55b), it consists of the exclamative article and a mass noun.

The non-wh-exclamatives in (55) have the normal declarative form. The subject has been moved into [Spec,CP] and the finite verb (*heeft*) has been moved into COMP via the verb second rule, which normally applies in root constructions in Dutch. Notice that it is also possible to have non-wh-exclamatives with a topicalization-like structure (as in (56a)) and with a yes/no question-structure (56b):

(56) a. *Een boeken* heeft Jan gekocht!
A books has John bought

b. Heeft Jan even *een boeken* gekocht!
Has John just a books bought
'Did John buy a lot of books!'

In (56a), the exclamand has been moved into [Spec,CP] and the finite verb into COMP. In (56b), only the finite verb has been fronted.

Summarizing so far, I have argued that split *wat*-exclamatives in Dutch consist of an exclamation morpheme *wat*, which is base-generated in [Spec,CP], and that there must be an element within the c-command domain of the morpheme that can be exclaimed at. It is obvious that the various types of split exclamation patterns in which *wat* is associated with an element contained within an island for wh-movement operations, are not problematic under this analysis. In all cases, the exclamation morpheme c-commands the potential exclamands. Consider, for example, the split patterns in (57a,b,c), in

which *wat* binds (c-commands) an exclamand contained within a simplex PP, a complex PP, an adjunct-PP, and a subject-DP respectively:

(57) a. *Wat* heeft Jan [op *een herten*] geschoten!
What has John at a deer fired

b. *Wat* strekt het weiland zich [tot [*ver* achter die
What stretches the grassland REFL till far behind that

greppel]] uit!
trench out

c. *Wat* heeft Jan dat [op *een klungelige manier*] afgehandeld!
What has John that in a clumsy way dealt-with

d. *Wat* wisten [*een mensen*] toendertijd de belasting te
What knew a (lot of) people then the taxes to

ontduiken!
dodge

As expected, these examples have a non-wh-counterpart:

(58) a. Jan heeft (me) op een herten geschoten!
John has (me) at a deers shot
'John fired at so many deers!'

b. Dit weiland strekt zich [tot [ver achter die greppel]] uit!
This grassland stretches REFL till far behind that trench out
'This grassland stretches so far beyond that trench!'

c. Jan heeft dit [op een klungelige manier] afgehandeld!
John has this in a clumsy way dealt-with
'John dealt with it in such a clumsy way!'

d. Toendertijd wisten een mensen de belasting te ontduiken!
Then knew a people the taxes to dodge
'So many people managed to dodge the taxes!'

In multiple exclamation constructions, the exclamation marker simply has more than one exclamand within its scope (as in (59)). Also in this case, we have a non-wh-multiple exclamative counterpart (as in (60)):

(59) *Wat* hebben er *een meisjes een jongens* gezoend!
What have there a girls a boys kissed
'What a large number of girls have kissed what a large number of boys!'

(60) Er hebben (me) (toch) *een meisjes een jongens* gezoend!
There have (me) (yet) a girls a boys kissed
'What a large number of girls have kissed what a large number of boys!'

Let us next consider the absence of indirect split *wat*-exclamatives:

(61) *? Jan herinnerde zich [*wat* hij *een last* had gehad met die
John recalled REFL what he a trouble had had with those

peuters]
nippers

Since I do not see any deeper principle at the moment which might account for the fact that *wat* can only appear in direct exclamations, I will simply stipulate that the exclamation-morpheme can only be realized as *wat* in main clauses. Interestingly, the following facts taken from Rijpma & Schuringa (1978) show that the split pattern can appear in a CP having the word order of an embedded clause (i.e. SOV order).[12]

(62) a. *Wat* je toch *'n last* hebt met die peuters!
What you yet a trouble have with those nippers
'One has so much trouble with those nippers!'

b. *Wat* je toch *ziek* kunt worden van die dingen!
What you yet ill can become of those things
'One can get so sick of these things!'

These sentences show that split exclamatives can occur in clauses which have the embedded word order, but are not subordinate clauses. They are marked root constructions in the sense that the finite verb has not been moved into COMP via Verb Second.[13] So, the finite verb remains in its D-structure position and the COMP-position remains empty. Given the fact that the exclamation morpheme *wat* can occur in CPs with an embedded word order as long as these CPs are not subordinate, I do not see any other way than just stipulating that the exclamation morpheme can only be realized in main clauses.

Of course, the verb second equivalents of the sentences in (62) are also permitted:

(63) a. *Wat* heb je toch *'n last* met die peuters!
What have you yet a trouble with those nippers

b. *Wat* kun je toch *ziek* worden van die dingen!
What can you yet ill get of these things

This concludes my discussion of the split exclamative construction in Dutch. The data discussed in the sections 5.4 and 5.5 suggest that this construction should not be described in terms of syntactic wh-movement, but that it can be

analyzed as consisting of a lexically realized exclamation morpheme *wat* base-generated in [Spec,CP], which must have a potential exclamand within its scope.[14]

5.6 Conclusion

The main purpose of this chapter was to find out whether syntactic wh-movement of the left branch exclamator *wat* underlies the formation of split *wat*-exclamatives. Various arguments were given against such an analysis. So, no extraction of a left branch constituent is involved in the derivation of these constructions. It was proposed that *wat* is a lexically realized exclamation morpheme which is base-generated in [Spec,CP]. It was further argued that non-split *wat*-exclamatives should be described in terms of wh-movement.

Notes to chapter 5

1. It should be noted that *hoe'n* is dialectal.

2. This was pointed out to me by Henk van Riemsdijk. It should be noted that the ill-formedness of the following split exclamative structure weakens the argument:

(i) *Wat* is Marie *vervelender dan Sue*!
Whatis Marymore-tiresome than Sue

As will be shown in section 5.4, *wat* is base-generated in [Spec,CP]. It does not originate within the DegP. Nevertheless, this exclamative sentence is out. So, it may very well be that the sentences in (14) are already out because of the fact that comparative forms cannot be exclaimed at.

3. Dutch is not sensitive to the doubly filled COMP filter.

4. In English, long distance exclamatives are found as well. Consider, for example, the following examples ((ia) taken from Ross (1967) and (ib) from Quirk e.a. (1972)):

(i) a. How brave$_i$ everybody must think you expect me to believe he is t_i!
b. How foolish$_i$ you must have thought I was t_i!

5. Notice also that an embedded clause of which the [Spec,CP] is filled by an exclamative wh-phrase creates a wh-island for extraction of an interrogative phrase:

(i) * [Aan wie]$_i$ hoorde Jan [[wat een boeken]$_j$ ik t_j t_i verkocht had]!?
To whom heard John what a books I sold had

6. As we will see in chapter 8, the claim that extraction is never possible from adjuncts is too strong. It turns out that adjunct-DegPs permit subextraction of constituents to [Spec,CP].

7. Notice also the following sentences:

(i) a. *? Jan herinnerde zich wat hij toen transpireerde
John remembered REFL what he then perspired

b. Wat transpireerde Jan toen!
What perspired John then

In (ia), *wat* occurs in the [Spec,CP]-position of an indirect exclamative clause and exclaims at the verb. It turns out that this indirect exclamative construction is worse than its direct exclamative counterpart (ib). As we have seen, split exclamatives are generally worse than non-split exclamatives in embedded contexts. It was further shown that the latter are derived by movement of the exclamative phrase to [Spec,CP]. Now, if the possibility of forming an indirect exclamative clause is an indication that syntactic wh-movement of an exclamative element to [Spec,CP] is at the basis of such an indirect exclamative clause, then the unacceptability of (ia) suggests that no syntactic movement of the exclamator *wat* is involved in the derivation of this construction. Instead, constructions as in (i), in which the exclamative element *wat* exclaims at the verb, should be analyzed as split exclamatives. That is to say, *wat* must be interpreted as the exclamation morpheme which is base-generated in the [Spec,CP] (see section 5.5).

8. Notice also that if *wat* were base-generated as some sort of VP-adjunct, then it would not have scope over (i.e. c-command) an exclamand occupying the subject-position. So, the examples in (41) would be problematic for this analysis.

9. See also Droste (1972).

10. Alternatively, the question morpheme Q can be indicated as [+WH] (See Chomsky (1973)).

11. As is well-known, these clause type morphemes also appear in other languages. In Polish, for example, a simple yes-no question is introduced by the question morpheme *czy*.

(i) a. Masz zadanie
(You) have exercise
'You have the exercise'

b. Czy masz zadanie?
'Have you the exercise?'

Japanese has the question morpheme *ka* (example taken from Lasnik & Saito (forthcoming)):

(ii) John-wa nani-o kaimasita *ka*
John-top what-acc bought Q
'What did John buy?'

12. It should be noted that in these examples, the PPs *met die peuters* and *van die dingen* occur in extraposed (i.e. postverbal) position.

13. See Den Besten (1989) for a discussion of marked root constructions in Dutch.

14. Another fact about split exclamatives reported in Krijgsman (1982) is that the exclamative element *wat* occupying the [Spec,CP] of the matrix clause cannot be linked to a potential exclamand within an embedded clause. Consider, for example, the following sentences ((ia) taken from Krijgsman (1982)):

(i) a. * *Wat* verteide Jan dat hij *veel werk* verzet had!
What told John that he much work done had
'John said he had done so much work'

b. ?* *Wat* zei Jan dat ie *een last* had gehad met die peuters
What said John that he a trouble had had with those nippers
'John said he had so much trouble with these nippers'

Notice that this is another asymmetry between split and non-split *wat*-exclamatives, which again suggests that they should not be treated in the same way. In connection with these data, the following question is raised: what blocks this long distance relation between the exclamation morpheme *wat* and the embedded exclamand. Krijgsman (1982) formulates the descriptive generalization that S'(=CP) creates a barrier for long distance modification by *wat*. One might hypothesize that the crucial opacity factor involved is the intervening complementizer. The following facts might be relevant at this point:

(ii) a. Een last dat je kunt hebben met die peuters!
A trouble that you can have with those nippers
'One can have so much trouble with those nippers!'

b. ?? Wat een last dat je kunt hebben met die peuters!
What a trouble that you can have with those nippers

c. * Wat dat je een last kunt hebben met die peuters!
What that you a trouble can have with those nippers

Sentence (iia) is an exclamative matrix clause in which the COMP-position is exceptionally filled by the complementizer *dat* and in which a noun phrase has been topicalized into [Spec,CP]. The relevant sentences are (iib and c). In (iib), the [Spec,CP] is filled by an exclamative wh-phrase and in (iic) by the exclamation morpheme *wat*. Although (iib) sounds rather odd to my ears, I feel a contrast with (iic). For some people, this contrast is even stronger because they consider (iib) fairly acceptable. What is important, however, is the fact that there is no intervening S' (CP) between *wat* and the exclamand *een last*. So, possibly the ill-formedness of the sentences in (i) should not be interpreted as being due to some restriction on long distance split exclamation. Instead, it might be that an intervening complementizer makes a domain opaque. As we have seen, the counterpart of (iic), in which the COMP-position is not filled by a complementizer, is acceptable:

(iii) Wat je een last kunt hebben met die peuters!
What you a trouble can have with those nippers

So, it might be that a complementizer, bearing its own features (e.g. [-WH] in the case of declaratives), makes a domain opaque for the exclamation morpheme, so that it cannot bind a potential exclamand within that domain. The complementizer has no such blocking function in a sentence like (iib) because the moved exclamative phrase is related to a position within the clause via its trace.

Notice further that an ill-formed sentence like (iv), in which the exclamator *wat* is associated with an exclamand contained within a complex noun phrase, apparently violates the Subjacency Condition.

(iv) * *Wat* hoorde Jo [het bericht dat Sue *een boeken* gekocht had]!
What heard Joe the message that Sue a books bought had
'Joe heard the message that Sue had bought so many books!'

As has been argued above, syntactic movement is not at the basis of split exclamatives in Dutch. Given the fact that the Subjacency Condition is a condition on movement, the ungrammatical status of (iv) must be due to some other factor. Possibly, the intervening complementizer of the embedded clause makes the domain opaque for the exclamation morpheme *wat*.

It should be noted that the discussion above is speculative and there remain many questions: One very obvious question, for example, is why in a language like Japanese the question morpheme *ka* can have scope over a wh-phrase within an embedded CP in which the complementizer position is filled.

Even if the opacity story is wrong, there is one other observation which may be relevant for the interpretation of the facts in (i). It turns out that split exclamatives are less acceptable when the element which *wat* exclaims at occurs within an extraposed phrase. Consider, for example, the contrast between the sentences in (iv) and (v):

(v) a. *Wat* heeft Jan [in *een sjieke buurt*] gewoond!
What has John in a chic neighbourhood lived

b. *Wat* heeft Jo zich [op *een tijdschriften*] geabonneerd!
What has Joe REFL to a magazines subscribed

c. *Wat* heeft Jan [met *een mensen*] gesproken!
What has Joe with a people spoken

d. *Wat* bleef Jan [tot [*diep* in de nacht]] weg!
What stayed John till deep into the night away

(vi) a. ?? *Wat* heeft Jan gewoond [in *een sjieke buurt*]!
b. ?? *Wat* heeft Jo zich geabonneerd [op *een tijdschriften*]!
c. ?? *Wat* heeft Jan gesproken [met *een mensen*]!
d. ?? *Wat* bleef Jan weg [tot [*diep* in de nacht]]!

In (v), the exclamand is part of a nonextraposed PP, whereas in (vi) it is part of an extraposed PP. Since CP-complements of a verb appear in extraposed position in Dutch, the unacceptability of the split exclamatives in (i) might (also) be caused by some factor which causes a decay in acceptability when the exclamand is contained within an extraposed phrase.

6 'WAT VOOR' - SPLIT IN DUTCH

6.1 Introduction

This chapter examines the internal syntax and the movement behavior of a particular type of interrogative noun phrase in Dutch, namely the so-called *wat voor (een) N*-noun phrase (literally: what for (a) N; meaning: 'what kind of N'). This phrase asks for the nature, quality or sort of person, thing or object. It further has the property of allowing subextraction of the left branch wh-element *wat*, yielding a discontinuous pattern. So, besides removal of the entire noun phrase to [Spec,CP] as in (1a), extraction only of *wat* is permitted as well (as in 1b).

(1) a. [Wat voor auto's]$_i$ heb je t$_i$ gekocht?
What for cars have you bought
'What kind of cars have you bought?'

b. [Wat]$_i$ heb je [t$_i$ voor auto's] gekocht?
What have you for cars bought
'What kind of cars have you bought?'

The extractability of the left branch interrogative element *wat* from within a noun phrase is exceptional, since generally subextraction of a left branch specifier or modifier from within a noun phrase is impossible in Dutch.

This type of interrogative phrase also appears in a number of other Germanic languages, both in its continuous pattern and in its discontinuous one:[1]

(2) a. Was für einen Wagen hat er gekauft? (German)
What for a car has he bought
'What kind of car has he bought?'

b. Was hat er für einen Wagen gekauft?

(3) a. Hva for ei bok leser du? (Norwegian)
What for a book read you
'What kind of book do you read?'

b. Hva leser du for ei bok?

(4) a. Vad för ett vin dricker du? (Swedish)
What for a wine drink you
'What kind of wine do you drink?'

b. Vad dricker du för ett vin?

I will focus on the syntactic properties of the Dutch *wat voor*-construction. I

presume that my analysis of the Dutch *wat voor*-construction also applies to its equivalents in the above-mentioned Germanic languages.

This chapter has the following structure. First, I will give an exposition of certain syntactic properties of this particular interrogative noun phrase. Then I will discuss three analyses of this construction which have been proposed in the generative literature. This will be followed by a closer investigation of various syntactic properties of the *wat voor*-construction, leading me to the proposal that the internal syntax of the *wat voor*-phrase consists of an adjunction structure of which the DP *wat* is the head and the string *voor (een) N* a PP which is adjoined to this DP. Thereupon, I will compare the *wat voor*-construction with the so-called *wat aan*-construction. It will be shown that these superficially similar constructions do not exhibit the same syntactic behavior, which motivates a different syntactic analysis of them. Finally, an account will be given of the (im)possibility of various discontinuous *wat voor*-patterns.

6.2 Some notes on the external and internal structure of the 'wat voor'-phrase

Externally the *wat voor (een) N*-phrase is a noun phrase (i.e. DP). It occurs as complement of verbs that are subcategorized for noun phrases ((5a)); it can undergo noun phrase-movement, as in passive and raising constructions ((5b,c)); it enters into a subject-(finite) verb agreement relation ((5d)); it can function as a binder of an anaphor or a pronoun (5e,f)):

(5) a. Wat voor een man heeft zij ontmoet?
What for a man has she met

b. Wat voor een man$_i$ werd door haar gezoend?
What for a man was by her kissed

c. Wat voor een man schijnt deze talen te spreken?
What for a man seems these languages to speak

d. Wat voor een mannen spreken deze talen?
What for a men-PL speak-PL these languages

e. Wat voor iemand$_i$ haat zichzelf$_i$?
What for someone hates himself

f. Wat voor iemand$_i$ zei dat hij$_i$ ziek was?
What for someone said that he ill was

With respect to the internal structure of this phrase, the question arises how the phrase breaks down into smaller constituents. Let us first consider which element is the head of the noun phrase. In the string *wat voor een hond* (what for a dog; 'what kind of dog') there are two potential candidates: the question word *wat* and the noun *hond*. On the basis of subject-verb agreement facts it

seems that not the question word *wat* but the noun following *voor (een)* must be the head of the noun phrase. If the interrogative phrase *wat voor (een) N* is the subject of a finite clause, then the finite verb agrees in number with the headnoun. If *wat* were the headnoun, we would expect that the finite verb is always singular, since this question word has the lexical property of being [+singular], as opposed to the question word *wie* ('who'), for example, that can be both [+ singular] and [+plural]. This is exemplified in (6) below.

(6) a. Ik weet niet *wat* hem *heeft/*hebben* gebeten
I know not what him has/ have bitten
'I don't know what has bitten him'

b. Ik weet niet *wie* hem *heeft/hebben* gebeten
I know not who him has/ have bitten
'I don't know who has/have bitten him'

Consider now the following sentences:

(7) a. * Ik weet niet [*wat* voor honden] mij *heeft* gebeten
I know not what for dogs me has bitten
'I don't know what kind of dogs have bitten me'

b. Ik weet niet [wat voor *honden*] mij *hebben* gebeten
I know not what for dogs me have bitten
'I don't know what kind of dogs have bitten me'

These sentences suggest that the noun *honden* is the head of the noun phrase *wat voor honden*, since that noun agrees with the finite verb.

Another argument in favor of an analysis in which the noun following *voor* is the head of the *wat voor*-phrase comes from the binding requirement that the reciprocal *elkaar* ('each other') requires a [+ plural] antecedent in Dutch (cf. Bennis (1983)). If the [-plural] *wat* were the head of the noun phrase, we would expect that the noun phrase headed by *wat* cannot bind the [+ plural] reciprocal *elkaar*. If, on the other hand, the noun following *voor* is the head of the interrogative phrase, then it is predicted that the noun phrase can bind *elkaar* in case this noun is [+ plural]. Now, the following example shows that the *wat voor*-phrase can bind a reciprocal and therefore suggests that the noun following *voor* is the head of the interrogative phrase.

(8) Wat voor honden$_i$ hebben elkaar$_i$ gebeten?
What for dogs have each other bitten
'What kind of dogs have bitten each other?'

Another important fact about the *wat voor*-construction is that the preposition *voor* does not have any case assigning function within the noun phrase (cf. Den Besten (1985)). Although this is not visible in Dutch, the German *was für*-construction clearly shows that the material following the preposition *für*, which usually assigns accusative case, does not receive case from this preposition. Consider, for example, the following sentence:

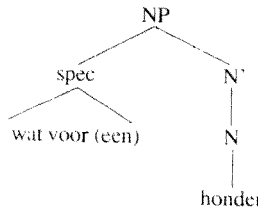
(9) [Mit [was für einem Mann/*einen Mann]] haben Sie
With what for a-DAT man/*a-ACC man have you

gesprochen?
spoken

Einem Mann bears dative case. It cannot receive this case from *für*. Instead it receives its case from the preposition *mit*, a dative case assigner.

On the basis of the above-mentioned considerations it has been proposed in the literature that the internal structure of a *wat voor*-phrase like *wat voor (een) honden* (what for (a) dogs) is the following:[2]

(10)



The noun following *voor* is the head of the interrogative phrase and the string *wat voor (een)* is considered a single complex specifier, which has its own specific meaning and which is stored as a whole in the lexicon (cf. Bennis (1983), Den Besten (1985)).

If this is the correct internal configuration, how can the split *wat voor*-construction be accounted for and how can the well-known subject-object asymmetry exhibited by this construction be explained (cf. Den Besten (1985))?

(11) a. Wat$_i$ heeft Jan [t$_i$ voor boeken] gekocht?
What has John for books bought

b. * Wat$_i$ hebben [t$_i$ voor meisjes] dit boek gelezen?
What have for girls this book read

Before turning to analyses of the split pattern proposed on the basis of the above-mentioned configuration, it should be said that these analyses leave unspecified the precise internal configuration of the elements under *Spec*. As we have seen in chapter 3, *Spec* is a relational notion, and does not stand for a categorial label. Therefore, the question should be raised which of the elements in the string *wat voor een* is to be considered the head of the phrase in the spec-position. The next question would be: How are the non-heads related to the head of the phrase occupying the specifier position? Notice that if it is argued that *wat voor een* is a complex head (i.e. some sort of compound), then subextraction of *wat* would violate the Lexical Integrity Hypothesis. Hence, such an analysis seems undesirable.

In the next section I will discuss three analyses of the split *wat voor*-construction that have been proposed in the literature. Two of them take configuration (10) to be the underlying structure, namely Den Besten (1985) and Bennis (1983). The third analysis, which assumes a different underlying structure, is by Reuland (1983).

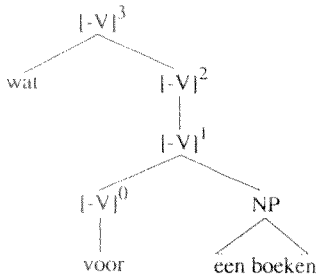
6.3 Three approaches to the split 'wat voor'-construction

6.3.1 Den Besten (1985): the 'wat voor'-phrase as a [-V]-category

Den Besten (1985) argues that the proper treatment of the split *wat voor*-construction involves subextraction of the question word *wat*. It is further assumed that extraction of *wat* from within the NP changes the categorial status of the containing noun phrase. After subextraction the *[t_i voor een N]*-phrase changes from [+N, -V]^3 into [-V]^3. According to Den Besten, this is due to the presence of the preposition *voor*, which becomes the head of the [-V]^3-category after subextraction of *wat*. The [-V]^3-internal trace gets properly governed by the verb via the preposition which is the head of [-V]^3. I will come back to this later. Let us first discuss some other aspects of this analysis.

It is not clear how the categorial change takes place. As we have seen, the D-structure configuration is not explicit to begin with. The S-structure configuration after removal of *wat* is not crystal clear either. Den Besten states that the preposition *voor* is the new head of [-V]^3. But what happens with the other elements inside [-V]^3? Presumably, at S-structure the *wat voor*-phrase has more or less the following structure:

(12)



Note that this categorial change might be problematic for subject-finite verb agreement. It is generally assumed that agreement is defined on the [+N]-features. If those are absent at S-structure and if agreement is defined at that level, i.e. after Move alpha has applied, then it is not clear how agreement is determined.[3] Notice also that the proposed categorial change is not permitted under a strict interpretation of the Projection Principle. This principle requires that representations at each syntactic level (i.e. LF, D- and S-structure) be projected from the lexicon, in that they observe the 'lexical properties' (i.e thematic properties and subcategorization properties) of lexical items. The verb

kopen ('buy') in sentence (11a), for example, has the lexical property that it is subcategorized for a noun phrase, i.e. a category with the feature constellation [+N, -V]. So, if the Projection Principle is interpreted in a strict way, the categorial change is not permitted, since the complement of *kopen* does not satisfy the subcategorization properties of the verb at the level of S-structure.

Den Besten notes that after having changed into a [-V]^3-category, the string *[t_i voor een N]* exhibits both an NP-like and a PP-like behavior, PP also being a category bearing the feature [-V]. This categorial status accounts for a number of things. First, it explains why extraposition of this string (=[-V]^3), as in the following sentence, is fairly acceptable.[4]

(13) *Wat* heeft Jan gekocht *voor boeken*?

After subextraction of *wat*, the string *[t voor boeken]* becomes [-V] and is then accessible to extraposition.

It is further noted that the switch from [+N,-V]^3 to [-V]^3 accounts for the absence of subjacency effects in the split *wat voor*-construction.[5] Under the assumption that [-V]^3 is not a bounding node, no subjacency violation is triggered if *wat* is moved to COMP (i.e. [Spec,CP]), because S is the only bounding node separating the moved wh-element and its trace. Notice that this account only holds if the Subjacency Condition is considered a condition on representations and not a condition on rule application. That is, the condition must apply to the output of the movement rule.

It is argued that the Left Branch Condition effect, which is said to be reducible to the ECP, is suspended because the trace of *wat* is licensed by the preposition *voor*. Den Besten notes that *voor* will not suffice as a proper governor in itself, since it is a weak governor. It is assumed that the lexical category V properly governs the trace of *wat* through the head of the new category [-V]^3, i.e. through the preposition *voor*. The property of proper government trickles down to the head [-V]. So, the wh-trace in [-V]^3 will be licensed (= properly governed) by a chain of governors.

Of course, if proper government of a trace which is contained within the maximal projection of a preposition is permitted through the chain of governors Verb-Preposition, then the question arises why this is not possible as well in the following P-stranding constructions:[6]

(14) * Ik vraag me af [wie$_i$ Jan [op t_i] gerekend heeft]
I wonder REFL PRT who John on counted has
'I wonder who John has counted on'

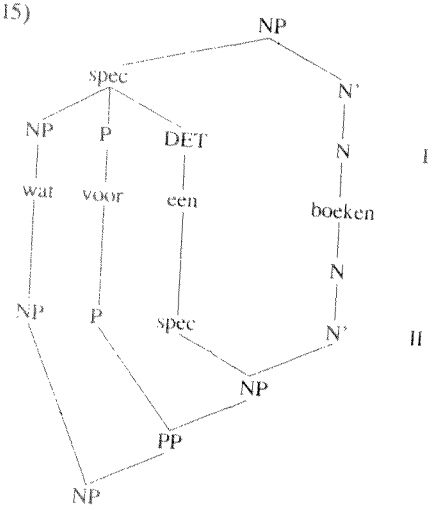
Den Besten accounts for the subject-object asymmetry with respect to extraction of *wat* by saying that no government chain can be built if the *wat voor*-phrase stands in subject position. This is so, because the governor of the trace (i.e. *wat* which occupies the COMP-position) does not govern [-V]^3.

6.3.2 Bennis (1983): the 'wat voor'-phrase as a reanalyzed structure

Bennis (1983) proposes that the string *wat voor (een) N* is best viewed as a coanalyzed or reanalyzed structure. Coanalysis refers to a situation in which a string is assigned more than one structural analysis because of the ambiguous behavior of some linguistic element. The coanalyzed structure can be represented by a double tree.[7]

On this reanalyzing approach, the string *wat voor (een) N* is assigned two structures: one in which *wat voor een* forms a unit separate from *N* (dimension I in (15)); another in which *voor een N* forms a unit that combines with *wat* (dimension II in (15)). The tree is displayed as two coexisting dimensions, each of which is a tree with its properties.

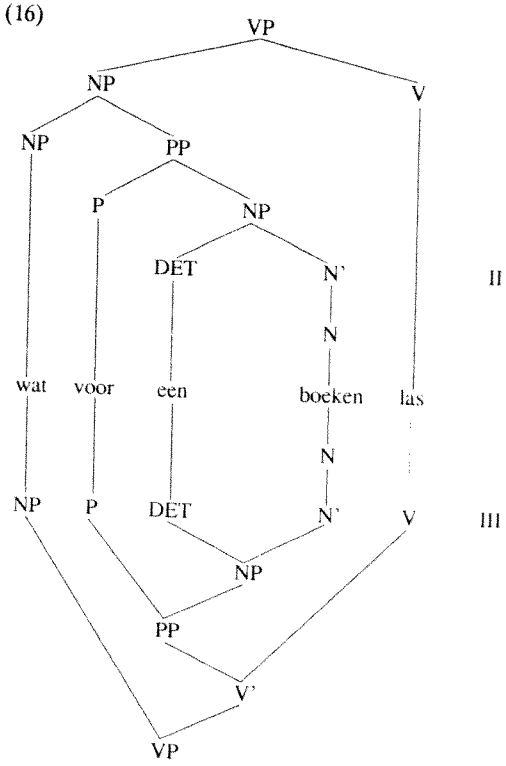
(15)



There are certain restrictions on the reanalysis operation which assigns an extra structure to a string of elements. Reanalysis, for example, should be restricted to adjacent elements; the categorial status of the elements involved in the reanalysis operation must not change; the base rules should be able to generate the additional structure independently, etc. (cf. Bennis (1983)).

Bennis (1983) notes that movement rules can apply to both levels of representation. It is further argued that the reanalyzed structure in (15) as such cannot account for the split pattern. Removal of the question phrase *wat* would still be from within NP and consequently violate principles such as the LBC, the Subjacency Condition and the ECP. Therefore it is suggested that a second reanalysis operation applies to the output of the first reanalysis operation (i.e. the lower dimension in (15)). This yields a triple tree structure. For the sake of clarity, I will only draw the two reanalyzed dimensions:

(16)



Dimension III permits extraction of the question word *wat*, which is no longer within the noun phrase after the second reanalysis operation has applied. The LBC is not violated in this dimension, since the question word is not a left branch specifier of the noun phrase in this third dimension. The Subjacency Condition is not violated either in dimension III, because movement of *wat* only crosses the bounding node S.[8] ECP is also satisfied, since the verb properly governs the trace of the moved question word.

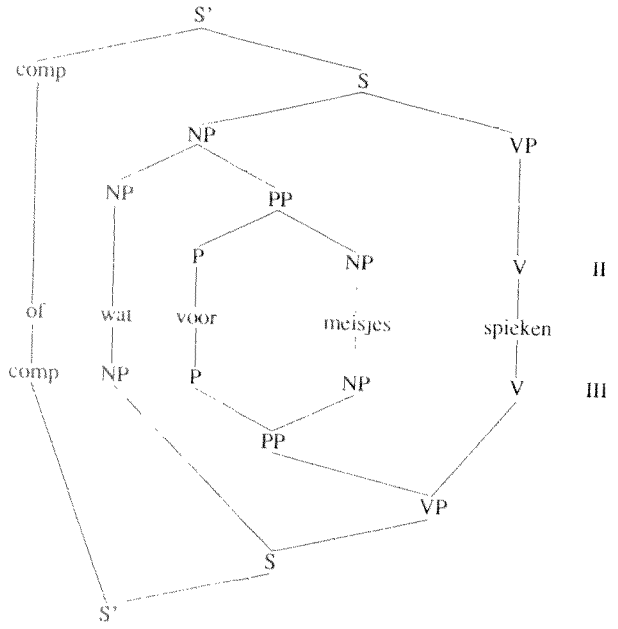
Bennis does not apply the reanalysis approach sketched above to *wat voor*-phrases occupying the subject-position. Consider, for example, the following sentence:

(17) * Ik vraag me af [$_{S'}$ wat$_i$ of [$_S$ [t$_i$ voor meisjes] spieken]]?
I wonder REFL PRT what whether for girls crib
'I wonder what kind of girls crib'

In this ill-formed sentence, the question phrase *wat* has been moved out of the subject noun phrase to the COMP-position.[9] It turns out that the ill-formed structure is not excluded by the reanalysis approach to split *wat voor*-

constructions. Consider tree diagram (18), which only represents the two reanalyzed structures of the embedded clause. So, the first dimension, i.e. the one in which *wat voor* is a frozen specifier, is left out. Nothing seems to prohibit the lower structure (dimension III), which is derived by a second application of the reanalysis operation.

(18)



In dimension III, reanalysis has placed the PP *voor meisjes* within the VP. Nothing seems to block this reanalysis operation. No irrelevant categories intervene between the elements to be reanalyzed, so that the adjacency requirement is satisfied. Furthermore, no change of the categorial status of the lexical categories is involved; no empty lexical categories have been added to the tree diagram; the reanalyzed structure III can be generated independently by the base rules, etc. Notice now that the interrogative phrase *wat*, which is the subject-NP in the third dimension, can be fronted to COMP without violating principles such as the LBC, ECP and the Subjacency Condition. In short, the reanalysis approach proposed by Bennis does not (or at least not always) capture the subject-object asymmetry.

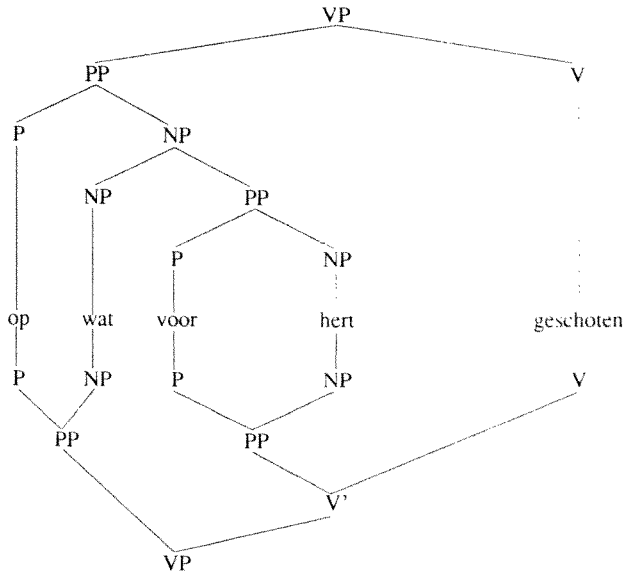
Another point of criticism is the fact that this reanalysis approach is able to generate the ill-formed structure (19b):

(19) a. [Op [wat voor hert]] heb jij geschoten?
On what for deer have you shot
'What kind of deer did you shoot at?'

b. * *Op wat* heb jij *voor hert* geschoten?
On what have you for deer shot

The NP *wat* can be reanalyzed with the preposition *op* as a PP and the PP *voor hert* can be reanalyzed with the adjacent verb *geschoten*. This is illustrated by tree diagram (20), which only contains the two reanalyzed structures and not the one congruent to D-structure.

(20)



Notice that after reanalysis the string *op wat* forms a constituent which can be the input for a movement rule, yielding sentence (19b).

Besides these more technical points of criticism, Bennis's analysis faces a more general problem. It is left unspecified to which tree dimensions the principles of grammar apply. Of course, the most restrictive view is one in which the principles apply to all dimensions. That would mean, for example, that a condition like the Subjacency Condition would apply to both the D-structure configuration and the two reanalyzed configurations. Now if the lexical element *wat* is extracted, then it seems that it is extracted from all three dimensions. And although the Subjacency Condition is not violated in the third dimension, it still is in the two other dimensions.

6.3.3 Reuland (1983): 'wat' as a head

According to Reuland (1983), subextraction is involved in the derivation of the split variant of the *wat voor*-construction. It is argued that the left

branch question word *wat* can be extracted from within a noun phrase, if the trace that is left behind is accessible to proper government from outside. Other types of left branch NP-specifiers (e.g. *welke* ('which')) are inaccessible to external proper governors. Hence, removal of these specifiers will always yield an ECP-violation. The question, of course, arises what causes this difference in accessibility to government from outside.

Following a suggestion by Henk van Riemsdijk, Reuland assumes that the distinguishing and exceptional property of the wh-trace left behind in the split *wat voor*-construction is that it acts as the head of the noun phrase at S-structure. Being the head of the noun phrase, it is accessible to external proper government under the assumption that if a maximal projection (i.c. NP) is properly governed, then its head is too (cf. Belletti & Rizzi (1981)). The subject-object asymmetry with regard to extraction follows from the fact that the subject-NP-internal trace is not accessible to proper government from outside, i.e the antecedent *wat* in COMP is not close enough to bind the trace because of the intervening NP-node.

It is further assumed that the trace of *wat*, being the head of the noun phrase at S-structure, attracts case, which is assigned at S-structure. Because of this, the former headnoun receives no case. It is argued then that in order to assign case to the former headnoun the preposition *voor* must be inserted to assign case to it.

There are a number of problems that arise under this analysis. First of all, insertion of *voor* is highly peculiar. The operation is similar to the insertion of the preposition *van* ('of') in phrases like *de vernietiging van de stad* ('the destruction of the city'). This *van* is inserted to assign case to the noun phrase *de stad*. Since the preposition *van* seems to have the same "saving" function as *voor* under Reuland's analysis, it is not clear why only the latter and not the former can be inserted in the configuration *wat boeken*. Similarly, it is not clear why *voor* (which seems to be semantically empty according to this analysis - otherwise it is not clear why it is not inserted at D-structure) cannot be inserted in a string like *de vernietiging stad*.

A second problem concerns the assumption that the preposition *voor* is inserted to assign case. As we have seen in section 6.2 case assignment facts from German *was für*-constructions indicate that the preposition *für* does not assign case at all (cf. Den Besten (1985)).

Consider also the unusual structure which is assigned to the *wat voor een N*-string. It is assumed that *wat* occupies the [Spec,NP]-position. Reuland is not very explicit about the positions that the inserted preposition *voor* and the indefinite article *een* occupy within the noun phrase. Presumably, they are hanging from an intermediate projection of the noun, viz. N'. These positions are quite unusual for prepositions and indefinite articles. Normally, prepositions never occur to the left of a nominal head in Dutch, and under a traditional NP-analysis indefinite articles occur in the Spec-position. Notice also that the assumption that the P^0 *voor* is a sister of N' is not in accordance with the X-bar theoretic requirement that satellites should be

maximal projections. But, of course, one could always say that this deviant internal syntax precisely reflects the exceptional behavior of this interrogative construction.

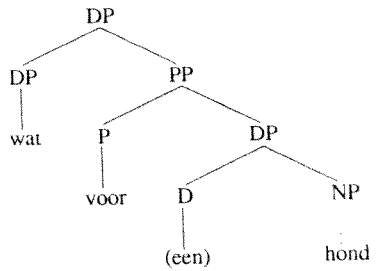
The (apparently) exceptional character of the *wat voor*-construction makes it difficult to evaluate the above-mentioned analyses. One can always defend certain unusual syntactic operations by saying that they reflect the peripheral status of this construction. Closer investigation of this interrogative construction, however, suggests that it is not as "peripheral" as it looks at first sight. That is, the *wat voor*-construction syntactically behaves more "normally" than one might think. In the next sections, I will investigate certain syntactic properties of this construction more closely and show how it behaves with respect to various principles of grammar.

6.4 An alternative analysis

So far, I have discussed some basic properties of the *wat voor*-construction and three analyses of this construction which have been proposed in the literature. In this section I will present an alternative analysis of this interrogative construction. Before discussing the split pattern in section 6.6, I will undertake a closer investigation of the internal structure of the *wat voor*-phrase.

I will assume that the proper analysis for a *wat voor*-phrase like *wat voor (een) hond* (what for a dog; 'what kind of dog') is the one given below:

(21)



The interrogative element *wat* is the head of this phrase and the string *voor (een) hond* forms a PP which is base-adjoined to DP. The optional article *een* occupies the lower D-position and takes an NP-complement.[10]

Let us consider some arguments in favor of this structure. For the sake of simplicity of argumentation, I will begin with the issue of the constituenthood of the string *voor (een) N*. A first piece of evidence for the constituenthood of *voor (een) N* is the fact that it is possible to extrapose this string (i.e. can it be moved to a postverbal position). This has already been illustrated by sentence (13), repeated here as (22):

(22) *Wat* heeft Jan gekocht *voor boeken*?

As is well-known, only constituents can be moved. Notice also that the extraposability suggests that *voor (een) N* is a PP and not, for example, a noun phrase, since normally noun phrases cannot undergo extraposition in Dutch.

Another test which can be used to find out whether a sequence of elements forms a constituent is coordination. Elements that can be coordinated form constituents. Consider now the various coordination patterns that are possible with the *wat voor*-phrase.

(23) a. [[Wat voor een mannen] en [wat voor een vrouwen]] heb jij
What for a men and what for a women have you

gezien?
seen
'What kind of men and what kind of women did you see?'

b. Wat voor mannen en wat voor vrouwen heb jij gezien?
c. ? Wat voor een mannen en wat voor vrouwen heb jij gezien?
d. ? Wat voor mannen en wat voor een vrouwen heb jij gezien?

(24) a. [Wat [voor een mannen] en [voor een vrouwen]] heb jij gezien?
b. Wat voor mannen en voor vrouwen heb jij gezien?
c. ?? Wat voor een mannen en voor vrouwen heb jij gezien?
d. ?? Wat voor mannen en voor een vrouwen heb jij gezien?

(25) a. [Wat voor [een mannen] en [een vrouwen]] heb jij gezien?
b. Wat voor mannen en vrouwen heb jij gezien?
c. Wat voor een mannen en vrouwen heb jij gezien?
d. ?? Wat voor mannen en een vrouwen heb jij gezien?

The examples in (23) are coordinations of the entire DP *wat voor een N*. (24) exemplifies coordinations of the PP *voor een N*. Note that this supports the assumption that *voor een N* forms a constituent. (25), finally, illustrates coordinations of DP and N.

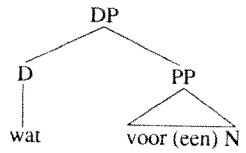
The examples (23c/d), (24c/d) and (25d) show that there is some sort of weak parallelism requirement for the coordinated conjuncts. One would expect this parallelism requirement also to hold for (25c), if this structure is analyzed as a coordination of two DPs. This structure, however, can also be analyzed as a coordination of the nouns *mannen* and *vrouwen*. In that case, there is no violation of the parallelism requirement.

Let us briefly investigate whether these coordination facts are problematic for the structures assumed by the analyses discussed in the previous sections. Consider first Den Besten's and Bennis's structure, who both assume that at D-structure *wat voor een* forms a constituent. The coordinations (24a and b) are unexpected under their analysis, it would involve coordination of two non-

constituents. The same actually holds for the coordination in (25a). In fact, the only possible coordinations according to their structural analysis of the *wat voor*-phrase (see (10)) are the ones given in (23) and (25b,c). Reuland's structure of the *wat voor*-phrase, on the other hand, is in accordance with all the possible coordination patterns given above. In his analysis, the coordinations in (23) are coordinations of NPs, those in (24) are coordinations of N'. (25a,d) can be analyzed as coordinations of N' and (25b,c) as instances of N-coordination.

So far I have motivated the fact that the string *voor een N* is a PP. I have further made the assumption that *wat* is a DP, and that PP is base-adjoined to it. The question arises whether there is any evidence for this adjunction structure. Why not assume, for example, that the PP *voor een N* is a sister of D, as in (26):

(26)



If one adopts this structure, in which *wat* is the head (D^o) of the DP, one cannot account for the extractability of the interrogative element *wat* in a straightforward way. As will be shown in more detail in chapter 7, determiners which are contained, for example, within a direct object-DP cannot be fronted to [Spec,CP], since they cannot escape the L-barrierhood of the VP via adjunction to this maximal projection.[11] Such an adjunction operation is impossible under a structure preserving requirement on adjunction operations (cf. Chomsky (1986b)). As a consequence, the trace in D-position will never be antecedent governed and therefore violate the ECP. Furthermore, if the structure preservingness hypothesis applies to substitution, the D^o cannot be moved into [Spec,CP], because that position only allows maximal projections.[12]

Of course, one could propose an analysis in which the entire DP is fronted after extraposition of the PP. Such an analysis is problematic, however. The landing site of PPs that are extraposed from within a direct object-DP in Dutch is a postverbal position (presumably adjoined to IP):

(27) ....omdat Jan [$_{VP}$ gisteren [een vaas t_i] kocht] [uit China]$_i$
....because John yesterday a vase bought from China

The following example, however, shows that in the split *wat voor*-construction the PP *voor een vaas* can occur in a preverbal (i.e. non-extraposed) position.

(28) Ik vraag me af wat$_i$ Jan [$_{VP}$ gisteren [t$_i$ voor een vaas]
I wonder REFL PRT what John yesterday for a vase

kocht]
bought

In short, deriving the split pattern via extraposition of the PP headed by *voor* is not appropriate.

An analysis of the split pattern in which first the entire DP is fronted and subsequently the PP is extraposed should also be excluded. Although we get a split pattern, the PP *voor een N* will always end up in a postverbal position, so that structures as in (28) will not be generated.[13]

Given these problems, let us return to the adjunction structure given in (21). Is there any evidence for assuming such a structure? An argument in favor of this adjunction structure comes from the behavior of certain lexical items in Dutch which typically "hang around" (i.e. are adjoined to) maximal projections: *ongeveer* (about/approximately), *zoal* (among others), *precies* (exactly), *zelfs* (even), etc. Let us call these elements "free adjuncts".[14] Consider, for example, the following sentences in which the free adjuncts either appear to the left periphery or right periphery of the maximal projection they are attached to.

(29) a. [$_{DP}$ Precies hoeveel dagen/ hoeveel dagen precies] moest hij
Exactly how-many days/ how-many days exactly had he

in bed blijven?
in bed to-stay

b. [$_{DegP}$ Ongeveer hoe groot/ hoe groot ongeveer] is Jan?
Approximately how tall/ how tall approximately is John?

c. [$_{PP}$ Ongeveer voor de helft/ voor de helft ongeveer]
Approximately for the half/ for the half approximately

had Jan het opgegeten
had John it eaten-up
'John ate more or less half of it'

These elements can appear in different positions within the *wat voor*-phrase, one of the positions being in between *wat* and the PP. Consider, for example, the following paradigm:[15]

(30) a. [Ongeveer wat voor een bedrag] heb jij uitgegeven?
Approximately what for an amount have you spent
'How much money approximately did you spend?'

b. [Wat ongeveer voor een bedrag] heb jij uitgegeven?
c. [Wat voor een bedrag ongeveer] heb jij uitgegeven?

Notice that in these sentences the *wat voor*-phrases containing the free adjunct *ongeveer* occupy [Spec,CP], which shows that these phrases really are constituents. In (30a), the free adjunct is left adjoined to the *wat voor*-phrase and in (30c) it is adjoined to the right of it. The question now arises whether in the b-sentence the free adjunct *ongeveer* is right-adjoined to the DP *wat* or left-adjoined to the PP headed by *voor*. The fact that it can reasonably well move along with the fronted interrogative element *wat*, but not with the extraposed PP *voor een bedrag* suggests that it is adjoined to the former:

(31) a. ? *Wat ongeveer* heb jij *voor een bedrag* uitgegeven?
b. * *Wat* heb jij uitgegeven *ongeveer voor een bedrag*?

Now that we know that the free adjunct *ongeveer* in the *wat voor*-phrase *wat ongeveer voor een bedrag* is base-adjoined to the maximal projection *wat* (i.e. DP), the conclusion must be that the PP headed by *voor*, which follows the DP *wat ongeveer*, is also adjoined to the maximal projection DP.[16]

Having established the internal syntax of the *wat voor*-phrase, I will turn to a discussion of the semantic and syntactic properties of the question word *wat* in the *wat voor*-construction. As far as its categorial status is concerned, it seems to be a nominal element (i.e. DP) on the basis of its identity to the question word *wat*. A piece of evidence in favor of the nominal status of *wat* comes from the categorial matching condition on free relative constructions in Dutch (cf. Bennis (1983)). In a sentence like (32), which is acceptable to my ear, the verb *speel* is followed by a free relative clause that is introduced by *wat*. Following the theory of free relatives as defended in Groos & Van Riemsdijk (1981), the constituent occupying the COMP (or better [Spec,CP]) of the free relative clause must be a noun phrase in order to fulfill the categorial matching condition, which holds on Dutch free relative constructions.[17,18]

(32) Ik speel wat deze violist voor deuntjes speelt
I play what this violinist for tunes plays
'I play the same tunes as this violinist'

Another question with respect to *wat* concerns the semantic status of this interrogative element, i.e. is it an argument (i.e. an element bearing an internal or external theta-role) or not? Notice first of all, that *wat* in the *wat voor*-construction is not a referential expression like the "normal" question word *wat*. This is shown by the fact that there is no non-interrogative counterpart of *wat* in the *wat voor*-construction.

(33) a. Wat$_i$ heeft Jo t$_i$ gekocht?
What has Joe bought

b. Jo heeft *dat* gekocht
Joe has that bought

(34) a. Wat$_i$ heeft Jo [t$_i$ voor boeken] gekocht?
What has Joe for books bought

b. * Jo heeft *dat* voor boeken gekocht
Joe has that for books bought

The nonargument status of *wat* in the *wat voor*-phrase is also suggested by some other properties of this element.[19] First, as is well-known, argument noun phrases behave differently from nonargument noun phrases as far as the extractability out of wh-island configurations is concerned. Extraction of argument phrases from within wh-islands is better, for example, than removal of nonargument-phrases from within the same configuration. Argument extractions only yield violations of the Subjacency Condition, whereas nonargument-extractions violate both the Subjacency Condition and the ECP (see Chomsky (1986b)). Consider now the following sentences (see also Coopmans (1988)):

(35) a. ?? [Wat]$_i$ vraag jij je af [$_{S'}$ wanneer Jo t_i gekocht heeft]?
What wonder you REFL PRT when Joe bought has
'What do you wonder when Joe bought?'

b. * [Wat]$_i$ vraag jij je af [$_{S'}$ wanneer Jo [t_i voor boeken]
What wonder you REFL PRT when Joe for books

gekocht heeft]?
bought has
'What kind of books do you wonder when Joe bought?'

In (35a), the pronominal argument *wat* has been moved out of a wh-island, yielding a subjacency violation. Sentence (35b), in which the wh-element *wat* of the *wat voor*-phrase has been reordered out of a wh-island, is much worse. The strong ungrammaticality suggests that the wh-element *wat* in this construction is a nonargument; extraction of this element across a wh-island violates both the Subjacency Condition and the ECP. Since the [Spec,CP] of the embedded clause is filled by *wanneer*, there is no local antecedent governor for the intermediate trace of the fronted nonargument *wat*, which is adjoined to VP.

Second, the gap left behind after removal of *wat* from within the *wat voor*-phrase cannot license a parasitic gap, as is shown by (36). Fronted argument-noun phrases, on the other hand, can be the antecedent for a parasitic gap. This is shown in (37), where the interrogative argument *wat* has been fronted. This asymmetry suggests that the question phrase *wat* in the *wat voor*-phrase is not an argument expression.

(36) * Wat$_i$ heeft Jo [zonder [e_i voor tijdschriften] te lezen]
What has Joe without for magazines to read

[t_i voor boeken] weggegooid?
for books thrown-away

(37) Wat$_i$ heeft Jo [zonder [e_i te lezen]] t_i weggegooid?
What has Joe without to read thrown-away

Given these facts,[20] I will assume that *wat* is not an argument expression but a kind of interrogative nonargument expression. It is a maximal projection which is not assigned an internal or external theta-role by some theta-assigner. The entire *wat voor*-phrase, however, is an argument noun phrase requiring a theta-role.[21] The fact that movement of the entire *wat voor*-phrase only yields a subjacency violation and the fact that it can license a parasitic gap are in accordance with its argument status:[22]

(38) a. ?? [Wat voor boeken]$_i$ vraag jij je af [wanneer Jo t_i
What for books wonder you REFL PRT when Joe

gekocht heeft]?
bought has
'What kind of books do you wonder when Joe bought?'

b. Wat voor boeken$_i$ heeft Jo [zonder [e_i te lezen]] t_i weggegooid?
What for books has Joe without to read thrown-away
'What kind of books has Joe thrown away without having read
them?

Given this interpretation of *wat*, how do we analyze the PP, headed by *voor*? I assume that it behaves as a kind of secondary predicate with regard to *wat*. The interpretation of *voor een N* as a predicative phrase is justified by the fact that the preposition *voor* can head a predicate PP in other contexts as well.[23,24] This is exemplified in (39) ((39d) taken from (Overdiep (1949)):

(39) a. Ik schold hem uit [voor slappeling]
I called him PRT for weakling
'I called him a weakling'

b. Ik maaktehem uit [voor (een) bedrieger]
I called him PRT for (an) impostor
'I called him an impostor'

c. We gebruiken het [voor kippenren]
We use it for chicken-run
'We use it as a chicken-run'

In (39a-b) and (39c), the PP enters into a predication relation with the pronouns *hem* and *het*, respectively.

Notice also that the preposition *voor* can take an adjective phrase as its complement.

(40) a. Ik zie hem [voor vol] aan
I saw him for full PRT
'I consider him grown-up'

b. Ik hield het [voor waar]
I held it for true
'I took it to be true'

So, the PP headed by *voor* in (39) and (40) has the same function as the *als*-phrases in the following examples:[25]

(41) a. Ik beschouw hem [als mijn beste vriend]
'I regard him as my best friend'

b. We gebruiken het [als kippenren]
'We use it as chicken-run'

That predicative phrases can be associated with noun phrases (DPs) that are not considered true arguments is shown by the following example in which a predicative phrase headed by *als* ('like') is associated with the quasi-argument pronoun *het*:[26]

(42) Het regent [als een gek]
It rains like a fool
'It rains very heavily'

In terms of this analysis of the *wat voor*-phrase, the following two curious properties can be accounted for: (i) the absence of case assignment by the preposition *voor*; and (ii) the fact that subject-finite verb agreement appears to hold between the finite verb and the noninterrogative noun of the *wat voor*-phrase. Consider first case assignment. We have seen that one of the striking properties of the *wat voor*-phrase is the presence of the preposition *voor* which does not assign case to the noninterrogative noun. Recall that there are two nominal elements inside the interrogative phrase, namely the question word *wat* and the noun phrase (DP) following *voor*. Both need case in order not to violate the Case Filter. It should be noted that the fact that the non-argument *wat* needs case is not exceptional either. As is shown by the following examples, expletives, which also behave like nonarguments, need case as well:

(43) a. It seems that John is ill
b. * John hopes it to be true that Mary comes

In (43a), the expletive *it* (a nonargument) is assigned nominative case by INFL. Sentence (43b) is ill-formed, because the expletive *it* which is the subject of the embedded infinitival clause, is not assigned case and therefore violates the Case Filter.

I assume that *wat* in the *wat voor*-phrase receives its case in the following way: Case is assigned to the entire *wat voor*-phrase (i.e. DP) and it percolates down to the head of this phrase, i.e *wat*. How does the nominal following *voor* receive its case? I will assume that it receives its case from the DP *wat* under predication. Consider, for example, the following sentences from German:

(44) a. [Was für ein Mann] hat das Buch gelesen
What for a-NOM man has that book read

b. [Was für einen Wagen] hast du gekauft?
What for a-ACC car have you bought

c. [Mit [was für einem Mann]] hast du gesprochen?
With what for a-DAT man have you spoken

In (44a), the *was für*-phrase has been assigned nominative case by INFL. In (44b) it bears accusative case, which is assigned by the verb *gekauft*. In (44c), finally, it receives dative case from the preposition *mit*. As argued above, the case assigned to the entire *was für*-phrase percolates down to the head of the adjunction structure, i.e. the interrogative element *wat*. Now, the nominal (DP) contained within the predicative PP headed by *für* receives its case from *wat* under predication.

This case assignment procedure can be found in other predication configurations as well. So, it is not a special property of the *wat voor*-phrase. Consider, for example, the following sentences from German (cf. also Van Riemsdijk (1983), Den Besten (1989)).

(45) a. Ich behandelte [den Mann][wie [einen Bruder]]
I treated the-ACC man as a-ACC brother

b. [Er] schreit [wie [ein Rasender]]
He-NOM cries like a-NOM madman

c. Ich hörte [ihm] schreien [wie [einen Rasenden]]
I heard him-ACC cry like a-ACC madman

These sentences show that the predicate nominal after *wie* must agree in morphological case with the noun which it enters into a predication relation with. So, in fact the non-case assigning property of the preposition *voor/für* in the *wat voor/was für*-phrase is not exceptional at all. The noun phrase-complement of the preposition receives its case via a normal case assignment procedure, viz. predication.

The subject-finite verb agreement facts also follow from the predication structure. Consider again the sentences in (7), repeated here in (46):

(46) a. * Ik weet niet [*wat* voor honden] mij *heeft* gebeten
I know not what for dogs me has bitten
'I don't know what kind of dogs have bitten me'

b. Ik weet niet [wat voor *honden*] mij *hebben* gebeten
I know not what for dogs me have bitten
'I don't know what kind of dogs have bitten me'

Previous analyses have interpreted these agreement facts as evidence in favor of an analysis in which the non-interrogative noun was the head of the *wat voor*-phrase. Because of this, these analyses were forced to assume some sort of complex specifier *wat voor (een)*. It turns out that these agreement facts also follow from the analysis proposed in this section in which *wat* is the head of the *wat voor*-phrase.

Recall that the pronominal argument *wat* is [+ singular]. The same holds for its non-interrogative counterpart *het*. The inherent [+ singular] feature of the argument *het/wat* makes it impossible to combine these elements with a plural verb. This is exemplified in the following sentences:

(47) a. Het staat/*staan in de kast
It stands/*stand in the cupboard

b. Wat staat/*staan in de kast?
What stands/*stand in the cupboard

In predicative structures, however, argument pronouns such as *het* ('it'), *dat* ('dat') and *wat* ('wat') having the grammatical function of subject can co-occur with plural finite verbs. This is illustrated below:

(48) a. Het zijn/*is grote honden
It are/ *is big dogs

b. Wat worden/*wordt grote honden?
What become-pl/*become-sg big dogs

c. Dat blijven/*blijft moeilijke beslissingen
That remain/*remains hard decisions

It is typical of these predicative constructions that the predicate nominal determines the agreement relation with the finite verb. This can be formalized by having a coindexing relation between the predicate nominal and the subject through which the subject inherits the agreement features ([+ plural] in (48)) from the predicate nominal under predication.

Notice that pronouns like *het* and *wat* can also appear as subject of a [+plural] predicate *(mooie honden)* in the following small clause structures, which are also predication configurations:

(49) a. Ik vind het mooie honden
I consider it beautiful dogs
'I find these dogs beautiful'

b. Wat$_i$ vind jij t_i mooie honden?
What consider you beautiful dogs
'Which dogs do you find beautiful?'

Turning to the examples in (46), notice that the agreement facts in the *wat voor*-construction can be accounted for along similar lines. The interrogative *wat* receives agreement features from the nominal contained within the PP headed by *voor* under predication. These features percolate up to the dominating (subject)-DP (i.e. the highest DP in (21)), which enters into an agreement relation with the finite verb.

In conclusion, the property of *wat* in the *wat voor*-phrase of receiving number features from its predicate is a much more general phenomenon in Dutch. This means that the subject-finite verb agreement phenomenon need not be interpreted as an argument in favor of considering the non-interrogative noun in the string *wat voor een N* as the head of the entire phrase. It can be analyzed as an instance of the much more general phenomenon of determination of agreement through predication.

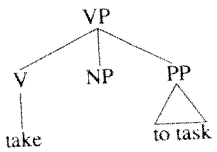
The binding phenomena can also be explained now under this analysis. Recall that the fact that a subject *wat voor*-phrase could bind the plural anaphor *elkaar* was considered an argument in favor of interpreting the non-interrogative noun within the *wat voor*-phrase as the head of the entire phrase.

(50) Wat voor jongens$_i$ hebben elkaar$_i$ geslagen?
What for boys have each other hit
'What kind of boys have hit each other?'

This binding fact, however, also follows from an analysis in which *wat* is considered the head of the entire phrase. As I have argued, *wat* can receive the [+plural]-feature from its predicate attribute under predication. This plural-feature percolates to the dominating DP, and hence the [+ plural] DP can bind *elkaar*.

Consider, finally, the property of the *wat voor*-phrase that it behaves like a fixed unit with its own specific meaning. This has been interpreted as an argument in favor of an analysis in which *wat voor een* is listed in the lexicon as a complex unit. This property, however, might be captured in the above-mentioned analysis as well by adopting Di Sciullo & Williams' (1987) proposal that phrasal constituents can be listed in the lexicon as well. They argue, for example, that an idiomatic phrase like *to take NP to task* is listed as a VP-idiom in the lexicon:

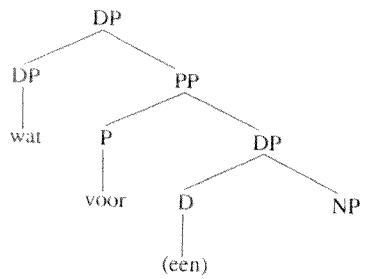
(51)



Note that this idiom contains an unfilled position, the NP-object. This position can be filled by different types of arguments. Along the same lines,

one could assume now that the *wat voor*-phrase is listed in the lexicon as follows:[27]

(52)



This concludes my discussion of the internal syntax of the *wat voor*-phrase. In section 6.6, it will be shown that on the basis of the adjunction structure defended in this section, a straightforward account can be given of the (im)possibility of the various types of discontinuous *wat voor*-phrases. In the next section, however, I will first make a comparison between the *wat voor*-construction on the one hand and the so-called *wat aan*-construction on the other hand.

6.5 The 'wat aan' construction

In this section I will compare the *wat voor*-construction with the *wat aan*-construction (meaning 'in the way of'). On the surface, the latter construction looks very similar to the *wat voor*-construction.[28] On closer examination, however, it turns out to have different syntactic properties, which suggests that it should not be treated in the same way as the *wat voor*-construction.

The parallelism between the *wat voor*-construction and the *wat aan*-construction is suggested by the following examples:

(53) a. *Wat* heeft Jan *aan boeken* gekocht?
What has John to books bought
'What did John buy in the way of books?'

b. *Wat* heeft Jan *voor boeken* gekocht?
What has John for books bought
'What kind of books did John buy?'

Upon first consideration, the split *wat voor*-construction appears to have a split *wat aan*-counterpart. It turns out, however, that the interrogative element *wat* and the PP headed by *aan*, which seems to function as a sort of secondary predicate associated with the interrogative pronoun, do not form a syntactic unit (i.e. a nominal constituent).[29] This is shown, for example, by the fact that they cannot be fronted together to [Spec,CP], as opposed to the *wat voor NP*-phrase.

(54) a. * *Wat aan boeken* heeft Jan gekocht?
b. *Wat voor boeken* heeft Jan gekocht?

The non-constituenthood of the string *wat aan N* is also shown by the fact that it cannot undergo NP-movement, as is shown by the ill-formed sentences in (55a and b), in which the string *wat aan boeken* has been moved into the subject position of a passive construction and a raising construction, respectively. The sentences in (56) show that the interrogative phrase *wat* can be moved into the subject position of IP.[30]

(55) a. * *Wat aan boeken* werd door Jan gekocht?
What to books was by John bought
'What was bought by John in the way of books?'

b. * *Wat aan boeken* schijnt door Jan te zijn verkocht?
What to books seems by John to be sold
'What seems to have been sold by John in the way of books?'

(56) a. *Wat* werd door Jan *aan boeken* gekocht?
What was by John to books bought

b. *Wat* schijnt door Jan *aan boeken* te zijn verkocht?
Whatseems by John to books to be sold

Another striking difference between the *wat voor-* and the *wat aan*-construction concerns the interpretation of the question word *wat*. In section 6.4, it was shown that in the former construction the question word behaves like a non-argument. It turns out now that *wat* in the *wat aan*-construction should be regarded as an argument (i.e. a referential expression bearing a thematic role). Its status as a referential expression is supported by the fact that there is a declarative counterpart of the *wat aan*-construction.

(57) a. Jan heeft *dit aan boeken* gekocht
John has this to books bought
'John bought this in the way of books'

b. Jan heeft *het volgende aan boeken* gekocht
John has the following to books bought
'John bought the following in the way of books'

The argument status of *wat* in the *wat aan*-construction is further shown by the fact that *wat* may be the antecedent of an anaphor.

(58) a. Wat_i heeft $zich_i$ *aan proefpersonen* beschikbaar gesteld?
What has REFL to experimental subjects available made
'In the way of experimental subjects, who have placed themselves at your disposal?'

b. *Wat*$_i$ heeft zich$_i$ *aan bacterien* verspreid?
Whathas REFL to bacteria spread
'What has spreaded in the way of bacteria?'

The fact that the interrogative phrase *wat* may appear as antecedent of PRO in this construction is also in accordance with its argument status:

(59) *Wat*$_i$ werd door Jo *aan kleren* weggegooid na PRO$_i$ 3 jaar te
What was by Joe to clothes away-thrown after 3 year to

zijn gedragen
be worn
'What was thrown away by Joe in the way of clothes after having been worn for 3 years?'

Notice also that *wat* can license a parasitic gap in the *wat aan*-construction, just like other argument noun phrases:

(60) Wat$_i$ heeft Jan [zonder aan onkosten e$_i$ kwijt te zijn geweest]
What has John without to expenses lost to have been

aan inkomsten t$_i$ binnengekregen?
to earnings got-in
'What amount of money did she earn without having spent'

Given the above considerations, it seems fair to conclude that the wh-element *wat* in the *wat aan*-construction is a pronominal argument.

In conclusion, although the split *wat voor*-construction and the *wat aan*-construction look similar superficially, they have many different properties: in the *wat voor*-construction the question word and the predicative phrase clearly form a unit. The split pattern, therefore, is the result of a subextraction operation (as we will see in the next section). In the *wat aan*-construction, *wat* and *aan NP* are generated independently of each other and the split pattern does not involve subextraction of the interrogative element *wat* out of a larger nominal constituent.

6.6 Left branch extraction in the split 'wat voor'-construction

In this section, I will proceed with an analysis of the split *wat voor*-construction. In this construction, the left branch wh-element *wat* has been reordered out of the *wat voor*-phrase. The possibility of subextracting a left branch element from within a noun phrase is exceptional in Dutch. As we will see in later chapters, many left branch extractions out of nominals are ruled out by the Subjacency Condition and the ECP. Let us now turn to some examples of the discontinuous *wat voor*-pattern and see whether the (im)possibility of the various patterns can be accounted for in terms of the Subjacency Condition and the ECP (see also Den Besten (1985)).

Consider the following examples:

(61) a. Wat$_i$ heb jij [t$_i$ voor boeken] gelezen?
What have you for books read
'What sort of books have you read?'

b. Wat$_i$ ben jij [[t$_i$ voor talen] machtig]?
What are you for languages competent
'What sort of languages do you master?'

c. * Wat$_i$ hebben [t$_i$ voor mensen] hun huis verkocht?
What have for persons their house sold
'What kind of people have sold their house?'

d. * Wat$_i$ heb jij [op [t$_i$ voor iemand]] gerekend?
What have you on for someone counted
'What kind of person have you counted on?'

In (61a), *wat* has been reordered out of a direct object *wat voor*-phrase. Neither the Subjacency Condition nor the ECP is violated, since the fronted *wat* can reach the [Spec,CP] without crossing any L-barrier (i.e. a maximal projection which is not L-marked). The direct object-DP itself is L-marked (i.e. assigned a theta-role by a lexical category) and therefore not an L-barrier. The potential barrierhood of VP can be voided via adjunction to it, and IP is not an L-barrier (although a BC) by stipulation.

In (61b), *wat* has been removed from within the DP-complement of the adjective *machtig*. It can be fronted to [Spec,CP] without violating ECP or subjacency in the following way: It can leave the object-DP, which is L-marked by the adjective, and subsequently move to [Spec,CP] via intermediate adjunctions to AP and VP, which are both non-argument type categories and therefore can function as hosts for adjunction operations.

Sentence (61c) involves extraction of *wat* from within the subject-DP. Note that the subject-DP is not L-marked and therefore is an L-barrier. Movement of *wat* to [Spec,CP] does not strongly violate subjacency, however, since it crosses only one L-barrier, viz. IP, which inherits barrierhood from the subject-DP. Notice that the subject-DP is not an L-barrier for *wat*, since *wat* is not dominated by this category because only one segment of DP contains *wat*. Although subextraction does not violate the Subjacency Condition, it violates the ECP. The moved question word *wat* occupying [Spec,CP] does not antecedent govern the trace within the DP, because IP is an intervening L-barrier.

In (61d), *wat* has been removed from within the DP-complement of a preposition. DP is L-marked by the P, and the PP is L-marked by the verb. So, *wat* can move to [Spec,CP] via adjunction to VP, without violating subjacency. Notice, however, that this extraction violates ECP. Of course, not because of the intervening L-barriers, as we have just seen, but because of minimality. Note that the moved *wat* cannot adjoin to PP, since the latter is

an argument type category. Hence, the first adjunction site is VP. The intermediary trace adjoined to VP does not antecedent govern the trace in DP, because PP is a M-barrier. It is a M-barrier, because it contains (i) the trace itself, (ii) a maximal projection including the trace (namely PP), and (iii) a head c-commanding the trace (i.e. P).

Consider also the ill-formedness of the discontinuous patterns in (62b,d):

(62) a. *Wat voor een boeken* heb jij gekocht?
What for a books have you bought

b. * *Wat voor een* heb jij *boeken* gekocht?
c. * *Wat voor* heb jij *een boeken* gekocht?
d. *Wat* heb jij *voor een boeken* gekocht?

In (62a) the entire *wat voor*-phrase is fronted, and in (62d) only the interrogative phrase *wat*. (62b and c) are ruled out by the principle of grammar which states that non-constituents cannot undergo movement operations. The strings *wat voor een* and *wat voor* do not form constituents and therefore cannot be extracted.

The ill-formedness of sentence (19b), repeated here as (63), is also due to the fact that a non-constituent has been fronted.

(63) * *Op wat* heb jij *voor hert* geschoten?
On what have you for deer shot

In conclusion, the presence or absence of split *wat voor*-phrases in various syntactic environments can be accounted for in terms of the Subjacency Condition and the ECP on the basis of the internal structure of the *wat voor*-phrase which has been defended in this chapter.

6.7 Conclusion

This chapter discussed the internal syntax and the movement behavior of *wat voor*-phrases in Dutch. At first sight it appears to be a phrase with many exceptional properties, but upon closer investigation it turns out to behave regularly in many respects. On the basis of the adjunction structure assumed for the *wat voor*-phrase, an analysis was presented of the split *wat voor*-phrase.

Notes to chapter 6

1. See Den Besten (1985) on German, and Lie (1982) on Norwegian.

2. Note that the preposition is part of the complex specifier. One could argue that the preposition *voor/für*, being part of the specifier, cannot govern the nominal element following the preposition and therefore cannot assign case to it.

3. That subject-finite verb agreement is not defined at D-structure but at a level after application of syntactic movement is suggested, for example, by passive and raising constructions. In these constructions a noun phrase (DP) is moved to the subject-position ([DP,IP]), which is empty at D-structure:

(i) a. $John_i$ seems [t_i to come]
b. $They_i$ seem [t_i to come]

(ii) a. $John_i$ was killed t_i
b. $They_i$ were killed t_i

After the DP has been raised into the subject-position, the agreement-relation (3sg in (ia) and (iia) and 3pl in (ib) and (iib)) between the finite verb and the subject can be defined.

4. For some speakers of Dutch I consulted, these sentences sound odd. They agreed, however, that they are much better than sentences in which a noun phrase is extraposed (as in (i)):

(i) * Jan heeft t_i gekocht [deze boeken]$_i$
John has bought these books

5. Den Besten's analysis uses a pre-Barriers definition of the Subjacency Condition. NP and S are considered the bounding nodes for Dutch.

6. A way out would be to say that the chain (V,P) can only be built if the two lexical items govern in the same direction (cf. a.o. Koster (1987) and Bennis & Hoekstra (1984) for approaches to the distribution of empty categories which are based on directionality of government). Since the trace of the fronted *wat* appears in a position to the left of the preposition *voor*, which is the head of [-V]^3, one could propose that the trace is accessible for proper government by the verb via the chain (V,P).

(i) [$_{VP}$ [$_{[-V]^3}$ wat voor boeken] V]
←—— ←——

The nonextractability of right branch complements in Dutch (as in (14)) would now be due to the fact that a chain cannot be built, because the V and the P govern in opposite directions.

Although this directionality requirement on chain formation might work for the *wat voor*-construction in Dutch, it does not for a language like Norwegian. In this language, the verb governs to the right. Since the trace of the extracted wh-element *hva* is to the left of the preposition *for*, which heads the *hva for*-phrase, no chain (V,P) can be built, if the directionality requirement holds on chain formation.

(ii)
[$_{VP}$ V [$_{[-V]^3}$ hva for bøker]]
——→ ←——

Hence, the prediction would be that *hva* cannot be extracted, because its trace cannot be properly governed. As we have seen in section 6.1, however, Norwegian also has a split *hva for*-phrase, which makes the directionality requirement on chain formation less plausible.

7. For recent views on reanalysis, see a.o. Haegeman & Van Riemsdijk (1986) and Di Sciullo & Williams (1987). My criticism of Bennis's (1983) reanalysis approach to the split *wat voor*-construction only applies to the theory of reanalysis presented in that article. Given the fact that the split pattern can be accounted for without making use of reanalysis (see section 6.6), I will not investigate the possibility of explaining the discontinuous pattern by making use of one of the above-mentioned views on reanalysis.

8. According to the (pre-Barriers) notion of subjacency which is assumed in Bennis's analysis, NP and S are the bounding nodes in Dutch.

9. Bennis's (1983) analysis uses a clausal structure in which S' dominates COMP and S, and S expands into NP and VP.

10. One might propose that in sentences like (ia) the NP selected by the determiner *een* is headed by an empty [+ singular] head noun which in turn selects the nominal complement *honden* (as in (ib)):

(i) a. [Wat voor een honden] heb je gezien?
What for a dogs have you seen
'What kind of dogs did you see?'

b. $[_{DP}$ Wat $[_{PP}$ voor $[_{DP}$ een $[_{NP}$ $[_{N}$ 0] [honden]]]]]

By assuming this empty head, the number agreement relation between the determiner D and the head of the selected NP is regular, i.e. a [+ singular] determiner selects an NP headed by a [+ singular] nominal head. If the plural NP *honden* was the head of the NP selected by D, one would have to account for the exceptional possibility of combining a [+singular] determiner with a [+ plural] NP.

Notice also that the structure given in (ib) appears to be supported by the existence of *wat voor*-phrases as in (ii), in which the headnoun position is lexically filled, creating some sort of partitive relation between the headnoun and its complement:

(ii) [Wat voor (een) soort honden] heb je gezien?
what for a sort (of) dogs have you seen
'What kind of dogs did you see?'

If one adopts such an analysis, however, one is forced to assume an empty [+ singular] N which takes the plural nominal *soorten honden* as its complement in the following sentence:

(iii) [Wat voor een soorten honden] heb je gezien?
What for a sorts (of) dogs have you seen
'What kind of dogs did you see?'

Notice now that sentence (iii) does not have a corresponding structure in which the N-position is lexically filled:

(iv) *? [Wat voor een soort soorten honden] heb je gezien
What for a sort (of) sorts (of) dogs have you seen
'What kinds of dogs did you see?'

An alternative analysis of the article *een* in the *wat voor*-phrase *wat voor een honden* would be to say that it has lost is [+ singular] interpretation and has become a fixed part of the complex interrogative string *wat voor een* (see als Duinhoven (1988)). Recall also that the exclamative article *een* could als take [+ plural] complements.

11. The frozen character of determiners in Dutch is exemplified in (i):

(i) * De/Deze$_i$ heb jij $[_{DP}$ t_i honden] gezien?
The/These have you dogs seen
'You saw the/these dogs'

For further discussion of the frozen character of determiners, see chapter 7.

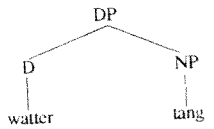
12. De Vooys (1967) argues that the interrogative pronouns *waffer* and *watter* ('what') in Afrikaans arose from *wat + voor*. Consider now the following facts from Afrikaans:

(i) a. [Watter tang] moet ek gebruik? (Ponelis (1979))
What pincers must I use

b. * Watter$_i$ moet ek [t_i tang] gebruik?

(ib) shows that the left branch question element cannot be fronted. Under the assumption that *watter* is an interrogative determiner occupying the D^o-position (as in (ii)), the nonextractability of this element can be accounted for in the following way: Being an X-zero category, *watter* cannot adjoin to VP under the structure preservingness requirement on adjunction operations and therefore cannot escape the L-barrierhood of this category. Hence, moving the X-zero category across VP yields an ECP-violation. Furthermore, the X-zero category would not be able to land in [Spec,CP], under the assumption that only maximal projections can land in that position.

(ii)



13. Of course, one could propose an analysis in which an empty PP-slot is base-generated to the right of the *wat voor*-noun phrase and to the left of the final verb. The split *wat voor*-phrase could then be derived as follows: First, the PP headed by *voor* is substituted for the empty PP-slot. Next, the entire *wat voor*-phrase containing the empty PP is moved to [Spec,CP].

An obvious problem for such an analysis, however, is the fact that ill-formed sentences like (ib) would also be derivable:

(i) a. Ik vraag me af [wiens geschiktheid [voor dit werk]]$_i$ hij t_i
I wonder REFL PRT whose capability of this job he

betwijfelde
doubted

b. * Ik vraag me af [wiens geschiktheid t_j]$_i$ hij t_i [voor dit werk]$_j$
I wonder REFL PRT whose capability he of that work

betwijfelde
doubted

In sentence (ia), the entire direct object noun phrase has been moved to the [Spec,CP] of the embedded CP. Notice now that analogously to the above-mentioned analysis of the split *wat voor*-construction, the ill-formed structure (ib) could be derived as follows: first the PP-complement *voor dit werk* is moved into a base-generated empty PP-slot. Then the entire noun phrase (including the trace of the moved PP) is moved into the [Spec,CP]-position of the embedded clause. This problem makes the above-mentioned analysis of the split *wat voor*-construction less plausible.

14. De Groot (1949; 95-96) calls these lexical items "bepalingspartikels" ('adjunct-particles') and Van der Lubbe (1978[3]; 158-160) calls them "vrije bepalingen" ('free adjuncts').

15. I should say that speakers of Dutch sometimes differ in their judgments of these sentences. This is related to the fact that for some speakers these 'free adjuncts' have a greater freedom of position than for other speakers. All speakers I have consulted, however, agree that a sentence like (30b) is much better than, for example, the b-sentence in the following paradigm:

(i) a. [Ongeveer welk bedrag] heb je uitgegeven?
Approximately what amount have you spent

b. * [Welk ongeveer bedrag] heb je uitgegeven?
c. [Welk bedrag ongeveer] heb je uitgegeven?

In (ia) and (ic), the free adjunct *ongeveer* is respectively left-adjoined and right-adjoined to the DP which is headed by the determiner *welk*. The ill-formedness of (ib) is caused by the fact that the NP-complement *bedrag*, which is selected by the determiner *welk*, is not a sister of this functional category because of the intervening free adjunct that is adjoined to DP.

16. Notice also the following orders:

(i) a. *Wat* heb jij *ongeveer voor een bedrag* uitgegeven?
b. *Wat* heb jij *ongeveer* uitgegeven *voor een bedrag*?
c. *Wat ongeveer* heb jij uitgegeven *voor een bedrag*?

In (ia), the interrogative element *wat* has been moved into [Spec,CP], leaving behind the free adjunct *ongeveer*. In (ib), the PP headed by *voor* has been extraposed and *wat* has been fronted. In (ic), the PP is extraposed and *wat* is moved to [Spec,CP] together with the free adjunct *ongeveer*. All speakers I have consulted, consider (ia) well-formed. The sentences (ib) and (ic) are less acceptable for those speakers who do not permit extraposition of the PP *voor een bedrag*.

17. Bennis (1983) gives the following example:

(i) 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)

18. According to the matching requirement, the categorial status of the wh-phrase in COMP of the free relative clause must be the same as the categorial status of the entire free relative construction as required by the matrix clause. So, in (32), the wh-phrase must be a noun phrase, because the verb *speelt* requires a noun phrase complement in this sentence.

19. The interrogative *wat* also behaves as a nonargument expression in constructions in which it has a measure phrase meaning:

(i) Ik vraag me af wat_i Jan t_i weegt
I wonder REFL PRT what John weighs
'I wonder how much John weighs'

I will briefly come back to this type of construction in chapter 8.

20. Another argument suggesting that *wat* in the *wat voor*-phrase is not an argument expression comes from Ross's (1983) observation that negation interferes with removal of a nonargument while it leaves unaffected the extractability of argument expressions. The following examples show that the argument *wat* can be extracted from the scope of a negative operator, whereas the nonargument *wat* of the *wat voor*-phrase cannot:

(i) a. Wat_i wist Jan niet dat ie t_i moest lezen?
What knew John not that he had-to read

b. *? Wat_i wist Jan niet dat ie [t_i voor boeken] moest lezen?
What knew John not that he for books had-to read

21. Another configuration in which a theta-marked maximal projection is headed by a non-theta-marked maximal projection is the small clause construction. In Chomsky (1986b, 85), it is argued that in a small clause construction like (i), the lower maximal projection AP, which is the head of AP', does not receive a theta-role, whereas the higher AP' is assigned a theta-role by the matrix verb *consider*.

(i) I consider [$_{AP'}$ Bill [$_{AP}$ angry at Tom]]

22. Note that the entire *wat voor*-phrase can also be moved across a negative operator, which also supports its argument status:

(i) Wat voor $boeken_i$ wist Jan niet dat ie t_i moest lezen?
What for books knew John not that he had-to read

23. In English, the preposition *for* can also be used as a predicative adjunct, as is shown by the following example:

(i) a. John mistook her [for a foreigner]
b. They had duck [for dinner] yesterday
c. I told her what I want [for a present]
d. I knew him at once [for a burglar]

Also in German, the preposition *für* can be used as a secondary predicate:

(ii) a. Ich halte ihn [für einen Dieb]
I took him for a thief

b. Ich nehme ihn [für voll]
I took him for full
'They consider him grown-up'

24. In Van Es & Van Caspel (1971-1975), it is argued that the *wat voor*-construction arose in the Middle Dutch period from the junction of two separate constituents, the question word *wat* and a PP headed by *voor*, which had the function of a predicative adjunct (cf. also Overdiep (1949)). Van Es & Van Caspel (p. 509) quote the following fragment from Middle Dutch, which shows the predication relation between the question word and the PP:

(i) *Wat* daer *voor vonnesse* worde gesproke, ... (Heelu 1613)
What there for judgement was spoken
'What was given there as judgement'

The PP headed by *voor* referred to a relation of "equivalence". *Wat* is the subject of the predication and *voor NP* is the predicate.

At a stage after the Middle Dutch period (cf. Duinhoven (1988)) the string *wat voor N* is reinterpreted. The question word *wat* and the PP headed by *voor* become a unit with the meaning of 'what kind of'.

25. Notice that many of these predicative PPs contain a noun phrase (DP) in which the indefinite article is optionally present.

(i) a. Karel leeft als (een) kluizenaar
Charles lives as (a) hermit

b. Ik neem dit mee als (een) aandenken
I take this with-me as (a) souvenir

c. Ik maakte hem uit voor (een) bedrieger
I called him PRT for (an) impostor
'I called him an impostor'

The optional presence of the indefinite article *een* can still be found in the interrogative *wat voor (een)*-phrase.

26. Sportiche (1983) argues that *weather*-verbs in Dutch, contrary to those in English, are verbs without any theta-marking properties. This conclusion is based on the fact that it cannot function as a controller of PRO:

(i) * Het regent hier altijd [na PRO gesneeuwd te hebben]
It rains here always after snowed to have
'It is always raining here after snowing'

If this analysis is correct, then (42) would be an example of a secondary predicate which is related to a true nonargument. See, however, Bennis (1986) for an alternative analysis of *weather*-verbs.

27. Notice that the preposition *voor*, heading a predicative phrase, also appears in VP-idioms:

(i) a. Iemand voor de gek houden
someone for the fool take
'to pull a person's leg'

b. Iemand voor lul laten lopen
someone for prick let walk
'to send a person on a fool's errand'

c. Iemand voor aap zetten
someone for ape put
'to make a person look silly'

28. Krijgsman (1982), for example, interprets them as phrases having the same properties.

29. That the *aan*-phrase behaves as a predicative phrase associated with the interrogative element *wat* is also shown by their co-occurrence in absolute *met* ('with')-constructions:

(i) a. [Met [dit aan geld]] is hij naar Frankrijk vertrokken
With this to money has he to France gone
'He went to France with this in the way of money'

b. [Met [wat aan geld]] is hij naar Frankrijk vertrokken?
With what to money has he to France gone
'With what did he go to France in the way of money?'

Absolute constructions are typical predication configurations (see a.o. Van Riemsdijk (1978) for a discussion). *Dit* and *wat* function as the subject of the absolute constructions in (i), and the PP headed by *aan* as the predicative phrase.

30. To be more precise, the interrogative element *wat* occupies the [Spec,CP]-position in (55). After having been moved into [Spec,IP] to receive nominative case, *wat* is moved to [Spec,CP].

7 DETERMINER, DEGREE WORD AND POSSESSOR EXTRACTIONS

7.1 Introduction

In this chapter, I will investigate the impossibility of removing left branch determiners, degree words and possessors in languages such as Dutch and English.[1] The organization of this chapter is as follows. Section 7.2 presents an analysis of the frozen character of determiners and degree words. It will be argued that their nonextractability is due to their head status. Section 7.3 discusses the inaccessibility of possessor noun phrases to movement operations. In section 7.3.1, it will be shown that the frozen character of these possessors cannot be accounted for in terms of the Subjacency Condition, ECP or Uniformity Condition under a traditional NP-structure. Section 7.3.2 presents an analysis of the nonextractability of these possessors under a DP-hypothesis. Section 7.3.3 examines the frozen character of left branch possessors that are part of a doubling possessive construction in a number of Germanic languages. In section 7.4, some well-known left branch extraction operations (e.g. *combien*-extraction in French) from within noun phrases and adjective phrases will be discussed briefly.

7.2 Determiner and degree word extractions in Dutch and English

In this section, I will give an account of the nonextractability of determiners and degree elements in English and Dutch. The frozen character of these categories is exemplified in (1) and (3) for English, and in (2) and (4) for Dutch:

(1) a. * The$_i$ I saw [t$_i$ picture of Mary]!
b. * That$_i$ I saw [t$_i$ picture of Mary]!
c. * Which$_i$ did you see [t$_i$ picture of Mary]?

(2) a. * De$_i$ zag ik [t$_i$ hond van Jan]!
The saw I dog of John

b. * Die$_i$ zag ik [t$_i$ hond van Jan]!
That saw I dog of John

c. * Welke$_i$ zag jij [t$_i$ hond van Jan]?
Which saw you dog of John

(3) a. * So$_i$ is John [t$_i$ proud of Mary]!
b. * That$_i$ John is [t$_i$ proud of Mary]!
c. * How$_i$ is John [t$_i$ proud of Mary]?
d. * As$_i$ is John [t$_i$ strong as Bill]!

(4) a. * Zo$_i$ is Jan [t$_i$ bang voor honden]!
So is John afraid of dogs

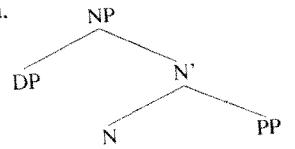
b. * Te$_i$ is Jan [t$_i$ bang voor honden]!
Too is John afraid of dogs

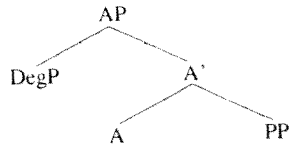
c. * Hoe$_i$ is Jan [t$_i$ bang voor honden]?
How is John afraid of dogs

d. * Even$_i$ is Jan [t$_i$ bang voor honden als Piet]
As is John afraid of dogs as Pete

Before turning to an analysis of these facts in terms of a DP- and DegP-structure, I will discuss possible approaches to the immobility of these elements in terms of a traditional NP- and AP-structure.

Under a traditional NP- and AP-structure, it is generally assumed that determiners and degree elements occupy the specifier position, i.e. the position immediately dominated by the maximal projection XP, except X' (cf. e.g. Jackendoff (1977)).

(5) a.


b.


The question arises whether under such an analysis the nonextractability of DP and DegP can be accounted for in terms of the Subjacency Condition and/or the ECP as formulated within the Barriers system.

The Determiner Phrase (DP) extractions in (1) and (2) are not ruled out by the Subjacency Condition. Notice, that the determiners are reordered out of a direct object-NP. Since a direct object-NP is L-marked, it does not form a barrier. So, the determiner can leave the containing NP without crossing an L-barrier. By first adjoining to VP, the DP can move upwards to its ultimate landing site, the specifier of CP. Since no L-barriers intervene between the links of the chain of the fronted DP, no subjacency violation is involved in (1) and (2).

Removal of the left branch Degree Phrase (DegP) as in (3) and (4) is not excluded either by the Subjacency Condition. Under the assumption that AP is not L-marked by the copula, AP is a BC and an L-barrier. Since AP is a nonargument type category, the fronted DegP can void the barrierhood of this category by adjoining to it and reach the [Spec,CP] via subsequent adjunction to VP, without crossing any L-barrier.

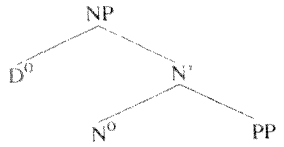
Extraction of determiners and degree elements does not yield an ECP-violation either. The DP-trace in the specifier position of the noun phrase will be antecedent governed by the intermediate trace which occurs in a position adjoined to VP. The same reasoning holds as above: No L-barrier intervenes between the trace in specifier position and its antecedent, since

the containing direct object NP is L-marked. The derivation of this structure is not excluded by the ECP via minimality either: The NP dominating the determiner does not count as a M(inimality)-barrier, since it does not contain a head c-commanding the trace.[2] The lower VP-segment which intervenes between the DP-trace occupying the [Spec,NP] and the antecedent-DP adjoined to VP does not count as a M-barrier excluding the antecedent-DP either.[3]

The DegP-trace occupying the specifier position of the AP is also accessible to antecedent government. The intermediate trace in the AP-adjoined position locally identifies the trace in the specifier position. The lower AP-segment does not count as an intervening L-barrier or M-barrier, since it does not exclude the antecedent trace which is adjoined to AP.

One approach to the nonextractability of determiners and degree elements from within NPs and APs would be to say that it is due to the categorial status of these elements. It could be argued, for example, that these elements are X^o-categories (as in (6)), and as such cannot be adjoined to dominating L-barriers (e.g. VP) under a structure preservingness requirement on adjunction operations.[4] Consequently, the barrierhood of dominating maximal categories cannot be voided. Direct removal of D^o and Deg^o from VP will yield an ECP violation because there is no local antecedent to properly govern the trace of the fronted determiner or degree word. Furthermore, if determiners and degree words are X^o-categories, they can never be moved into [Spec,CP] under the assumption that only maximal projections can occupy this position (cf. Chomsky (1986b)).

(6) a.



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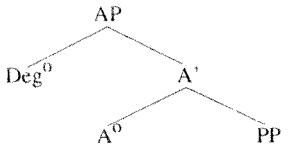


The assumption that determiners and degree words are X^o-categories has several drawbacks, however. First of all, it is not clear why functional categories like I^o and C^o should be able to project to a maximal projection, but not D^o and Deg^o. Secondly, it is generally assumed in most versions of X-bar theory that satellite positions (i.e. complement, adjunct, specifier) are positions occupied by maximal projections (cf. Stowell (1981), Chomsky (1986b)). Thirdly, if it is assumed that determiners and degree words are X^o-categories, why can the specifier position that these elements occupy also be filled with constituents which are clearly maximal projections? Consider, for example, the following well-known facts from English and Dutch:

(7) a. I saw [*the man with the beard's* dog]
b. I saw [a [*much too much too* tall] man]

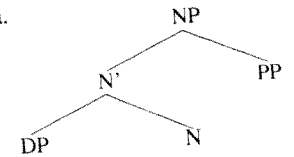
(8) a. [*Wiens vaders* broer] heb je gezien?
Whose father's brother have you seen

b. [Jan is [*net zoveel cm als Karel* te klein]
John is just as-many cm as Charles too small

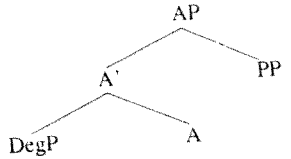
Given these objections, an analysis based on a traditional NP-/AP-structure, which attributes the immobility of determiners and degree words to their status as null categories, seems to be somewhat problematic.

An alternative approach to the frozen character of determiner and degree words would be an analysis which starts from the assumption that these elements are sisters of the head of the containing projection:[5]

(9) a.



b.



If one adopted a definition of minimality which states that the first projection of a head (N'/A') is a M-barrier (cf. Chomsky (1986b)), then removal of DP and DegP from within NP and AP respectively would violate the ECP by minimality. Notice that under this analysis, theta role assignment to the argument-PP no longer takes place under sisterhood, unless sisterhood is defined in a different way. It could be proposed, for example, that A is a sister to B if they are dominated by the same maximal projections. In that case, the heads N and A can still assign a theta role to their argument-PP.

Notice also that this structure has several consequences for the Binding Theory:

(10) a. Their$_i$ stories about each other$_i$
b. * Their$_i$ stories about them$_i$

The Binding Theory requires that anaphors (e.g. *each other*) be bound in their governing category, and that pronouns (e.g. *them*, *their*) be free in their governing domain. An element A is said to bind an element B if A c-commands B and is co-indexed with B. Notice that adoption of an NP-structure in which the possessive pronoun *their* is sister of the head has severe consequences for the Binding Theory. In (10a), for example, *their* incorrectly would not bind *each other*, because it does not c-command this anaphor. One would further make the incorrect prediction that in (10b) *their* and *them* can enter into a binding relation, because *their* does not c-command *them* and *them* does not c-command *their*. In other words both pronouns are free in their governing category, if a structure as in (9a) is assumed.

Notice further that an analysis in which a determiner is a sister of the noun implies that attributive adjective phrases in strings like *a big red car* are sisters of the noun as well. So, the determiner and the adjective phrases are daughters of the same node, viz. the immediate projection of the nominal head.

Such a flat structure, however, is problematic for the well-known *one*-pronominalization facts. Consider the following examples:

(11) a. John bought *a big red car* and Mary bought *one* too
b. John bought a big *red car* and Mary bought a small *one*
c. John bought a big red *car* and Mary bought a small yellow *one*

Given the fact that a proform like *one* can only take a syntactic constituent for its antecedent, one would expect under an analysis in which the determiner and the attributive adjectives are all sisters of N^o that this proform can only replace the entire noun phrase *a big red car* as in (11a) or the noun *car* as in (11c), but not the string *red car* as in (11b), since this string does not form a constituent. Of course, the pronominalization in (11b) is permitted as well, which suggests that a structure as in (9a) should not be adopted. Of course, the pronominalization facts above follow from a DP-structure as assumed in this study: The sentences (11a,b,c) involve replacement of the constituents DP, N' and N, respectively.

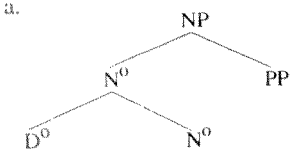
Let us next consider (9b). The following pronominalization fact seems problematic for this structure.

(12) John was [*very afraid of the pope*], but [much less *so*] was the archbishop of Canterbury

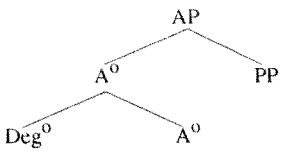
In this sentence, the string *afraid of the pope* has been replaced by the proform *so*. This pronominalization fact is problematic for structure (9b), since it would involve replacement of a string which does not form a constituent by the proform *so*. So, it would not be in accordance with the general assumption that *so* can only replace constituents. Under a DegP-structure as assumed in this study, the pronominalization in (12) involves replacement of the AP *afraid of the pope*, which is selected by the Deg^o *less*.

Before presenting an analysis of the nonextractability of determiners and degree words in terms of the DP- and DegP-structures assumed in this study, I want to mention a last potential approach to the frozenness of these elements, which is based on the assumption that they should be analyzed as forming compounds with the nominal and the adjectival head respectively (cf. Stowell (1981)). In other words, the sequences D^o-N^o and Deg^o-A^o would be formed by the word-formation rules rather than by the rules and principles of syntax.

(13) a.



b.



Taking these structures as point of departure, one could account for the nonextractability of determiners and degree words in terms of the Lexical

Integrity Hypothesis, which states that syntactic rules (Move alpha) cannot make reference to any aspect of the internal structure of a word. So, determiners and degree words, being part of a word-structure, are inaccessible to syntactic movement.

The hypothesis that the determiner forms a word with the noun has some problems, however. A first problem is the fact that categories which are generated in the syntactic component can intervene between the determiner and the noun, as in *a very big car*, for example. Of course, one could say that this string is built in the word-formation component as well: the adjectival modifier forms a nominal compound with the noun *car*, and the determiner *a* forms a more complex noun. In chapter 10, however, it will be shown that this analysis of prenominal attributive adjective phrases is untenable and that these phrases are generated in the syntax. This is especially clear in Dutch, where really complex adjective phrases can appear in between the article and the nominal head of the noun phrase. Consider, for the moment, (14) which clearly makes it dubious to argue that Dutch attributive modifiers should be analyzed as being part of a nominal compound:

(14) een [$_{AP}$ in het geheim op Julia verliefde] man
a in the secret with Juliet in-love man
'a man who is secretly in love with Juliet'

If attributive APs in Dutch are maximal projections and if maximal projections cannot be part of a compound noun, then the hypothesis that an attributive adjectival element is part of a compound noun can not be hold.

That determiners should not be analyzed as left branch members of compounds is also suggested by the fact that they can be separated from the nominal head by parentheticals. This is shown for Dutch and English in (15a) and (15b), respectively ((15b) taken from Siewierska (1987)).

(15) a. Marie is de, wat ze wel noemen, grootste saio van de klas
Mary is the, what they often call, biggest bore of the class

b. the, as you might say, sleeping partner

This separability of the determiner and the noun is unexpected if they build a compound, since generally compounds cannot be broken open by parenthetical phrases.

(16) a. * Ik heb met een groente - geloof ik tenminste - boer gesproken
I have with a green believe I at-least grocer spoken

b. * He is a cave - what people sometimes call - dweller

This different behavior between determiners on the one hand and members of compounds on the other at least suggests that they should not be treated in the same way.

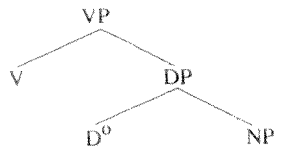
The following example from Dutch shows that it is also incorrect to interpret the sequence degree word-adjective as a compound:

(17) [Veel minder [PP daarvan] afhankelijk] was Jan!
Much less thereon dependent was John

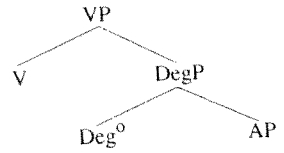
In this string, the degree word *minder* is separated from the adjective *afhankelijk* by the PP-complement of the adjective. Presumably, this PP-complement hangs from the category A'. Hence, the degree word *minder* cannot form a word-category with the adjective.

I will now turn to an account of the nonextractability of determiners and degree words in terms of a DP- and DegP-structure. Consider the following structures:

(18) a.



b.



Removal of the determiner and the degree word Deg is an instance of head movement. As such, movement of these elements are subject to the Head Movement Constraint (HMC), which has been proposed by Travis (1984) and later has been reduced to the ECP by Baker (1988). In Chomsky (1986b), the following definition of the HMC is given:

(19) **Head Movement Constraint** (Chomsky (1986b, 71))

Movement of a zero-level category **b** is restricted to the position of a head **a** that governs the maximal projection **g** of **b**, where **a** theta-governs or L-marks **g** if **a** is not C

Direct removal of the X°-categories D° and Deg° to the left periphery of the clause is not permitted. Consider first removal of the degree word, as in (3) and (4). Suppose the verb is a copular verb, which does not L-mark the DegP since it is not a theta-assigning verb. In that case the DegP is an L-barrier. So, direct removal of the degree word to the left periphery of the clause will violate the ECP, since the L-barrier DegP (but also the intermediate L-barriers VP and IP, the latter by inheritance) will block antecedent government of the initial trace. Direct fronting also violates minimality. VP is a M-barrier including the Deg°-trace, but excluding the fronted antecedent governor (i.e. the degree word). It is a M-barrier, since it contains the trace (i.e. the trace in Deg-position), a c-commander of the trace (viz. V°) and a maximal projection including the trace (viz. DegP). Besides the ECP, the Subjacency Condition is violated. The fronted degree word crosses the L-barriers DegP, VP and IP (the last one by inheritance).

Direct fronting of a determiner to [Spec,CP] is ruled out by the same conditions. Suppose the determiner is extracted from a direct object-DP (see (1)-(2)). Although DP does not count as an L-barrier (since it is L-marked), VP and IP (the latter by inheritance) are L-barriers blocking antecedent government of the initial trace by the fronted determiner. ECP is also violated via minimality, because the M-barrier VP includes the trace of the determiner, but excludes the antecedent (i.e. the fronted determiner itself). Finally, the Subjacency Condition is violated, since direct fronting crosses the L-barriers VP and IP.

The question, of course, arises whether the fronted D° and Deg° can escape the barrierhood of intervening categories by moving in successive steps to the left periphery of the clause. Notice that the determiner and the degree word, being X-zero categories, cannot void the barrierhood of intervening maximal projections by adjoining to them, since this would violate the structure preserving requirement that X-zero categories can only be adjoined to other X-zero categories, and hence not to maximal projections. So, in configuration (18a), the determiner cannot escape the barrierhood of the VP via adjunction to this maximal projection. In (18b), the barrierhood of the dominating DegP and VP cannot be circumvented either via adjunction.

Suppose instead that the landing sites of the fronted D° and Deg° are the intervening heads (in accordance with the structure preservation principle) and that the moved X°-categories climb up via successive cyclic adjunction to the intervening heads. Notice first that such a head to head movement operation is of no help for the degree word extractions. Adjunction of Deg° to V° crosses the L-barrier DegP, which is not L-marked by the copular verb. Hence, the ECP is violated. Of course, ECP is not violated because of minimality: Although the intervening DegP contains the trace and a maximal projection containing the trace (i.e. DegP), it does not contain a head c-commanding the trace.

Consider next the determiner extraction. The DP is L-marked and therefore is not an L-barrier. Hence, moving the determiner out of the DP to a position adjoined to V does not violate ECP because of crossing an L-barrier. The ECP is not violated because of minimality either, since DP does not count as a M-barrier, because it does not contain a head c-commanding the determiner-trace. Notice further that the adjunction operation is not ruled out by the Subjacency Condition, because no L-barrier is crossed. So, the first local step of the successive cyclic fronting operation is permitted. So, the ill-formedness of determiner-fronting must be due to a violation of the relevant principles of grammar by one of the intermediate local movements. If the determiner, which is adjoined to V°, is subsequently moved to the next (i.e. nearest) X-zero adjunction site, is the ECP violated? The next possible landing site of the determiner would be I°. Notice now that moving the determiner from the position adjoined to V° to a position adjoined to I° crosses the L-barrier VP (a non-L-marked category). Consequently, the intermediate determiner-trace adjoined to V° is not antecedent governed and therefore violates the ECP.[6]

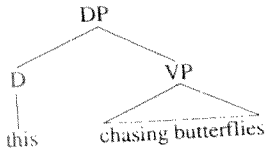
Although the successive cyclic movement of the determiner is already ruled out in the above-mentioned way, it is also excluded by a filter proposed in Baker (1988; 73) which states that a trace can never be nonexhaustively dominated by a zero-level category. As a consequence, once a lexical head is adjoined, it cannot be moved further on its own. Only the entire adjunction structure can be moved.[7]

Notice, finally, that fronting of determiners or degree words (as in (1)-(4)) can never move the elements in question into the left peripheral position [Spec,CP], under the structure preservingness hypothesis: this landing position only allows maximal projections, and therefore X-zero categories cannot move into it.[8]

The above-mentioned analysis also accounts for the following facts, in which a determiner is extracted from a gerund (i.e. configuration (21)):

(20) a. I don't like [this chasing butterflies]
b. * This$_i$ I don't like [t_i chasing butterflies]

(21)



The determiner *this* cannot escape the barrierhood of the dominating maximal projection VP. Nor can it adjoin to IP. Moving it into one swoop to the left periphery of the clause causes an ECP violation (i.e. lack of antecedent government of the trace in the D^o-position) and a strong subjacency violation. Furthermore, the fronted determiner cannot land in [Spec,CP] because of the structure preservingness requirement.

Consider also the following sentences in which the degree element *how* has been moved out of an adjunct.

(22) a. * How$_i$ have you picked up TNT [t_i carelessly]? (Ross (1967))
b. * How$_i$ did you buy [a [t_i big] car]?

In (22a), *how* has been extracted out of an adjunct-DegP. Extraction of *how* out of this Degree Phrase yields an ECP-violation, since the L-barrierhood of the dominating DegP-node cannot be circumvented by adjunction. Furthermore, movement of the X^o-category *how* into [Spec,CP] is not in accordance with the structure preservingness requirement on substitution: [Spec,CP] only permits maximal projections.

In (22b), the degree word *how* has been moved from within an attributive DegP. The fronted degree word cannot escape the barrierhood of the attributive phrase via adjunction, since an X^o-category cannot be adjoined to a maximal projection. So, removal of the degree word will always yield an ECP-

violation. Furthermore, also in this case, the X-zero category cannot land in [Spec,CP] because of the structure preservingness requirement.

The above-mentioned analysis of the impossibility of determiner and degree word extraction also applies to complementizer extractions. As is well-known, complementizers are categories which never move:

(23) a. * That$_i$ I hope [$_{CP}$ t_i she will come]
b. * Whether$_i$ I wonder [$_{CP}$ t_i they will like her]

(24) a. * Dat$_i$ Jan hoopte [$_{CP}$ t_i Marie kwam]
That John hoped Mary came
'John hoped that Mary would come'

b. * Of$_i$ Marie zich afvroeg [$_{CP}$ t_i Piet kwam]
Whether Mary REFL wondered Pete came
'Mary wondered whether Pete would come'

In these sentences, the left branch complementizer of the embedded clause has been fronted. The fronted complementizer cannot occupy the [Spec,CP] because of the structure preservingness principle. The C^o-position of the matrix clause, however, is a proper landing site for the moved complementizer. Notice that under former formulations of the Subjacency Condition and the ECP (see a.o. Chomsky (1981)), C^o to C^o movement is not ruled out by these principles. If the bounding nodes for English and Dutch are NP and S, then the above-mentioned complementizer extractions are not prohibited by the Subjacency Condition. And as far as proper government is concerned, it is not clear what blocks antecedent government (i.e. government by a coindexed category) of the trace in COMP by the higher COMP-position, which is now filled by the fronted complementizer. Notice also that if one adopts a theory which says that empty complementizers in English are permitted if they are properly governed by a lexical category (cf. Stowell (1981)), the ill-formedness of the sentences in (23) cannot be explained in terms of the ECP, since the verb of the matrix clause would be able to properly govern the empty complementizer.[9]

Assuming a theory of government and bounding as proposed in Barriers, the nonextractability of complementizers can be accounted for as follows. Suppose that the CP is an object of a theta-assigning verb. This means that the CP is L-marked and therefore not an L-barrier. So, C^o can cross the CP and attach to the next potential landing site, e.g. V^o. Now, further movement of C^o would violate the ECP, since it would cross VP, which is an L-barrier for the complementizer. Furthermore, if one adopts Baker's (1988) filter on adjunction structures, the C^o cannot be moved on its own, once it has been adjoined to another X-zero category.

7.3 On movement and left branch possessors

This section investigates the movement behavior of left branch constituents in Dutch and English. In section 7.3.1, it will be argued that the frozen character of left branch possessors cannot be explained in terms of Chomsky's Uniformity Condition. Section 7.3.2 presents an analysis of the immobility of possessive noun phrases and possessive pronouns in Dutch and English, which is based on a DP-structure. Section 7.3.3 discusses the frozen character of left branch possessors in possessive doubling constructions in Dutch and a number of other Germanic languages.

7.3.1 Left branch possessor extraction and the Uniformity Condition

As pointed out in Ross (1967), left branch possessors such as *whose* and *John's* cannot be moved out of a dominating noun phrase. This is exemplified in (25):

(25) a. * I recognized the boy whose$_i$ I know [t_i father]
b. * John's$_i$ I saw [t_i father]?

The possessors *John's* and *whose* have been removed from within a direct object noun phrase in the relative clause in (25a) and in the topicalization construction (25b), respectively. The two sentences are ungrammatical. It is necessary to pied pipe the noun *father*:

(26) a. I recognized the boy whose father$_i$ I know t_i
b. John's father$_i$ I saw t_i

The question arises whether it is possible to account for the frozen character of the left branch possessor in terms of the ECP or the Subjacency Condition if one adopts a traditional NP-structure? Under the assumption that the possessors in (25) are moved from the specifier position of NP, the ungrammaticality of these sentences does not follow from the ECP or the Subjacency Condition. The trace in the specifier position is 0-subjacent to the antecedent-trace which is adjoined to VP. And if one assumes that a noun phrase like *whose father* is derived from the D-structure *father whose* via NP-movement to [Spec,NP] and if one also adopts Lasnik & Saito's (1984) proposal that only the initial trace of a moved argument needs to be properly governed, then extraction of *whose* will never yield an ECP-violation, because the antecedent-trace standing in [Spec,NP] will always antecedent-govern (= properly govern) the argument trace.[10]

Since the ECP and the Subjacency Condition cannot account for the ill-formedness of the sentences in (25), I will investigate whether the impossibility of moving left branch possessors can be explained in terms of the Uniformity Condition as proposed by Chomsky (1986a). Before examining this condition, I will briefly discuss the case assignment theory as proposed there.

Chomsky differentiates between two types of case assignment: (i) structural case assignment, and (ii) inherent case assignment. Structural case (nominative and accusative in English) is assigned by a case assigning category at S-structure under government. Furthermore, no reference is made to the status of the thematic relation between the case assigner and the case receiving category. In other words, the nominative case, which is assigned by INFL, and the accusative case, which is assigned by V, are assigned under government to NPs to which they need not bear any thematic relation. Consider, for example, the following sentences:

(27) a. *It* seems that Bill is ill
b. I consider *Mary* a fool

The expletive subject *it* receives nominative case from INFL, but does not enter into any thematic relation with it. The same holds for the noun phrase *Mary* in (27b), which is the subject of a small clause. It is assigned accusative case by the verb *consider*, but does not get a theta-role from this verb.

The second type of case that Chomsky posits, inherent case, involves a thematic relation between the case assigner and the case receiving category. This theta-related case is assigned at D-structure. Inherent case assigning relations include a.o.: (i) the oblique case assigned by prepositions; (ii) the genitive case assigned by nouns (as in *John's car*) and the genitive and dative case assigned by certain adjectives in a language like German (cf. Van Riemsdijk (1983)).

Chomsky assumes that case assignment by lexical categories in English is uniformly to the right. This means that genitive case assignment by N^0, which is realized either as *of* or as *'s* in Chomsky's system, is rightwards. Since genitive case can be realized in the (left branch) specifier position of the noun phrase, a distinction is made between case assignment (at D-structure for inherent case) and case realization (at S-structure for inherent case).

Chomsky proposes that both assignment and realization of inherent case take place under government and are subject to the requirement of thematic-relatedness. This proposal is worded in the following condition:

(28) **Uniformity Condition** (Chomsky (1986a))

If A is an inherent Case-marker, then A Case-marks (= case assignment and case realization) NP iff A theta-marks the chain headed by NP

This condition requires that inherent case will be realized on an NP iff it is governed by the category which theta-marks the NP at D-structure. So, inherent case relations must meet the Uniformity Condition.

Chomsky proposes this condition in order to rule out ungrammatical instances of NP-movement as, for example, in the following sentence:

(12) a. [DegP [Deg Zo] [AP vervelend]] is Marie!
So tiresome is Mary

b. [DegP [Deg Hoe] [AP vervelend]] is Marie?
How tiresome is Mary

The fact that degree words like *hoe* and *zo*, which were said to be possible heads of Degree Phrases in chapter 3, exhibit the same distribution as the exclamative element *wat* in certain syntactic contexts (see (13)) might be interpreted as supporting an analysis in which *wat* occupies the Deg°-position in (11). In the following sentences, for example, the elements *hoe*, *zo* and *wat* can all precede the article *een/'n*, while modifying the attributive adjective phrase.[1]

(13) a. Wat een vervelend kind is Marie!
What a tiresome child is Mary

b. Zo'n vervelend kind is Marie!
Such a tiresome child is Mary

c. Hoe'n vervelend kind is Marie?
How a tiresome child is Mary

A second fact which might support structure (11) comes from the ill-formedness of the following sentences, in which the exclamator *wat* and the comparative elements *-er* and *minder* occur within one and the same DegP:

(14) a. * [Wat vervelender] is Marie!
What more-tiresome is Mary

b. * [Wat minder vervelend] is Marie!
What less tiresome is Mary

In chapter 3, it was argued that comparative elements occupy the Deg°-position. Now, under the assumption that the exclamator *wat* is a degree word-like element which must occupy the Deg°-position of the Degree Phrase (as in (11)), the ill-formedness of these examples might follow from the fact that there are two degree words (*wat* and the comparative element) but only one Deg°-position.[2]

As far as the exclamative *wat* in VPs (as in (15a)) is concerned, I assume that it hangs from V' just like other degree elements modifying the verb (see (15b)):

(15) a. Ik heb haar (maar) wat verwend!
I have her (but) what spoiled
'How I have spoiled her!'

b. Ik heb haar zo verwend!
I have her so spoiled
'How I have spoiled her!'

So much for the discussion of the internal syntax of exclamative phrases.

5.3 Wh-movement in non-split 'wat'-exclamatives

In this section, it will be argued that the non-split *wat*-exclamative construction should be described in terms of wh-movement (Move alpha). This means that a non-split 'wat'-exclamative construction like (16) is derived by moving the entire exclamative nominal to the specifier of CP (see also Krijgsman (1982)).

(16) [Wat een boeken]$_i$ heeft Jan t_i gelezen!
What a books has John read
'What books John has read!'

As is well-known, wh-movement is a relation between two positions X and Y that exhibits the following characteristic properties (cf. Chomsky (1977)):

(17) a. The moved phrase c-commands the trace it leaves behind;
b. Where the appropriate bridge conditions are met, there is an apparent violation of the Subjacency Condition;
c. The distance between the moved phrase and its trace is governed by a cluster of island conditions (a.o. the Complex NP Constraint, the Wh-island Constraint. the Subject Condition, the Adjunct Condition, etc.)

Interpreting these properties as a diagnostic for movement, one can determine whether the non-split exclamative construction in Dutch should be analyzed in terms of Move alpha. As far as the diagnostic criterion (17a) is concerned, it is clear that a sentence like (16) satisfies this criterion. The exclamative DP occupies the [Spec,CP] and from that position it c-commands its direct object trace.

Before answering the question whether the second an third diagnostic is satisfied, one must find out whether it is possible to have embedded exclamative clauses in Dutch. So, are there indirect exclamative constructions besides direct ones? The following sentences show that indirect non-split *wat*-exclamatives exist in Dutch:

(18) a. Ik weet best [[wat een inspanning]$_i$ dat t_i kost]
I know well what an effort that costs

b. Jan ontdekte later [[wat een vreemde vrouw]$_i$ Marie t_i was]]
John discovered later what a strange woman Mary was

c. Jan zag in [[wat een bedrieger]$_i$ Wim t_i was]]
John realized what an impostor William was

As for interrogative complements, the distribution of exclamative sentential complements in Dutch and English shows that it depends on the governing predicate whether or not the [Spec,CP] can be filled by an exclamative wh-phrase. Elliott (1974) notes for English that the predicates that take exclamatory complements are factive ones, in the sense of Kiparsky & Kiparsky (1970). The contrast between the examples in (19) and (20) illustrates this for English, and the contrast between (21) and (22) for Dutch:

(19) a. John realized what a fool he was
b. John found out what a nice person Bill was

(20) a. * John thought what a fool he was
b. * John hoped what a nice person Bill was

(21) a. Jan realiseerde zich wat een aardige vrouw hij had
John realized REFL what a nice wife he had

b. Jan vertelde wat een boeken hij moest lezen
John told what a books he had-to read

(22) a. * Jan dacht wat een aardige vrouw hij had
John thought what a nice wife he had

b. * Jan hoopte wat een boeken hij moest lezen
John hoped what a books he had-to read

A speaker using a sentence with a factive predicate presupposes that the embedded clause expresses a true proposition, and makes some assertion about that proposition (cf. Kiparsky & Kiparsky (1970)). So, by using factive predicates the speaker implies that he knows that the complement is true. The use of non-factive predicates makes no such presupposition. That is, non-factives do not allow their complements to be presupposed. According to Grimshaw (1977), the incompatibility of non-factive predicates with exclamatory complements has a semantic explanation. Non-factives do not allow the propositional content of their complements to be presupposed, and the propositional content of an exclamation is always presupposed: combining a non-factive predicate and an exclamation will necessarily result in violating one of these conditions, and ill-formedness will be the result.

So far, we have seen that indirect non-split *wat*-exclamatives exist in Dutch. The following sentences show that the moved exclamative phrase occupies the specifier of CP, since the COMP-position is occupied by the complementizer *of* ((23b) is taken from Paardekoper (1986)).[3]

(23) a. Ik weet [wat een inspanning$_i$ of [dat t_i kost]]
I know what an effort whether that costs

b. Kijk es [wat een mensen$_i$ of [er toch t_i zijn]]
Look now what a people whether there yet are
'Look, the large number of people there are!'

Now that we know that exclamative phrases can occur in the specifier position of an embedded CP, let us return to the question whether the non-split *wat*-exclamative construction exhibits the second diagnostic typical of wh-movement configurations, i.e. can the exclamative wh-phrase circumvent the boundedness imposed by the Subjacency Condition by moving successive cyclically through the specifier of CP, which functions as an escape hatch. If it can, the diagnostic criterion (17b) is satisfied.

Consider the following sentences:

(24) a.(?) [Wat een boeken]$_i$ zei Jan dat hij moest t_i kopen!
What a books said John that he had-to buy

b.(?) Ik herinner me nu weer [wat een boeken]$_i$ Jan zei dat
I remember REFL nowagain what a books John said that

ie t_i gelezen had
he read had

Although hard to judge, these sentences are considered fairly acceptable by speakers of Dutch that I consulted. For some speakers, however, these sentences sound a bit odd compared to their interrogative counterparts.[4]

(25) a. Welke boeken$_i$ zei Jan dat hij t_i moest kopen?
Which books said John that he had-to buy

b. Ik herinner me nu weer welke boeken$_i$ Jan zei dat ie t_i
I remember REFL nowagain which books John said that he

gelezen had
read had

Let us now see whether extraction of the non-split exclamative phrase is sensitive to the island constraints:

(26) a. * Wat een boeken$_j$ wilde Jan weten [wanneer$_i$ ik t_i t_j gekocht
What a books wanted John to-know when I bought

had]!?
had
'John wanted to know when I had bought so many books!'

b. * Wat een talen$_i$ wist Jan [wat een meisjes$_j$ t_j t_i spraken]!
What a languages knew John what a girls spoke
'John knew that so many girls spoke so many languages!'

(27) * Wat een boeken$_i$ hoorde Jan het bericht dat Marie t_i gekocht
What a books heard John the message that Mary bought

had!
had

In (26), the wh-exclamative phrase is extracted across a wh-island. In (26a), the [Spec,CP] is filled by an interrogative wh-phrase, and in (26b) by an exclamative wh-phrase. In (27), the exclamative phrase has been removed from a complex noun phrase. Clearly, these exclamative sentences are much worse than those in (24). This suggests that the second island-diagnostic is satisfied as well.[5]

Thus, although non-split exclamative wh-phrases seem to undergo long distance movement somewhat less easily than interrogative wh-phrases, their sensitivity to the clausal island constraints suggests that they are derived by the syntactic operation of wh-movement, which moves the exclamative phrase to [Spec,CP] and leaves behind a trace.

There is another, non-clausal island configuration in Dutch which can be used as a diagnostic test for movement, namely the PP-island configuration. As Van Riemsdijk (1978) has pointed out, preposition stranding in Dutch is possible for (left branch) R-pronouns (e.g. *er*, *daar* ('there'), *waar* ('where')), but not for right branch nominal complements. This contrast is illustrated in (28):

(28) a. Waar$_i$ heb je [t_i op] geschoten?
Where have you at shot

b. * Welk hert$_i$ heeft de jager [op t_i] geschoten?
Which deer has the hunter at shot

If wh-movement is involved in the derivation of the non-split exclamative construction, the prediction is that the exclamative wh-phrase (which is not an R-pronoun) cannot be moved out of the PP to [Spec,CP]. This prediction is indeed borne out:

(29) * Wat een herten$_i$ heeft de jager [op t_i] geschoten!
What a deers has the hunter at fired

In conclusion, the derivation of non-split *wat*-exclamatives involves the syntactic operation of wh-movement, which moves the exclamative phrase to [Spec,CP] and leaves behind a wh-trace.

5.4 On the absence of wh-movement in split 'wat'-exclamatives

In this section, I will investigate the syntactic properties of split *wat*-exclamative constructions like (30) in Dutch:

(30) *Wat* heeft Jan *een auto's* gekocht!
What has John a cars bought
'What a lot of cars John bought!'

In particular, I will try to determine whether syntactic wh-movement of the exclamative element *wat* underlies this type of exclamative construction. On the basis of a number of syntactic phenomena, it will be concluded that no movement is involved in the derivation of this exclamative construction, and that *wat* is base-generated in [Spec,CP] in split *wat*-exclamatives (see also Krijgsman (1982)).

As we have seen in the previous section, one of the more straightforward diagnostics for movement is island sensitivity. It was shown that non-split *wat*-exclamatives in Dutch obey the PP-island constraint. Consider, now, the following split *wat*-exclamative structures (see also Krijgsman (1982)):

(31) a. *Wat* heeft deze jager [op [- een herten]] geschoten!
What has this hunter at a deers fired

b. *Wat* woon jij [in [- een rotstad]]!
What live you in a rotten city

c. *Wat* beschikte Jan [over [- een hoop informatie]]!
What had-at-his-disposal John about a lot of information
'What a lot of information John had at his disposal!'

These sentences, in which the exclamative marker *wat* stands in a relation to the complement of the preposition, clearly argue against an analysis involving syntactic wh-movement. Straightforward evidence for this hypothesis is the fact that in the so-called *wat voor (een) N*-construction (what for a N; meaning 'what kind of N') in Dutch subextraction of the left branch question element *wat* out of the noun phrase is completely out in the same syntactic environment (see also chapter 6):

(32) * *Wat* heeft deze jager [op [-- voor een herten]] geschoten?
What has this hunter at for a deers shot
'What kind of deers did the hunter shoot at?'

It is even possible to have split exclamative phrases with adjunct PPs. This also suggests that syntactic movement is not involved in the derivation of the split exclamative construction, since normally it is impossible to extract constituents (especially nonarguments) out of adjunct-PPs (see chapter 9).[6]

(33) a. *Wat* heb je dit [op [- een klungelige manier]] afgehandeld!
What have you this in a bungling way settled

b. *Wat* heeft Jo [voor [- een mensen]] dit formulier in moeten
What has Joe for a people this form in must

vullen!
fill
'John had to complete this form for so many people!'

c. *Wat* heeft Jo z'n carrière [om [- een vreemde reden]]
What has Joe his career for a strange reason

afgebroken!
finished

How can we be sure that the exclamator *wat* exclaims at the adjunct (or better some element inside of the adjunct) and not at some element external to it? Given the optionality of these adjuncts, we can leave them out of these sentences. If the sentences become ungrammatical, then we have evidence in favor of associating the exclamator with the adjunct. Consider now the following sentences in which the adjunct-PP is absent:

(34) a. * Wat heb jij dit afgehandeld!
b. * Wat heeft Jo dit formulier in moeten vullen!
c. * Wat heeft Jo z'n carrière afgebroken!

The ill-formedness of these sentences suggests that the exclamator *wat* in (33) is associated with the adjunct. The ungrammatical status of the sentences in (34) is due to the fact that there is no exclamand within the clause which the exclamator *wat* can exclaim at. To put it differently, exclamation is vacuous in these sentences. There must always be an element within the scope of the exclamator *wat* which functions as its exclamand. So, a sentence like (34a), for example, gets well-formed again if the demonstrative pronoun *dit* is replaced by a noun phrase which can function as an exclamand:

(35) *Wat* heb jij *een zaken* afgehandeld!
What have you an affairs settled
'You have settled so many affairs'

A last fact concerning the islandhood of PPs seems to be an insurmountable barrier to any attempt to analyze split exclamative constructions in terms of application of Move alpha. Consider the following sentences:

(36) a. Wat strekt dit weiland zich [tot [- ver achter
What stretches this grassland REFL till far behind

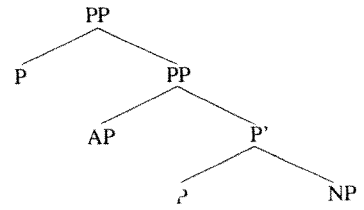
de greppel]] uit!
the trench PRT

b. Wat dateert deze vaas [van [- ver voor de oorlog]]!
What dates this vase from far before the war

c. Wat bleef Jan [tot [- diep in de nacht]] weg!
What stayed John till deep into the night away

In these sentences, the exclamative marker *wat* enters into a relation with an adjectival modifier inside a PP which is the complement of another preposition. The configuration is given in (37).

(37)



It is impossible to move the adjectival adjunct from within the complex PP:

(38) a. * Hoever$_i$ dateert deze vaas [van [t$_i$ voor de oorlog]]?
How far dates this vase from before the war

b. * Hoe diep$_i$ bleef Jan [tot [t$_i$ in de nacht]] weg?
How far stayed John till into the night away

Whatever one's account of these facts (cf. chapter 9), it is hard to see how the facts in (36) and (38) can be reconciled with each other under a movement approach. It suggests that movement is not at the basis of split exclamatives.

That *wat* exclaims at *ver* and *diep* in (36) is shown by the fact that the sentences get ungrammatical as soon as you leave these modifiers out:

(39) a. * Wat strekt dit weiland zich tot achter de greppel uit!
b. * Wat dateert deze vaas van voor de oorlog!
c. * Wat bleef Jan tot in de nacht weg!

Here again, there is no gradable element within the scope of the exclamator *wat* which can function as its exclamand. Exclamation is vacuous, yielding an ill-formed sentence.

Another well-known island for movement operations is the Subject Condition: no element can be reordered out of a subject noun phrase. As will be discussed more extensively in chapter 6, the left branch question word *wat* cannot be extracted from within a *wat voor (een) N*-phrase which functions as a subject:

(40) a. * Wat$_i$ hebben [t$_i$ voor meisjes] hem gezoend?
What have for girls him kissed
'What kind of girls kissed him?'

b. * Wat$_i$ weten [t_i voor een mensen] de belasting te ontduiken?
What know for a people the taxes to dodge
'What kind of people know how to dodge taxes?'

Consider now the following split exclamatives in which the exclamator is associated with the subject noun phrase:

(41) a.(?) *Wat* hebben [- een meisjes] hem gezoend!
What have a girls him kissed

b.(?) *Wat* hebben [- een meisjes] hem lastig gevallen!
What have a girls him annoyed

c.(?) *Wat* konden [- veel kinderen] hun fietsje niet meer vinden!
What could many children their bike not anymore find

d.(?) *Wat* wisten [- een mensen] toendertijd de belasting te ontduiken!
What knew a people then the taxes to dodge

e.(?) *Wat* hebben [- een mensen] die ramp overleefd!
What have a people that disaster survived

Judgments on these examples are quite delicate. If subextraction of *wat* took place in these sentences, we would expect these sentences to be strongly out, since it would violate both the Subjacency Condition and the ECP. The fronted *wat* occupying the [Spec,CP], would not be able to antecedent govern the trace contained within the subject noun phrase, since the subject noun phrase and IP are L-barriers (the former by not being L-marked, the latter by inheritance) including the trace but excluding *wat*. Because of the same two L-barriers, *wat* and its trace further would not be subjacent to each other, and therefore would violate the Subjacency Condition. Thus, if movement is involved, the fairly acceptable status of the above-mentioned sentences is quite unexpected. At this point it is worthwhile to compare the sentences in (41) and those in (40). To my ear, there is a clear contrast in acceptability between these sentences. I tend to judge the sentences in (41) to be much better than those in (40). This contrast suggests that the derivation of the split wh-exclamatives in (41) does not involve subextraction of the exclamator *wat*.

The question remains why certain people consider these sentences somewhat less acceptable than, for example, sentences in which the exclamator is associated with a direct object exclamand. I presume that this is caused by the general preference of having the expletive *er* inserted in subject-position, when the real subject has an indefinite status.

Another piece of evidence against a wh-movement analysis of split exclamatives is that if one assumes that *wat* is moved from within an exclamative phrase to the [Spec,CP], the question arises why the same is not possible for Dutch *welk* in exclamative phrases like *welk een fraai uitzicht* ('which a beautiful view') and the English exclamator *what* in *what a big car* (see also Krijgsman (1982)). Presumably, these elements occupy the same position within the noun phrase (DP). So, why don't we have, for example, the following split exclamatives:

(42) a. * Welk$_i$ heb jij [t_i een fraai uitzicht] vanaf het balkon!
Which have you a beautiful view from the balcony

b. * What$_i$ he has [t_i a big car]!

A similar problem arises with the exclamator *wat* which is associated with a degree phrase. If the assumption that the exclamator *wat* occupies the Deg^o-position of the DegP is correct, then the following question is raised: Why is it impossible for degree words like *hoe* ('how') and *zo* ('so') to leave the dominating DegP?

(43) a. *Wat* is ze *mooi*!
What is she beautiful
'How beautiful she is!'

b. * Hoe$_i$ is ze [t_i mooi]?
How is she beautiful
'How beautiful is she?'

c. * Zo$_i$ is ze [t_i mooi]!
So is she beautiful
'She is so beautiful!'

In chapter 7, it will be argued that the nonextractability of degree words such as *hoe* and *zo* is caused by their X-zero category status. Being heads, these degree words cannot escape the barrierhood of dominating maximal projections (e.g. the non-L-marked VP) and therefore will always yield a subjacency- and an ECP-violation.

Another phenomenon which shows that no syntactic wh-movement is involved in split exclamative constructions is that of multiple exclamation. It turns out that one exclamator *wat* can be associated with more than one exclamand.

(44) a. *Wat* hebben er *een meisjes een jongens* gezoend!
What have there a girls a boys kissed
'What a large number of girls have kissed what a large number of boys!'

b. *Wat* heeft Jan *een meisjes een appels* gegeven!
What has John a girls an apples given
'What a large number of girls did John give what a large amount of apples'

c. *Wat* hebben er *een meisjes een jongens een appels* laten
What have there a girls a boys an apples let

schillen!
pare
'So many girls made so many boys pare so many apples!'

In these sentences, *wat* exclaims at more than one DP-exclamand. Movement of the exclamator *wat* is highly unlikely in these sentences, since it would originate in different positions at the same time, which is impossible. Notice, for example, that the split *wat voor*-counterpart in (45) is completely out:

(45) * *Wat* hebben er *voor een meisjes voor een jongens* gezoend?
What have there for a girls for a boys kissed
'What kind of girls kissed what kind of boys?'

One might, of course, propose that the exclamator in (44) is extracted from within one noun phrase and that the other noun phrases contain a parasitic gap. Such an analysis is not very likely, however, since normally only fronted argument noun phrases can license a parasitic gap in Dutch. So, a non-split exclamative wh-nominal can license a parasitic gap, when it is an argument:

(46) [Wat een tijdschriften]$_i$ heeft Jan [zonder e_i in te hebben
What a magazines has John without in to have

gekeken] t_i weggegooid!
looked thrown-away
'What a lot of magazines did he throw away without having read!'

Notice now that the exclamator *wat* in the split exclamative wh-construction cannot license a parasitic gap:

(47) * *Wat* heeft Jan [zonder *een tijdschriften* in te hebben gekeken]
What has John without a magazines in to have looked

een boeken weggegooid!
a books thrown-away

So, a parasitic gap analysis of the examples in (44) is implausible. Hence, the multiple exclamation argument against a wh-movement analysis is still valid.

In Krijgsman (1982), it is also reported that the split variant, as opposed to the non-split variant, cannot appear in embedded exclamative clauses. In other words, indirect split wh-exclamatives do not exist. This is exemplified in (48):[7]

(48) * Jan vertelde *wat* hij *een boeken* moest lezen
John told what he a books had-to read
'John told what a large amount of books he had to read'

Notice here again, that the split *wat voor*-construction exhibits a behavior different from the split exclamative. As is illustrated in (49), the split *wat voor (een) N*-pattern may appear in embedded clause.

(49) Jan vroeg zich af *wat* hij *voor een boeken* moest lezen
John wondered REFL PRT what he for a books had-to read
'John wondered what kind of books he had to read'

This asymmetry between split exclamatives on the one hand and non-split exclamatives and *wat voor*-constructions on the other hand suggests that different processes are at the basis of these constructions.

Given the considerations above, it seems fair to conclude that split exclamative wh-constructions are not derived by wh-movement of the exclamator *wat* from within the exclamative noun or adjective phrase it is associated with. However, before I claim that *wat* is base-generated in [Spec,CP] in the split exclamative wh-construction, I should raise the question whether an analysis is defendable in which the exclamator *wat* is base-generated as a modifier hanging from V', which can have scope over the noun or adjective phrases which function as exclamands. One could then propose that the split pattern is derived by fronting of the exclamator hanging from V'. In that case, there is no subextraction of a left branch constituent out of a noun or adjective phrase.

As we have already seen above, it is possible to have the exclamator *wat* in a clause-internal position. Consider, for example, the following sentence:

(50) a. Ik heb toen maar *wat* om die mop moeten lachen!
I have then but what about that joke must laugh
'I really had to laugh at that joke!'

b. Jan heeft toen maar *wat* op haar lopen foeteren!
John has then but what at her walk grumble
'John grumbled at her so much!'

If it was assumed that in split exclamative constructions in which the exclamator *wat* is associated with a noun phrase or an adjective phrase, the exclamator is base-generated as a VP-internal adjunct, then it would be expected that the following sentences are permitted as well:

(51) a. * Jan heeft toen maar *wat* [om *een moppen*] moeten lachen!
John has then but what about a jokes must laugh
'John had to laugh at so many jokes!'

b. * Jan heeft toen maar *wat* [op *een meisjes*] lopen foeteren!
John has then but what at a girls walk grumble
'John grumbled at so many girls!'

It is impossible, however, to associate the VP-internal exclamative *wat* with the exclamative noun phrase contained within the PP. This makes an analysis in which the exclamator *wat* is base-generated within VP having scope over the potential nominal or adjectival exclamand less plausible.[8]

It can be claimed now that *wat* is base-generated in [Spec,CP] in the split exclamative *wat*-construction. So, no left branch extraction of the exclamator *wat* is involved in the derivation of this construction. This means that syntactically the split and non-split *wat*-exclamatives should be treated in different ways.

5.5 'Wat' as an exclamation morpheme

In the previous section it was shown that split exclamatives are not derived by syntactic wh-movement of a left branch element *wat*. It was concluded that the exclamative *wat* is base-generated in [Spec,CP]. The question now arises what sort of an element *wat* is. In line with Baker's (1970) hypothesis that questions (both direct and indirect) contain an abstract question morpheme Q, I will assume that exclamations contain an exclamation morpheme, let us say E.[9,10] This abstract morpheme distinguishes exclamatives from declaratives and interrogatives, and it triggers the proper intonational structure at PF and the proper interpretation at LF (see Chomsky (1988)).[11] The idea will be now that *wat* is a phonetic realization of the exclamation morpheme in the [Spec,CP] position. In non-split *wat*-exclamatives, the fronted exclamative wh-phrase is moved into [Spec,CP] and the abstract exclamation morpheme is not phonetically realized.

The exclamation morpheme *wat* must 'bind' one or more phrases within its scope (i.e. c-command domain) which it can exclaim at. If there is no element within the tree it can exclaim at, then exclamation is vacuous. Vacuous exclamation is excluded (see (52)), just like vacuous wh-interrogation (see (53)) (cf. Chomsky (1982)).

(52) a. * Wat heb jij Karel ontmoet!
What have you Charles met

b. * Wat heb jij deze vrouwen ontmoet in je leven!
What have you these women met in your life

(53) * Wie heb jij Karel ontmoet?
Who have you Charles met

In the sentences in (52), there is no expression that can be exclaimed at and therefore they are ungrammatical. Notice, that the sentences in (52) get well-formed when the verb or the noun is replaced by an element that can be exclaimed at:

(54) a. Wat heb jij Karel bedonderd!
Wh.t have you Charles fooled

b. Wat heb jij een vrouwen ontmoet in je leven!
What have you a women met in your life

Notice that if *wat* is base-generated in [Spec,CP], then strings like *een vrouwen* must form independent nominals. The question might arise whether such nominal constituents consisting of an exclamative article and a noun, can appear independently, i.e. without the exclamative marker *wat*. The following sentences show that these forms are in fact well-formed nominal structures, which can be generated as such in D-structure:

(55) a. Jan heeft me toch *een vrouwen* ontmoet in zijn leven!
John has me yet a women met in his life
'John has met so many wifes during his life!'

b. Jan heeft toch *een geld*!
John has yet a money
'John owns so much money!'

In (55a), the nominal consists of the exclamative article and a count-noun, and in (55b), it consists of the exclamative article and a mass noun.

The non-wh-exclamatives in (55) have the normal declarative form. The subject has been moved into [Spec,CP] and the finite verb (*heeft*) has been moved into COMP via the verb second rule, which normally applies in root constructions in Dutch. Notice that it is also possible to have non-wh-exclamatives with a topicalization-like structure (as in (56a)) and with a yes/no question-structure (56b):

(56) a. *Een boeken* heeft Jan gekocht!
A books has John bought

b. Heeft Jan even *een boeken* gekocht!
Has John just a books bought
'Did John buy a lot of books!'

In (56a), the exclamand has been moved into [Spec,CP] and the finite verb into COMP. In (56b), only the finite verb has been fronted.

Summarizing so far, I have argued that split *wat*-exclamatives in Dutch consist of an exclamation morpheme *wat*, which is base-generated in [Spec,CP], and that there must be an element within the c-command domain of the morpheme that can be exclaimed at. It is obvious that the various types of split exclamation patterns in which *wat* is associated with an element contained within an island for wh-movement operations, are not problematic under this analysis. In all cases, the exclamation morpheme c-commands the potential exclamands. Consider, for example, the split patterns in (57a,b,c), in

which *wat* binds (c-commands) an exclamand contained within a simplex PP, a complex PP, an adjunct-PP, and a subject-DP respectively:

(57) a. *Wat* heeft Jan [op *een herten*] geschoten!
What has John at a deer fired

b. *Wat* strekt het weiland zich [tot [*ver* achter die
What stretches the grassland REFL till far behind that

greppel]] uit!
trench out

c. *Wat* heeft Jan dat [op *een klungelige manier*] afgehandeld!
What has John that in a clumsy way dealt-with

d. *Wat* wisten [*een mensen*] toendertijd de belasting te
What knew a (lot of) people then the taxes to

ontduiken!
dodge

As expected, these examples have a non-wh-counterpart:

(58) a. Jan heeft (me) op een herten geschoten!
John has (me) at a deers shot
'John fired at so many deers!'

b. Dit weiland strekt zich [tot [ver achter die greppel]] uit!
This grassland stretches REFL till far behind that trench out
'This grassland stretches so far beyond that trench!'

c. Jan heeft dit [op een klungelige manier] afgehandeld!
John has this in a clumsy way dealt-with
'John dealt with it in such a clumsy way!'

d. Toendertijd wisten een mensen de belasting te ontduiken!
Then knew a people the taxes to dodge
'So many people managed to dodge the taxes!'

In multiple exclamation constructions, the exclamation marker simply has more than one exclamand within its scope (as in (59)). Also in this case, we have a non-wh-multiple exclamative counterpart (as in (60)):

(59) *Wat* hebben er *een meisjes een jongens* gezoend!
What have there a girls a boys kissed
'What a large number of girls have kissed what a large number of boys!'

(60) Er hebben (me) (toch) *een meisjes een jongens* gezoend!
There have (me) (yet) a girls a boys kissed
'What a large number of girls have kissed what a large number of boys!'

Let us next consider the absence of indirect split *wat*-exclamatives:

(61) *? Jan herinnerde zich [*wat* hij *een last* had gehad met die
John recalled REFL what he a trouble had had with those

peuters]
nippers

Since I do not see any deeper principle at the moment which might account for the fact that *wat* can only appear in direct exclamations, I will simply stipulate that the exclamation-morpheme can only be realized as *wat* in main clauses. Interestingly, the following facts taken from Rijpma & Schuringa (1978) show that the split pattern can appear in a CP having the word order of an embedded clause (i.e. SOV order).[12]

(62) a. *Wat* je toch *'n last* hebt met die peuters!
What you yet a trouble have with those nippers
'One has so much trouble with those nippers!'

b. *Wat* je toch *ziek* kunt worden van die dingen!
What you yet ill can become of those things
'One can get so sick of these things!'

These sentences show that split exclamatives can occur in clauses which have the embedded word order, but are not subordinate clauses. They are marked root constructions in the sense that the finite verb has not been moved into COMP via Verb Second.[13] So, the finite verb remains in its D-structure position and the COMP-position remains empty. Given the fact that the exclamation morpheme *wat* can occur in CPs with an embedded word order as long as these CPs are not subordinate, I do not see any other way than just stipulating that the exclamation morpheme can only be realized in main clauses.

Of course, the verb second equivalents of the sentences in (62) are also permitted:

(63) a. *Wat* heb je toch *'n last* met die peuters!
What have you yet a trouble with those nippers

b. *Wat* kun je toch *ziek* worden van die dingen!
What can you yet ill get of these things

This concludes my discussion of the split exclamative construction in Dutch. The data discussed in the sections 5.4 and 5.5 suggest that this construction should not be described in terms of syntactic wh-movement, but that it can be

analyzed as consisting of a lexically realized exclamation morpheme *wat* base-generated in [Spec,CP], which must have a potential exclamand within its scope.[14]

5.6 Conclusion

The main purpose of this chapter was to find out whether syntactic wh-movement of the left branch exclamator *wat* underlies the formation of split *wat*-exclamatives. Various arguments were given against such an analysis. So, no extraction of a left branch constituent is involved in the derivation of these constructions. It was proposed that *wat* is a lexically realized exclamation morpheme which is base-generated in [Spec,CP]. It was further argued that non-split *wat*-exclamatives should be described in terms of wh-movement.

Notes to chapter 5

1. It should be noted that *hoe'n* is dialectal.

2. This was pointed out to me by Henk van Riemsdijk. It should be noted that the ill-formedness of the following split exclamative structure weakens the argument:

(i) *Wat* is Marie *vervelender dan Sue*!
Whatis Marymore-tiresome than Sue

As will be shown in section 5.4, *wat* is base-generated in [Spec,CP]. It does not originate within the DegP. Nevertheless, this exclamative sentence is out. So, it may very well be that the sentences in (14) are already out because of the fact that comparative forms cannot be exclaimed at.

3. Dutch is not sensitive to the doubly filled COMP filter.

4. In English, long distance exclamatives are found as well. Consider, for example, the following examples ((ia) taken from Ross (1967) and (ib) from Quirk e.a. (1972)):

(i) a. How brave$_i$ everybody must think you expect me to believe he is t_i!
b. How foolish$_i$ you must have thought I was t_i!

5. Notice also that an embedded clause of which the [Spec,CP] is filled by an exclamative wh-phrase creates a wh-island for extraction of an interrogative phrase:

(i) * [Aan wie]$_i$ hoorde Jan [[wat een boeken]$_j$ ik t_j t_i verkocht had]!?
To whom heard John what a books I sold had

6. As we will see in chapter 8, the claim that extraction is never possible from adjuncts is too strong. It turns out that adjunct-DegPs permit subextraction of constituents to [Spec,CP].

7. Notice also the following sentences:

(i) a. *? Jan herinnerde zich wat hij toen transpireerde
John remembered REFL what he then perspired

b. Wat transpireerde Jan toen!
What perspired John then

In (ia), *wat* occurs in the [Spec,CP]-position of an indirect exclamative clause and exclaims at the verb. It turns out that this indirect exclamative construction is worse than its direct exclamative counterpart (ib). As we have seen, split exclamatives are generally worse than non-split exclamatives in embedded contexts. It was further shown that the latter are derived by movement of the exclamative phrase to [Spec,CP]. Now, if the possibility of forming an indirect exclamative clause is an indication that syntactic wh-movement of an exclamative element to [Spec,CP] is at the basis of such an indirect exclamative clause, then the unacceptability of (ia) suggests that no syntactic movement of the exclamator *wat* is involved in the derivation of this construction. Instead, constructions as in (i), in which the exclamative element *wat* exclaims at the verb, should be analyzed as split exclamatives. That is to say, *wat* must be interpreted as the exclamation morpheme which is base-generated in the [Spec,CP] (see section 5.5).

8. Notice also that if *wat* were base-generated as some sort of VP-adjunct, then it would not have scope over (i.e. c-command) an exclamand occupying the subject-position. So, the examples in (41) would be problematic for this analysis.

9. See also Droste (1972).

10. Alternatively, the question morpheme Q can be indicated as [+WH] (See Chomsky (1973)).

11. As is well-known, these clause type morphemes also appear in other languages. In Polish, for example, a simple yes-no question is introduced by the question morpheme *czy*.

(i) a. Masz zadanie
(You) have exercise
'You have the exercise'

b. Czy masz zadanie?
'Have you the exercise?'

Japanese has the question morpheme *ka* (example taken from Lasnik & Saito (forthcoming)):

(ii) John-wa nani-o kaimasita *ka*
John-top what-acc bought Q
'What did John buy?'

12. It should be noted that in these examples, the PPs *met die peuters* and *van die dingen* occur in extraposed (i.e. postverbal) position.

13. See Den Besten (1989) for a discussion of marked root constructions in Dutch.

14. Another fact about split exclamatives reported in Krijgsman (1982) is that the exclamative element *wat* occupying the [Spec,CP] of the matrix clause cannot be linked to a potential exclamand within an embedded clause. Consider, for example, the following sentences ((ia) taken from Krijgsman (1982)):

(i) a. * *Wat* verteide Jan dat hij *veel werk* verzet had!
What told John that he much work done had
'John said he had done so much work'

b. ?* *Wat* zei Jan dat ie *een last* had gehad met die peuters
What said John that he a trouble had had with those nippers
'John said he had so much trouble with these nippers'

Notice that this is another asymmetry between split and non-split *wat*-exclamatives, which again suggests that they should not be treated in the same way. In connection with these data, the following question is raised: what blocks this long distance relation between the exclamation morpheme *wat* and the embedded exclamand. Krijgsman (1982) formulates the descriptive generalization that S'(=CP) creates a barrier for long distance modification by *wat*. One might hypothesize that the crucial opacity factor involved is the intervening complementizer. The following facts might be relevant at this point:

(ii) a. Een last dat je kunt hebben met die peuters!
A trouble that you can have with those nippers
'One can have so much trouble with those nippers!'

b. ?? Wat een last dat je kunt hebben met die peuters!
What a trouble that you can have with those nippers

c. * Wat dat je een last kunt hebben met die peuters!
What that you a trouble can have with those nippers

Sentence (iia) is an exclamative matrix clause in which the COMP-position is exceptionally filled by the complementizer *dat* and in which a noun phrase has been topicalized into [Spec,CP]. The relevant sentences are (iib and c). In (iib), the [Spec,CP] is filled by an exclamative wh-phrase and in (iic) by the exclamation morpheme *wat*. Although (iib) sounds rather odd to my ears, I feel a contrast with (iic). For some people, this contrast is even stronger because they consider (iib) fairly acceptable. What is important, however, is the fact that there is no intervening S' (CP) between *wat* and the exclamand *een last*. So, possibly the ill-formedness of the sentences in (i) should not be interpreted as being due to some restriction on long distance split exclamation. Instead, it might be that an intervening complementizer makes a domain opaque. As we have seen, the counterpart of (iic), in which the COMP-position is not filled by a complementizer, is acceptable:

(iii) Wat je een last kunt hebben met die peuters!
What you a trouble can have with those nippers

So, it might be that a complementizer, bearing its own features (e.g. [-WH] in the case of declaratives), makes a domain opaque for the exclamation morpheme, so that it cannot bind a potential exclamand within that domain. The complementizer has no such blocking function in a sentence like (iib) because the moved exclamative phrase is related to a position within the clause via its trace.

Notice further that an ill-formed sentence like (iv), in which the exclamator *wat* is associated with an exclamand contained within a complex noun phrase, apparently violates the Subjacency Condition.

(iv) * *Wat* hoorde Jo [het bericht dat Sue *een boeken* gekocht had]!
What heard Joe the message that Sue a books bought had
'Joe heard the message that Sue had bought so many books!'

As has been argued above, syntactic movement is not at the basis of split exclamatives in Dutch. Given the fact that the Subjacency Condition is a condition on movement, the ungrammatical status of (iv) must be due to some other factor. Possibly, the intervening complementizer of the embedded clause makes the domain opaque for the exclamation morpheme *wat*.

It should be noted that the discussion above is speculative and there remain many questions: One very obvious question, for example, is why in a language like Japanese the question morpheme *ka* can have scope over a wh-phrase within an embedded CP in which the complementizer position is filled.

Even if the opacity story is wrong, there is one other observation which may be relevant for the interpretation of the facts in (i). It turns out that split exclamatives are less acceptable when the element which *wat* exclaims at occurs within an extraposed phrase. Consider, for example, the contrast between the sentences in (iv) and (v):

(v) a. *Wat* heeft Jan [in *een sjieke buurt*] gewoond!
What has John in a chic neighbourhood lived

b. *Wat* heeft Jo zich [op *een tijdschriften*] geabonneerd!
What has Joe REFL to a magazines subscribed

c. *Wat* heeft Jan [met *een mensen*] gesproken!
What has Joe with a people spoken

d. *Wat* bleef Jan [tot [*diep* in de nacht]] weg!
What stayed John till deep into the night away

(vi) a. ?? *Wat* heeft Jan gewoond [in *een sjieke buurt*]!
b. ?? *Wat* heeft Jo zich geabonneerd [op *een tijdschriften*]!
c. ?? *Wat* heeft Jan gesproken [met *een mensen*]!
d. ?? *Wat* bleef Jan weg [tot [*diep* in de nacht]]!

In (v), the exclamand is part of a nonextraposed PP, whereas in (vi) it is part of an extraposed PP. Since CP-complements of a verb appear in extraposed position in Dutch, the unacceptability of the split exclamatives in (i) might (also) be caused by some factor which causes a decay in acceptability when the exclamand is contained within an extraposed phrase.

6 'WAT VOOR' - SPLIT IN DUTCH

6.1 Introduction

This chapter examines the internal syntax and the movement behavior of a particular type of interrogative noun phrase in Dutch, namely the so-called *wat voor (een) N*-noun phrase (literally: what for (a) N; meaning: 'what kind of N'). This phrase asks for the nature, quality or sort of person, thing or object. It further has the property of allowing subextraction of the left branch wh-element *wat*, yielding a discontinuous pattern. So, besides removal of the entire noun phrase to [Spec,CP] as in (1a), extraction only of *wat* is permitted as well (as in 1b).

(1) a. [Wat voor auto's]$_i$ heb je t$_i$ gekocht?
What for cars have you bought
'What kind of cars have you bought?'

b. [Wat]$_i$ heb je [t$_i$ voor auto's] gekocht?
What have you for cars bought
'What kind of cars have you bought?'

The extractability of the left branch interrogative element *wat* from within a noun phrase is exceptional, since generally subextraction of a left branch specifier or modifier from within a noun phrase is impossible in Dutch.

This type of interrogative phrase also appears in a number of other Germanic languages, both in its continuous pattern and in its discontinuous one:[1]

(2) a. Was für einen Wagen hat er gekauft? (German)
What for a car has he bought
'What kind of car has he bought?'

b. Was hat er für einen Wagen gekauft?

(3) a. Hva for ei bok leser du? (Norwegian)
What for a book read you
'What kind of book do you read?'

b. Hva leser du for ei bok?

(4) a. Vad för ett vin dricker du? (Swedish)
What for a wine drink you
'What kind of wine do you drink?'

b. Vad dricker du för ett vin?

I will focus on the syntactic properties of the Dutch *wat voor*-construction. I

presume that my analysis of the Dutch *wat voor*-construction also applies to its equivalents in the above-mentioned Germanic languages.

This chapter has the following structure. First, I will give an exposition of certain syntactic properties of this particular interrogative noun phrase. Then I will discuss three analyses of this construction which have been proposed in the generative literature. This will be followed by a closer investigation of various syntactic properties of the *wat voor*-construction, leading me to the proposal that the internal syntax of the *wat voor*-phrase consists of an adjunction structure of which the DP *wat* is the head and the string *voor (een) N* a PP which is adjoined to this DP. Thereupon, I will compare the *wat voor*-construction with the so-called *wat aan*-construction. It will be shown that these superficially similar constructions do not exhibit the same syntactic behavior, which motivates a different syntactic analysis of them. Finally, an account will be given of the (im)possibility of various discontinuous *wat voor*-patterns.

6.2 Some notes on the external and internal structure of the 'wat voor'-phrase

Externally the *wat voor (een) N*-phrase is a noun phrase (i.e. DP). It occurs as complement of verbs that are subcategorized for noun phrases ((5a)); it can undergo noun phrase-movement, as in passive and raising constructions ((5b,c)); it enters into a subject-(finite) verb agreement relation ((5d)); it can function as a binder of an anaphor or a pronoun (5e,f)):

(5) a. Wat voor een man heeft zij ontmoet?
What for a man has she met

b. Wat voor een man$_i$ werd door haar gezoend?
What for a man was by her kissed

c. Wat voor een man schijnt deze talen te spreken?
What for a man seems these languages to speak

d. Wat voor een mannen spreken deze talen?
What for a men-PL speak-PL these languages

e. Wat voor iemand$_i$ haat zichzelf$_i$?
What for someone hates himself

f. Wat voor iemand$_i$ zei dat hij$_i$ ziek was?
What for someone said that he ill was

With respect to the internal structure of this phrase, the question arises how the phrase breaks down into smaller constituents. Let us first consider which element is the head of the noun phrase. In the string *wat voor een hond* (what for a dog; 'what kind of dog') there are two potential candidates: the question word *wat* and the noun *hond*. On the basis of subject-verb agreement facts it

seems that not the question word *wat* but the noun following *voor (een)* must be the head of the noun phrase. If the interrogative phrase *wat voor (een) N* is the subject of a finite clause, then the finite verb agrees in number with the headnoun. If *wat* were the headnoun, we would expect that the finite verb is always singular, since this question word has the lexical property of being [+singular], as opposed to the question word *wie* ('who'), for example, that can be both [+ singular] and [+plural]. This is exemplified in (6) below.

(6) a. Ik weet niet *wat* hem *heeft/*hebben* gebeten
I know not what him has/ have bitten
'I don't know what has bitten him'

b. Ik weet niet *wie* hem *heeft/hebben* gebeten
I know not who him has/ have bitten
'I don't know who has/have bitten him'

Consider now the following sentences:

(7) a. * Ik weet niet [*wat* voor honden] mij *heeft* gebeten
I know not what for dogs me has bitten
'I don't know what kind of dogs have bitten me'

b. Ik weet niet [wat voor *honden*] mij *hebben* gebeten
I know not what for dogs me have bitten
'I don't know what kind of dogs have bitten me'

These sentences suggest that the noun *honden* is the head of the noun phrase *wat voor honden*, since that noun agrees with the finite verb.

Another argument in favor of an analysis in which the noun following *voor* is the head of the *wat voor*-phrase comes from the binding requirement that the reciprocal *elkaar* ('each other') requires a [+ plural] antecedent in Dutch (cf. Bennis (1983)). If the [-plural] *wat* were the head of the noun phrase, we would expect that the noun phrase headed by *wat* cannot bind the [+ plural] reciprocal *elkaar*. If, on the other hand, the noun following *voor* is the head of the interrogative phrase, then it is predicted that the noun phrase can bind *elkaar* in case this noun is [+ plural]. Now, the following example shows that the *wat voor*-phrase can bind a reciprocal and therefore suggests that the noun following *voor* is the head of the interrogative phrase.

(8) Wat voor honden$_i$ hebben elkaar$_i$ gebeten?
What for dogs have each other bitten
'What kind of dogs have bitten each other?'

Another important fact about the *wat voor*-construction is that the preposition *voor* does not have any case assigning function within the noun phrase (cf. Den Besten (1985)). Although this is not visible in Dutch, the German *was für*-construction clearly shows that the material following the preposition *für*, which usually assigns accusative case, does not receive case from this preposition. Consider, for example, the following sentence:

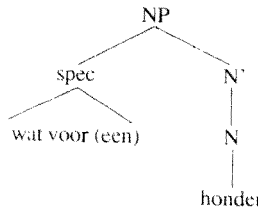
(9) [Mit [was für einem Mann/*einen Mann]] haben Sie
With what for a-DAT man/*a-ACC man have you

gesprochen?
spoken

Einem Mann bears dative case. It cannot receive this case from *für*. Instead it receives its case from the preposition *mit*, a dative case assigner.

On the basis of the above-mentioned considerations it has been proposed in the literature that the internal structure of a *wat voor*-phrase like *wat voor (een) honden* (what for (a) dogs) is the following:[2]

(10)



The noun following *voor* is the head of the interrogative phrase and the string *wat voor (een)* is considered a single complex specifier, which has its own specific meaning and which is stored as a whole in the lexicon (cf. Bennis (1983), Den Besten (1985)).

If this is the correct internal configuration, how can the split *wat voor*-construction be accounted for and how can the well-known subject-object asymmetry exhibited by this construction be explained (cf. Den Besten (1985))?

(11) a. Wat$_i$ heeft Jan [t$_i$ voor boeken] gekocht?
What has John for books bought

b. * Wat$_i$ hebben [t$_i$ voor meisjes] dit boek gelezen?
What have for girls this book read

Before turning to analyses of the split pattern proposed on the basis of the above-mentioned configuration, it should be said that these analyses leave unspecified the precise internal configuration of the elements under *Spec*. As we have seen in chapter 3, *Spec* is a relational notion, and does not stand for a categorial label. Therefore, the question should be raised which of the elements in the string *wat voor een* is to be considered the head of the phrase in the spec-position. The next question would be: How are the non-heads related to the head of the phrase occupying the specifier position? Notice that if it is argued that *wat voor een* is a complex head (i.e. some sort of compound), then subextraction of *wat* would violate the Lexical Integrity Hypothesis. Hence, such an analysis seems undesirable.

In the next section I will discuss three analyses of the split *wat voor*-construction that have been proposed in the literature. Two of them take configuration (10) to be the underlying structure, namely Den Besten (1985) and Bennis (1983). The third analysis, which assumes a different underlying structure, is by Reuland (1983).

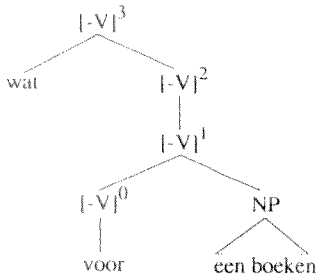
6.3 Three approaches to the split 'wat voor'-construction

6.3.1 Den Besten (1985): the 'wat voor'-phrase as a [-V]-category

Den Besten (1985) argues that the proper treatment of the split *wat voor*-construction involves subextraction of the question word *wat*. It is further assumed that extraction of *wat* from within the NP changes the categorial status of the containing noun phrase. After subextraction the *[t_i voor een N]*-phrase changes from [+N, -V]^3 into [-V]^3. According to Den Besten, this is due to the presence of the preposition *voor*, which becomes the head of the [-V]^3-category after subextraction of *wat*. The [-V]^3-internal trace gets properly governed by the verb via the preposition which is the head of [-V]^3. I will come back to this later. Let us first discuss some other aspects of this analysis.

It is not clear how the categorial change takes place. As we have seen, the D-structure configuration is not explicit to begin with. The S-structure configuration after removal of *wat* is not crystal clear either. Den Besten states that the preposition *voor* is the new head of [-V]^3. But what happens with the other elements inside [-V]^3? Presumably, at S-structure the *wat voor*-phrase has more or less the following structure:

(12)



Note that this categorial change might be problematic for subject-finite verb agreement. It is generally assumed that agreement is defined on the [+N]-features. If those are absent at S-structure and if agreement is defined at that level, i.e. after Move alpha has applied, then it is not clear how agreement is determined.[3] Notice also that the proposed categorial change is not permitted under a strict interpretation of the Projection Principle. This principle requires that representations at each syntactic level (i.e. LF, D- and S-structure) be projected from the lexicon, in that they observe the 'lexical properties' (i.e thematic properties and subcategorization properties) of lexical items. The verb

kopen ('buy') in sentence (11a), for example, has the lexical property that it is subcategorized for a noun phrase, i.e. a category with the feature constellation [+N, -V]. So, if the Projection Principle is interpreted in a strict way, the categorial change is not permitted, since the complement of *kopen* does not satisfy the subcategorization properties of the verb at the level of S-structure.

Den Besten notes that after having changed into a [-V]^3-category, the string *[t_i voor een N]* exhibits both an NP-like and a PP-like behavior, PP also being a category bearing the feature [-V]. This categorial status accounts for a number of things. First, it explains why extraposition of this string (=[-V]^3), as in the following sentence, is fairly acceptable.[4]

(13) *Wat* heeft Jan gekocht *voor boeken*?

After subextraction of *wat*, the string *[t voor boeken]* becomes [-V] and is then accessible to extraposition.

It is further noted that the switch from [+N,-V]^3 to [-V]^3 accounts for the absence of subjacency effects in the split *wat voor*-construction.[5] Under the assumption that [-V]^3 is not a bounding node, no subjacency violation is triggered if *wat* is moved to COMP (i.e. [Spec,CP]), because S is the only bounding node separating the moved wh-element and its trace. Notice that this account only holds if the Subjacency Condition is considered a condition on representations and not a condition on rule application. That is, the condition must apply to the output of the movement rule.

It is argued that the Left Branch Condition effect, which is said to be reducible to the ECP, is suspended because the trace of *wat* is licensed by the preposition *voor*. Den Besten notes that *voor* will not suffice as a proper governor in itself, since it is a weak governor. It is assumed that the lexical category V properly governs the trace of *wat* through the head of the new category [-V]^3, i.e. through the preposition *voor*. The property of proper government trickles down to the head [-V]. So, the wh-trace in [-V]^3 will be licensed (= properly governed) by a chain of governors.

Of course, if proper government of a trace which is contained within the maximal projection of a preposition is permitted through the chain of governors Verb-Preposition, then the question arises why this is not possible as well in the following P-stranding constructions:[6]

(14) * Ik vraag me af [wie$_i$ Jan [op t_i] gerekend heeft]
I wonder REFL PRT who John on counted has
'I wonder who John has counted on'

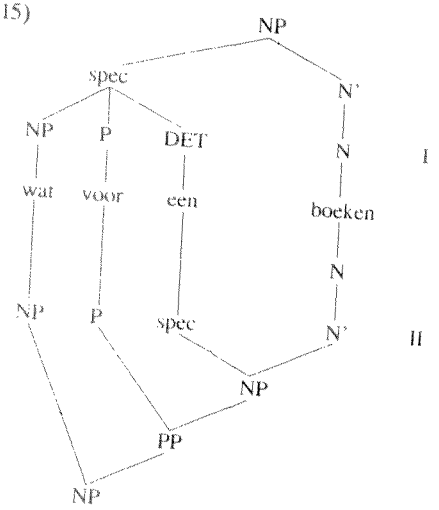
Den Besten accounts for the subject-object asymmetry with respect to extraction of *wat* by saying that no government chain can be built if the *wat voor*-phrase stands in subject position. This is so, because the governor of the trace (i.e. *wat* which occupies the COMP-position) does not govern [-V]^3.

6.3.2 Bennis (1983): the 'wat voor'-phrase as a reanalyzed structure

Bennis (1983) proposes that the string *wat voor (een) N* is best viewed as a coanalyzed or reanalyzed structure. Coanalysis refers to a situation in which a string is assigned more than one structural analysis because of the ambiguous behavior of some linguistic element. The coanalyzed structure can be represented by a double tree.[7]

On this reanalyzing approach, the string *wat voor (een) N* is assigned two structures: one in which *wat voor een* forms a unit separate from *N* (dimension I in (15)); another in which *voor een N* forms a unit that combines with *wat* (dimension II in (15)). The tree is displayed as two coexisting dimensions, each of which is a tree with its properties.

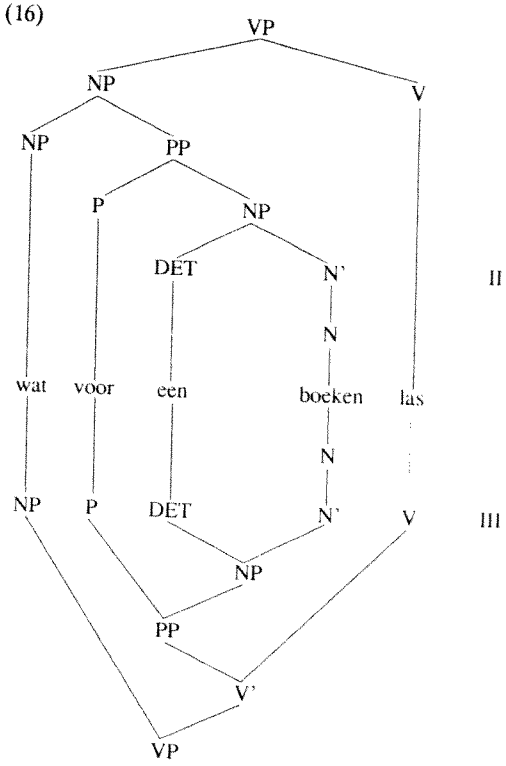
(15)



There are certain restrictions on the reanalysis operation which assigns an extra structure to a string of elements. Reanalysis, for example, should be restricted to adjacent elements; the categorial status of the elements involved in the reanalysis operation must not change; the base rules should be able to generate the additional structure independently, etc. (cf. Bennis (1983)).

Bennis (1983) notes that movement rules can apply to both levels of representation. It is further argued that the reanalyzed structure in (15) as such cannot account for the split pattern. Removal of the question phrase *wat* would still be from within NP and consequently violate principles such as the LBC, the Subjacency Condition and the ECP. Therefore it is suggested that a second reanalysis operation applies to the output of the first reanalysis operation (i.e. the lower dimension in (15)). This yields a triple tree structure. For the sake of clarity, I will only draw the two reanalyzed dimensions:

(16)



Dimension III permits extraction of the question word *wat*, which is no longer within the noun phrase after the second reanalysis operation has applied. The LBC is not violated in this dimension, since the question word is not a left branch specifier of the noun phrase in this third dimension. The Subjacency Condition is not violated either in dimension III, because movement of *wat* only crosses the bounding node S.[8] ECP is also satisfied, since the verb properly governs the trace of the moved question word.

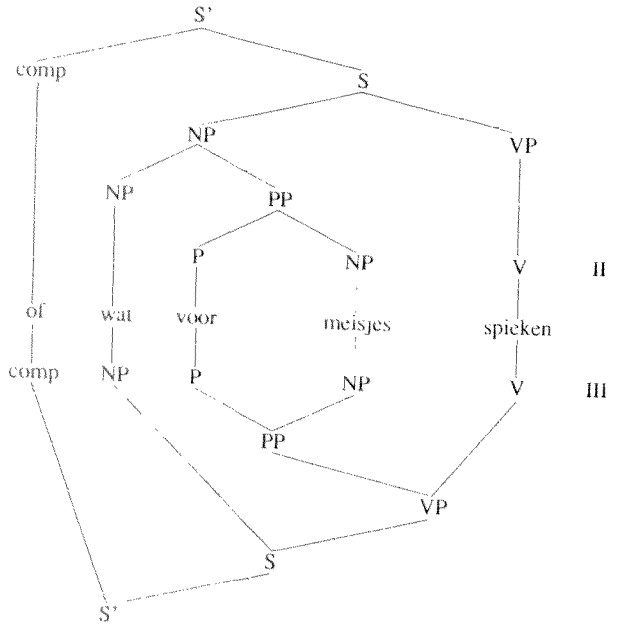
Bennis does not apply the reanalysis approach sketched above to *wat voor*-phrases occupying the subject-position. Consider, for example, the following sentence:

(17) * Ik vraag me af $[_{S'}$ wat_i of $[_S$ $[t_i$ voor meisjes] spieken]]?
I wonder REFL PRT what whether for girls crib
'I wonder what kind of girls crib'

In this ill-formed sentence, the question phrase *wat* has been moved out of the subject noun phrase to the COMP-position.[9] It turns out that the ill-formed structure is not excluded by the reanalysis approach to split *wat voor*-

constructions. Consider tree diagram (18), which only represents the two reanalyzed structures of the embedded clause. So, the first dimension, i.e. the one in which *wat voor* is a frozen specifier, is left out. Nothing seems to prohibit the lower structure (dimension III), which is derived by a second application of the reanalysis operation.

(18)



In dimension III, reanalysis has placed the PP *voor meisjes* within the VP. Nothing seems to block this reanalysis operation. No irrelevant categories intervene between the elements to be reanalyzed, so that the adjacency requirement is satisfied. Furthermore, no change of the categorial status of the lexical categories is involved; no empty lexical categories have been added to the tree diagram; the reanalyzed structure III can be generated independently by the base rules, etc. Notice now that the interrogative phrase *wat*, which is the subject-NP in the third dimension, can be fronted to COMP without violating principles such as the LBC, ECP and the Subjacency Condition. In short, the reanalysis approach proposed by Bennis does not (or at least not always) capture the subject-object asymmetry.

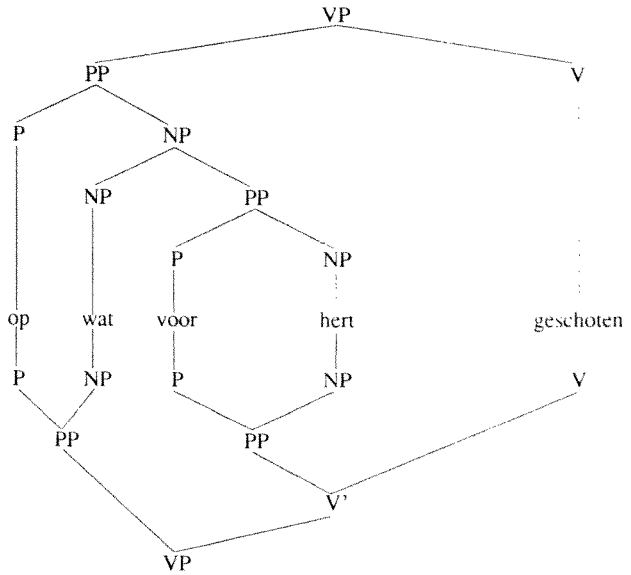
Another point of criticism is the fact that this reanalysis approach is able to generate the ill-formed structure (19b):

(19) a. [Op [wat voor hert]] heb jij geschoten?
On what for deer have you shot
'What kind of deer did you shoot at?'

b. * *Op wat* heb jij *voor hert* geschoten?
On what have you for deer shot

The NP *wat* can be reanalyzed with the preposition *op* as a PP and the PP *voor hert* can be reanalyzed with the adjacent verb *geschoten*. This is illustrated by tree diagram (20), which only contains the two reanalyzed structures and not the one congruent to D-structure.

(20)



Notice that after reanalysis the string *op wat* forms a constituent which can be the input for a movement rule, yielding sentence (19b).

Besides these more technical points of criticism, Bennis's analysis faces a more general problem. It is left unspecified to which tree dimensions the principles of grammar apply. Of course, the most restrictive view is one in which the principles apply to all dimensions. That would mean, for example, that a condition like the Subjacency Condition would apply to both the D-structure configuration and the two reanalyzed configurations. Now if the lexical element *wat* is extracted, then it seems that it is extracted from all three dimensions. And although the Subjacency Condition is not violated in the third dimension, it still is in the two other dimensions.

6.3.3 Reuland (1983): 'wat' as a head

According to Reuland (1983), subextraction is involved in the derivation of the split variant of the *wat voor*-construction. It is argued that the left

branch question word *wat* can be extracted from within a noun phrase, if the trace that is left behind is accessible to proper government from outside. Other types of left branch NP-specifiers (e.g. *welke* ('which')) are inaccessible to external proper governors. Hence, removal of these specifiers will always yield an ECP-violation. The question, of course, arises what causes this difference in accessibility to government from outside.

Following a suggestion by Henk van Riemsdijk, Reuland assumes that the distinguishing and exceptional property of the wh-trace left behind in the split *wat voor*-construction is that it acts as the head of the noun phrase at S-structure. Being the head of the noun phrase, it is accessible to external proper government under the assumption that if a maximal projection (i.c. NP) is properly governed, then its head is too (cf. Belletti & Rizzi (1981)). The subject-object asymmetry with regard to extraction follows from the fact that the subject-NP-internal trace is not accessible to proper government from outside, i.e the antecedent *wat* in COMP is not close enough to bind the trace because of the intervening NP-node.

It is further assumed that the trace of *wat*, being the head of the noun phrase at S-structure, attracts case, which is assigned at S-structure. Because of this, the former headnoun receives no case. It is argued then that in order to assign case to the former headnoun the preposition *voor* must be inserted to assign case to it.

There are a number of problems that arise under this analysis. First of all, insertion of *voor* is highly peculiar. The operation is similar to the insertion of the preposition *van* ('of') in phrases like *de vernietiging van de stad* ('the destruction of the city'). This *van* is inserted to assign case to the noun phrase *de stad*. Since the preposition *van* seems to have the same "saving" function as *voor* under Reuland's analysis, it is not clear why only the latter and not the former can be inserted in the configuration *wat boeken*. Similarly, it is not clear why *voor* (which seems to be semantically empty according to this analysis - otherwise it is not clear why it is not inserted at D-structure) cannot be inserted in a string like *de vernietiging stad*.

A second problem concerns the assumption that the preposition *voor* is inserted to assign case. As we have seen in section 6.2 case assignment facts from German *was für*-constructions indicate that the preposition *für* does not assign case at all (cf. Den Besten (1985)).

Consider also the unusual structure which is assigned to the *wat voor een N*-string. It is assumed that *wat* occupies the [Spec,NP]-position. Reuland is not very explicit about the positions that the inserted preposition *voor* and the indefinite article *een* occupy within the noun phrase. Presumably, they are hanging from an intermediate projection of the noun, viz. N'. These positions are quite unusual for prepositions and indefinite articles. Normally, prepositions never occur to the left of a nominal head in Dutch, and under a traditional NP-analysis indefinite articles occur in the Spec-position. Notice also that the assumption that the P^0 *voor* is a sister of N' is not in accordance with the X-bar theoretic requirement that satellites should be

maximal projections. But, of course, one could always say that this deviant internal syntax precisely reflects the exceptional behavior of this interrogative construction.

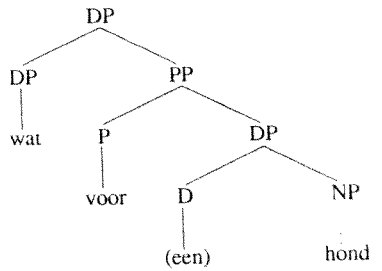
The (apparently) exceptional character of the *wat voor*-construction makes it difficult to evaluate the above-mentioned analyses. One can always defend certain unusual syntactic operations by saying that they reflect the peripheral status of this construction. Closer investigation of this interrogative construction, however, suggests that it is not as "peripheral" as it looks at first sight. That is, the *wat voor*-construction syntactically behaves more "normally" than one might think. In the next sections, I will investigate certain syntactic properties of this construction more closely and show how it behaves with respect to various principles of grammar.

6.4 An alternative analysis

So far, I have discussed some basic properties of the *wat voor*-construction and three analyses of this construction which have been proposed in the literature. In this section I will present an alternative analysis of this interrogative construction. Before discussing the split pattern in section 6.6, I will undertake a closer investigation of the internal structure of the *wat voor*-phrase.

I will assume that the proper analysis for a *wat voor*-phrase like *wat voor (een) hond* (what for a dog; 'what kind of dog') is the one given below:

(21)



The interrogative element *wat* is the head of this phrase and the string *voor (een) hond* forms a PP which is base-adjoined to DP. The optional article *een* occupies the lower D-position and takes an NP-complement.[10]

Let us consider some arguments in favor of this structure. For the sake of simplicity of argumentation, I will begin with the issue of the constituenthood of the string *voor (een) N*. A first piece of evidence for the constituenthood of *voor (een) N* is the fact that it is possible to extrapose this string (i.e. can it be moved to a postverbal position). This has already been illustrated by sentence (13), repeated here as (22):

(22) *Wat* heeft Jan gekocht *voor boeken*?

As is well-known, only constituents can be moved. Notice also that the extraposability suggests that *voor (een) N* is a PP and not, for example, a noun phrase, since normally noun phrases cannot undergo extraposition in Dutch.

Another test which can be used to find out whether a sequence of elements forms a constituent is coordination. Elements that can be coordinated form constituents. Consider now the various coordination patterns that are possible with the *wat voor*-phrase.

(23) a. [[Wat voor een mannen] en [wat voor een vrouwen]] heb jij
What for a men and what for a women have you

gezien?
seen
'What kind of men and what kind of women did you see?'

b. Wat voor mannen en wat voor vrouwen heb jij gezien?
c. ? Wat voor een mannen en wat voor vrouwen heb jij gezien?
d. ? Wat voor mannen en wat voor een vrouwen heb jij gezien?

(24) a. [Wat [voor een mannen] en [voor een vrouwen]] heb jij gezien?
b. Wat voor mannen en voor vrouwen heb jij gezien?
c. ?? Wat voor een mannen en voor vrouwen heb jij gezien?
d. ?? Wat voor mannen en voor een vrouwen heb jij gezien?

(25) a. [Wat voor [een mannen] en [een vrouwen]] heb jij gezien?
b. Wat voor mannen en vrouwen heb jij gezien?
c. Wat voor een mannen en vrouwen heb jij gezien?
d. ?? Wat voor mannen en een vrouwen heb jij gezien?

The examples in (23) are coordinations of the entire DP *wat voor een N*. (24) exemplifies coordinations of the PP *voor een N*. Note that this supports the assumption that *voor een N* forms a constituent. (25), finally, illustrates coordinations of DP and N.

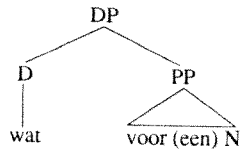
The examples (23c/d), (24c/d) and (25d) show that there is some sort of weak parallelism requirement for the coordinated conjuncts. One would expect this parallelism requirement also to hold for (25c), if this structure is analyzed as a coordination of two DPs. This structure, however, can also be analyzed as a coordination of the nouns *mannen* and *vrouwen*. In that case, there is no violation of the parallelism requirement.

Let us briefly investigate whether these coordination facts are problematic for the structures assumed by the analyses discussed in the previous sections. Consider first Den Besten's and Bennis's structure, who both assume that at D-structure *wat voor een* forms a constituent. The coordinations (24a and b) are unexpected under their analysis, it would involve coordination of two non-

constituents. The same actually holds for the coordination in (25a). In fact, the only possible coordinations according to their structural analysis of the *wat voor*-phrase (see (10)) are the ones given in (23) and (25b,c). Reuland's structure of the *wat voor*-phrase, on the other hand, is in accordance with all the possible coordination patterns given above. In his analysis, the coordinations in (23) are coordinations of NPs, those in (24) are coordinations of N'. (25a,d) can be analyzed as coordinations of N' and (25b,c) as instances of N-coordination.

So far I have motivated the fact that the string *voor een N* is a PP. I have further made the assumption that *wat* is a DP, and that PP is base-adjoined to it. The question arises whether there is any evidence for this adjunction structure. Why not assume, for example, that the PP *voor een N* is a sister of D, as in (26):

(26)



If one adopts this structure, in which *wat* is the head (D^o) of the DP, one cannot account for the extractability of the interrogative element *wat* in a straightforward way. As will be shown in more detail in chapter 7, determiners which are contained, for example, within a direct object-DP cannot be fronted to [Spec,CP], since they cannot escape the L-barrierhood of the VP via adjunction to this maximal projection.[11] Such an adjunction operation is impossible under a structure preserving requirement on adjunction operations (cf. Chomsky (1986b)). As a consequence, the trace in D-position will never be antecedent governed and therefore violate the ECP. Furthermore, if the structure preservingness hypothesis applies to substitution, the D^o cannot be moved into [Spec,CP], because that position only allows maximal projections.[12]

Of course, one could propose an analysis in which the entire DP is fronted after extraposition of the PP. Such an analysis is problematic, however. The landing site of PPs that are extraposed from within a direct object-DP in Dutch is a postverbal position (presumably adjoined to IP):

(27) ....omdat Jan [$_{VP}$ gisteren [een vaas t_i] kocht] [uit China]$_i$
....because John yesterday a vase bought from China

The following example, however, shows that in the split *wat voor*-construction the PP *voor een vaas* can occur in a preverbal (i.e. non-extraposed) position.

(28) Ik vraag me af wat$_i$ Jan [$_{VP}$ gisteren [t$_i$ voor een vaas]
I wonder REFL PRT what John yesterday for a vase

kocht]
bought

In short, deriving the split pattern via extraposition of the PP headed by *voor* is not appropriate.

An analysis of the split pattern in which first the entire DP is fronted and subsequently the PP is extraposed should also be excluded. Although we get a split pattern, the PP *voor een N* will always end up in a postverbal position, so that structures as in (28) will not be generated.[13]

Given these problems, let us return to the adjunction structure given in (21). Is there any evidence for assuming such a structure? An argument in favor of this adjunction structure comes from the behavior of certain lexical items in Dutch which typically "hang around" (i.e. are adjoined to) maximal projections: *ongeveer* (about/approximately), *zoal* (among others), *precies* (exactly), *zelfs* (even), etc. Let us call these elements "free adjuncts".[14] Consider, for example, the following sentences in which the free adjuncts either appear to the left periphery or right periphery of the maximal projection they are attached to.

(29) a. [$_{DP}$ Precies hoeveel dagen/ hoeveel dagen precies] moest hij
Exactly how-many days/ how-many days exactly had he

in bed blijven?
in bed to-stay

b. [$_{DegP}$ Ongeveer hoe groot/ hoe groot ongeveer] is Jan?
Approximately how tall/ how tall approximately is John?

c. [$_{PP}$ Ongeveer voor de helft/ voor de helft ongeveer]
Approximately for the half/ for the half approximately

had Jan het opgegeten
had John it eaten-up
'John ate more or less half of it'

These elements can appear in different positions within the *wat voor*-phrase, one of the positions being in between *wat* and the PP. Consider, for example, the following paradigm:[15]

(30) a. [Ongeveer wat voor een bedrag] heb jij uitgegeven?
Approximately what for an amount have you spent
'How much money approximately did you spend?'

b. [Wat ongeveer voor een bedrag] heb jij uitgegeven?
c. [Wat voor een bedrag ongeveer] heb jij uitgegeven?

Notice that in these sentences the *wat voor*-phrases containing the free adjunct *ongeveer* occupy [Spec,CP], which shows that these phrases really are constituents. In (30a), the free adjunct is left adjoined to the *wat voor*-phrase and in (30c) it is adjoined to the right of it. The question now arises whether in the b-sentence the free adjunct *ongeveer* is right-adjoined to the DP *wat* or left-adjoined to the PP headed by *voor*. The fact that it can reasonably well move along with the fronted interrogative element *wat*, but not with the extraposed PP *voor een bedrag* suggests that it is adjoined to the former:

(31) a. ? *Wat ongeveer* heb jij *voor een bedrag* uitgegeven?
b. * *Wat* heb jij uitgegeven *ongeveer voor een bedrag*?

Now that we know that the free adjunct *ongeveer* in the *wat voor*-phrase *wat ongeveer voor een bedrag* is base-adjoined to the maximal projection *wat* (i.e. DP), the conclusion must be that the PP headed by *voor*, which follows the DP *wat ongeveer*, is also adjoined to the maximal projection DP.[16]

Having established the internal syntax of the *wat voor*-phrase, I will turn to a discussion of the semantic and syntactic properties of the question word *wat* in the *wat voor*-construction. As far as its categorial status is concerned, it seems to be a nominal element (i.e. DP) on the basis of its identity to the question word *wat*. A piece of evidence in favor of the nominal status of *wat* comes from the categorial matching condition on free relative constructions in Dutch (cf. Bennis (1983)). In a sentence like (32), which is acceptable to my ear, the verb *speel* is followed by a free relative clause that is introduced by *wat*. Following the theory of free relatives as defended in Groos & Van Riemsdijk (1981), the constituent occupying the COMP (or better [Spec,CP]) of the free relative clause must be a noun phrase in order to fulfill the categorial matching condition, which holds on Dutch free relative constructions.[17,18]

(32) Ik speel wat deze violist voor deuntjes speelt
I play what this violinist for tunes plays
'I play the same tunes as this violinist'

Another question with respect to *wat* concerns the semantic status of this interrogative element, i.e. is it an argument (i.e. an element bearing an internal or external theta-role) or not? Notice first of all, that *wat* in the *wat voor*-construction is not a referential expression like the "normal" question word *wat*. This is shown by the fact that there is no non-interrogative counterpart of *wat* in the *wat voor*-construction.

(33) a. Wat$_i$ heeft Jo t$_i$ gekocht?
What has Joe bought

b. Jo heeft *dat* gekocht
Joe has that bought

(34) a. Wat$_i$ heeft Jo [t$_i$ voor boeken] gekocht?
What has Joe for books bought

b. * Jo heeft *dat* voor boeken gekocht
Joe has that for books bought

The nonargument status of *wat* in the *wat voor*-phrase is also suggested by some other properties of this element.[19] First, as is well-known, argument noun phrases behave differently from nonargument noun phrases as far as the extractability out of wh-island configurations is concerned. Extraction of argument phrases from within wh-islands is better, for example, than removal of nonargument-phrases from within the same configuration. Argument extractions only yield violations of the Subjacency Condition, whereas nonargument-extractions violate both the Subjacency Condition and the ECP (see Chomsky (1986b)). Consider now the following sentences (see also Coopmans (1988)):

(35) a. ?? [Wat]$_i$ vraag jij je af [$_{S'}$ wanneer Jo t_i gekocht heeft]?
What wonder you REFL PRT when Joe bought has
'What do you wonder when Joe bought?'

b. * [Wat]$_i$ vraag jij je af [$_{S'}$ wanneer Jo [t_i voor boeken]
What wonder you REFL PRT when Joe for books

gekocht heeft]?
bought has
'What kind of books do you wonder when Joe bought?'

In (35a), the pronominal argument *wat* has been moved out of a wh-island, yielding a subjacency violation. Sentence (35b), in which the wh-element *wat* of the *wat voor*-phrase has been reordered out of a wh-island, is much worse. The strong ungrammaticality suggests that the wh-element *wat* in this construction is a nonargument; extraction of this element across a wh-island violates both the Subjacency Condition and the ECP. Since the [Spec,CP] of the embedded clause is filled by *wanneer*, there is no local antecedent governor for the intermediate trace of the fronted nonargument *wat*, which is adjoined to VP.

Second, the gap left behind after removal of *wat* from within the *wat voor*-phrase cannot license a parasitic gap, as is shown by (36). Fronted argument-noun phrases, on the other hand, can be the antecedent for a parasitic gap. This is shown in (37), where the interrogative argument *wat* has been fronted. This asymmetry suggests that the question phrase *wat* in the *wat voor*-phrase is not an argument expression.

(36) * Wat$_i$ heeft Jo [zonder [e_i voor tijdschriften] te lezen]
What has Joe without for magazines to read

[t_i voor boeken] weggegooid?
for books thrown-away

(37) Wat$_i$ heeft Jo [zonder [e_i te lezen]] t_i weggegooid?
What has Joe without to read thrown-away

Given these facts,[20] I will assume that *wat* is not an argument expression but a kind of interrogative nonargument expression. It is a maximal projection which is not assigned an internal or external theta-role by some theta-assigner. The entire *wat voor*-phrase, however, is an argument noun phrase requiring a theta-role.[21] The fact that movement of the entire *wat voor*-phrase only yields a subjacency violation and the fact that it can license a parasitic gap are in accordance with its argument status:[22]

(38) a. ?? [Wat voor boeken]$_i$ vraag jij je af [wanneer Jo t_i
What for books wonder you REFL PRT when Joe

gekocht heeft]?
bought has
'What kind of books do you wonder when Joe bought?'

b. Wat voor boeken$_i$ heeft Jo [zonder [e_i te lezen]] t_i weggegooid?
What for books has Joe without to read thrown-away
'What kind of books has Joe thrown away without having read
them?

Given this interpretation of *wat*, how do we analyze the PP, headed by *voor*? I assume that it behaves as a kind of secondary predicate with regard to *wat*. The interpretation of *voor een N* as a predicative phrase is justified by the fact that the preposition *voor* can head a predicate PP in other contexts as well.[23,24] This is exemplified in (39) ((39d) taken from (Overdiep (1949)):

(39) a. Ik schold hem uit [voor slappeling]
I called him PRT for weakling
'I called him a weakling'

b. Ik maaktehem uit [voor (een) bedrieger]
I called him PRT for (an) impostor
'I called him an impostor'

c. We gebruiken het [voor kippenren]
We use it for chicken-run
'We use it as a chicken-run'

In (39a-b) and (39c), the PP enters into a predication relation with the pronouns *hem* and *het*, respectively.

Notice also that the preposition *voor* can take an adjective phrase as its complement.

(40) a. Ik zie hem [voor vol] aan
I saw him for full PRT
'I consider him grown-up'

b. Ik hield het [voor waar]
I held it for true
'I took it to be true'

So, the PP headed by *voor* in (39) and (40) has the same function as the *als*-phrases in the following examples:[25]

(41) a. Ik beschouw hem [als mijn beste vriend]
'I regard him as my best friend'

b. We gebruiken het [als kippenren]
'We use it as chicken-run'

That predicative phrases can be associated with noun phrases (DPs) that are not considered true arguments is shown by the following example in which a predicative phrase headed by *als* ('like') is associated with the quasi-argument pronoun *het*:[26]

(42) Het regent [als een gek]
It rains like a fool
'It rains very heavily'

In terms of this analysis of the *wat voor*-phrase, the following two curious properties can be accounted for: (i) the absence of case assignment by the preposition *voor*; and (ii) the fact that subject-finite verb agreement appears to hold between the finite verb and the noninterrogative noun of the *wat voor*-phrase. Consider first case assignment. We have seen that one of the striking properties of the *wat voor*-phrase is the presence of the preposition *voor* which does not assign case to the noninterrogative noun. Recall that there are two nominal elements inside the interrogative phrase, namely the question word *wat* and the noun phrase (DP) following *voor*. Both need case in order not to violate the Case Filter. It should be noted that the fact that the non-argument *wat* needs case is not exceptional either. As is shown by the following examples, expletives, which also behave like nonarguments, need case as well:

(43) a. It seems that John is ill
b. * John hopes it to be true that Mary comes

In (43a), the expletive *it* (a nonargument) is assigned nominative case by INFL. Sentence (43b) is ill-formed, because the expletive *it* which is the subject of the embedded infinitival clause, is not assigned case and therefore violates the Case Filter.

I assume that *wat* in the *wat voor*-phrase receives its case in the following way: Case is assigned to the entire *wat voor*-phrase (i.e. DP) and it percolates down to the head of this phrase, i.e *wat*. How does the nominal following *voor* receive its case? I will assume that it receives its case from the DP *wat* under predication. Consider, for example, the following sentences from German:

(44) a. [Was für ein Mann] hat das Buch gelesen
What for a-NOM man has that book read

b. [Was für einen Wagen] hast du gekauft?
What for a-ACC car have you bought

c. [Mit [was für einem Mann]] hast du gesprochen?
With what for a-DAT man have you spoken

In (44a), the *was für*-phrase has been assigned nominative case by INFL. In (44b) it bears accusative case, which is assigned by the verb *gekauft*. In (44c), finally, it receives dative case from the preposition *mit*. As argued above, the case assigned to the entire *was für*-phrase percolates down to the head of the adjunction structure, i.e. the interrogative element *wat*. Now, the nominal (DP) contained within the predicative PP headed by *für* receives its case from *wat* under predication.

This case assignment procedure can be found in other predication configurations as well. So, it is not a special property of the *wat voor*-phrase. Consider, for example, the following sentences from German (cf. also Van Riemsdijk (1983), Den Besten (1989)).

(45) a. Ich behandelte [den Mann][wie [einen Bruder]]
I treated the-ACC man as a-ACC brother

b. [Er] schreit [wie [ein Rasender]]
He-NOM cries like a-NOM madman

c. Ich hörte [ihm] schreien [wie [einen Rasenden]]
I heard him-ACC cry like a-ACC madman

These sentences show that the predicate nominal after *wie* must agree in morphological case with the noun which it enters into a predication relation with. So, in fact the non-case assigning property of the preposition *voor/für* in the *wat voor/was für*-phrase is not exceptional at all. The noun phrase-complement of the preposition receives its case via a normal case assignment procedure, viz. predication.

The subject-finite verb agreement facts also follow from the predication structure. Consider again the sentences in (7), repeated here in (46):

(46) a. * Ik weet niet [*wat* voor honden] mij *heeft* gebeten
I know not what for dogs me has bitten
'I don't know what kind of dogs have bitten me'

b. Ik weet niet [wat voor *honden*] mij *hebben* gebeten
I know not what for dogs me have bitten
'I don't know what kind of dogs have bitten me'

Previous analyses have interpreted these agreement facts as evidence in favor of an analysis in which the non-interrogative noun was the head of the *wat voor*-phrase. Because of this, these analyses were forced to assume some sort of complex specifier *wat voor (een)*. It turns out that these agreement facts also follow from the analysis proposed in this section in which *wat* is the head of the *wat voor*-phrase.

Recall that the pronominal argument *wat* is [+ singular]. The same holds for its non-interrogative counterpart *het*. The inherent [+ singular] feature of the argument *het/wat* makes it impossible to combine these elements with a plural verb. This is exemplified in the following sentences:

(47) a. Het staat/*staan in de kast
It stands/*stand in the cupboard

b. Wat staat/*staan in de kast?
What stands/*stand in the cupboard

In predicative structures, however, argument pronouns such as *het* ('it'), *dat* ('dat') and *wat* ('wat') having the grammatical function of subject can co-occur with plural finite verbs. This is illustrated below:

(48) a. Het zijn/*is grote honden
It are/ *is big dogs

b. Wat worden/*wordt grote honden?
What become-pl/*become-sg big dogs

c. Dat blijven/*blijft moeilijke beslissingen
That remain/*remains hard decisions

It is typical of these predicative constructions that the predicate nominal determines the agreement relation with the finite verb. This can be formalized by having a coindexing relation between the predicate nominal and the subject through which the subject inherits the agreement features ([+ plural] in (48)) from the predicate nominal under predication.

Notice that pronouns like *het* and *wat* can also appear as subject of a [+plural] predicate *(mooie honden)* in the following small clause structures, which are also predication configurations:

(49) a. Ik vind het mooie honden
I consider it beautiful dogs
'I find these dogs beautiful'

b. Wat$_i$ vind jij t_i mooie honden?
What consider you beautiful dogs
'Which dogs do you find beautiful?'

Turning to the examples in (46), notice that the agreement facts in the *wat voor*-construction can be accounted for along similar lines. The interrogative *wat* receives agreement features from the nominal contained within the PP headed by *voor* under predication. These features percolate up to the dominating (subject)-DP (i.e. the highest DP in (21)), which enters into an agreement relation with the finite verb.

In conclusion, the property of *wat* in the *wat voor*-phrase of receiving number features from its predicate is a much more general phenomenon in Dutch. This means that the subject-finite verb agreement phenomenon need not be interpreted as an argument in favor of considering the non-interrogative noun in the string *wat voor een N* as the head of the entire phrase. It can be analyzed as an instance of the much more general phenomenon of determination of agreement through predication.

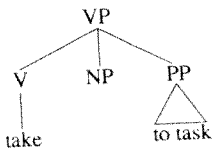
The binding phenomena can also be explained now under this analysis. Recall that the fact that a subject *wat voor*-phrase could bind the plural anaphor *elkaar* was considered an argument in favor of interpreting the non-interrogative noun within the *wat voor*-phrase as the head of the entire phrase.

(50) Wat voor jongens$_i$ hebben elkaar$_i$ geslagen?
What for boys have each other hit
'What kind of boys have hit each other?'

This binding fact, however, also follows from an analysis in which *wat* is considered the head of the entire phrase. As I have argued, *wat* can receive the [+plural]-feature from its predicate attribute under predication. This plural-feature percolates to the dominating DP, and hence the [+ plural] DP can bind *elkaar*.

Consider, finally, the property of the *wat voor*-phrase that it behaves like a fixed unit with its own specific meaning. This has been interpreted as an argument in favor of an analysis in which *wat voor een* is listed in the lexicon as a complex unit. This property, however, might be captured in the above-mentioned analysis as well by adopting Di Sciullo & Williams' (1987) proposal that phrasal constituents can be listed in the lexicon as well. They argue, for example, that an idiomatic phrase like *to take NP to task* is listed as a VP-idiom in the lexicon:

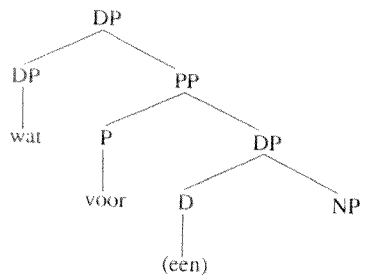
(51)



Note that this idiom contains an unfilled position, the NP-object. This position can be filled by different types of arguments. Along the same lines,

one could assume now that the *wat voor*-phrase is listed in the lexicon as follows:[27]

(52)



This concludes my discussion of the internal syntax of the *wat voor*-phrase. In section 6.6, it will be shown that on the basis of the adjunction structure defended in this section, a straightforward account can be given of the (im)possibility of the various types of discontinuous *wat voor*-phrases. In the next section, however, I will first make a comparison between the *wat voor*-construction on the one hand and the so-called *wat aan*-construction on the other hand.

6.5 The 'wat aan' construction

In this section I will compare the *wat voor*-construction with the *wat aan*-construction (meaning 'in the way of'). On the surface, the latter construction looks very similar to the *wat voor*-construction.[28] On closer examination, however, it turns out to have different syntactic properties, which suggests that it should not be treated in the same way as the *wat voor*-construction.

The parallelism between the *wat voor*-construction and the *wat aan*-construction is suggested by the following examples:

(53) a. *Wat* heeft Jan *aan boeken* gekocht?
What has John to books bought
'What did John buy in the way of books?'

b. *Wat* heeft Jan *voor boeken* gekocht?
What has John for books bought
'What kind of books did John buy?'

Upon first consideration, the split *wat voor*-construction appears to have a split *wat aan*-counterpart. It turns out, however, that the interrogative element *wat* and the PP headed by *aan*, which seems to function as a sort of secondary predicate associated with the interrogative pronoun, do not form a syntactic unit (i.e. a nominal constituent).[29] This is shown, for example, by the fact that they cannot be fronted together to [Spec,CP], as opposed to the *wat voor NP*-phrase.

(54) a. * *Wat aan boeken* heeft Jan gekocht?
b. *Wat voor boeken* heeft Jan gekocht?

The non-constituenthood of the string *wat aan N* is also shown by the fact that it cannot undergo NP-movement, as is shown by the ill-formed sentences in (55a and b), in which the string *wat aan boeken* has been moved into the subject position of a passive construction and a raising construction, respectively. The sentences in (56) show that the interrogative phrase *wat* can be moved into the subject position of IP.[30]

(55) a. * *Wat aan boeken* werd door Jan gekocht?
What to books was by John bought
'What was bought by John in the way of books?'

b. * *Wat aan boeken* schijnt door Jan te zijn verkocht?
What to books seems by John to be sold
'What seems to have been sold by John in the way of books?'

(56) a. *Wat* werd door Jan *aan boeken* gekocht?
What was by John to books bought

b. *Wat* schijnt door Jan *aan boeken* te zijn verkocht?
Whatseems by John to books to be sold

Another striking difference between the *wat voor-* and the *wat aan*-construction concerns the interpretation of the question word *wat*. In section 6.4, it was shown that in the former construction the question word behaves like a non-argument. It turns out now that *wat* in the *wat aan*-construction should be regarded as an argument (i.e. a referential expression bearing a thematic role). Its status as a referential expression is supported by the fact that there is a declarative counterpart of the *wat aan*-construction.

(57) a. Jan heeft *dit aan boeken* gekocht
John has this to books bought
'John bought this in the way of books'

b. Jan heeft *het volgende aan boeken* gekocht
John has the following to books bought
'John bought the following in the way of books'

The argument status of *wat* in the *wat aan*-construction is further shown by the fact that *wat* may be the antecedent of an anaphor.

(58) a. Wat_i heeft $zich_i$ *aan proefpersonen* beschikbaar gesteld?
What has REFL to experimental subjects available made
'In the way of experimental subjects, who have placed themselves at your disposal?'

b. *Wat*$_i$ heeft zich$_i$ *aan bacterien* verspreid?
Whathas REFL to bacteria spread
'What has spreaded in the way of bacteria?'

The fact that the interrogative phrase *wat* may appear as antecedent of PRO in this construction is also in accordance with its argument status:

(59) *Wat*$_i$ werd door Jo *aan kleren* weggegooid na PRO$_i$ 3 jaar te
What was by Joe to clothes away-thrown after 3 year to

zijn gedragen
be worn
'What was thrown away by Joe in the way of clothes after having been worn for 3 years?'

Notice also that *wat* can license a parasitic gap in the *wat aan*-construction, just like other argument noun phrases:

(60) Wat$_i$ heeft Jan [zonder aan onkosten e$_i$ kwijt te zijn geweest]
What has John without to expenses lost to have been

aan inkomsten t$_i$ binnengekregen?
to earnings got-in
'What amount of money did she earn without having spent'

Given the above considerations, it seems fair to conclude that the wh-element *wat* in the *wat aan*-construction is a pronominal argument.

In conclusion, although the split *wat voor*-construction and the *wat aan*-construction look similar superficially, they have many different properties: in the *wat voor*-construction the question word and the predicative phrase clearly form a unit. The split pattern, therefore, is the result of a subextraction operation (as we will see in the next section). In the *wat aan*-construction, *wat* and *aan NP* are generated independently of each other and the split pattern does not involve subextraction of the interrogative element *wat* out of a larger nominal constituent.

6.6 Left branch extraction in the split 'wat voor'-construction

In this section, I will proceed with an analysis of the split *wat voor*-construction. In this construction, the left branch wh-element *wat* has been reordered out of the *wat voor*-phrase. The possibility of subextracting a left branch element from within a noun phrase is exceptional in Dutch. As we will see in later chapters, many left branch extractions out of nominals are ruled out by the Subjacency Condition and the ECP. Let us now turn to some examples of the discontinuous *wat voor*-pattern and see whether the (im)possibility of the various patterns can be accounted for in terms of the Subjacency Condition and the ECP (see also Den Besten (1985)).

Consider the following examples:

(61) a. Wat$_i$ heb jij [t$_i$ voor boeken] gelezen?
What have you for books read
'What sort of books have you read?'

b. Wat$_i$ ben jij [[t$_i$ voor talen] machtig]?
What are you for languages competent
'What sort of languages do you master?'

c. * Wat$_i$ hebben [t$_i$ voor mensen] hun huis verkocht?
What have for persons their house sold
'What kind of people have sold their house?'

d. * Wat$_i$ heb jij [op [t$_i$ voor iemand]] gerekend?
What have you on for someone counted
'What kind of person have you counted on?'

In (61a), *wat* has been reordered out of a direct object *wat voor*-phrase. Neither the Subjacency Condition nor the ECP is violated, since the fronted *wat* can reach the [Spec,CP] without crossing any L-barrier (i.e. a maximal projection which is not L-marked). The direct object-DP itself is L-marked (i.e. assigned a theta-role by a lexical category) and therefore not an L-barrier. The potential barrierhood of VP can be voided via adjunction to it, and IP is not an L-barrier (although a BC) by stipulation.

In (61b), *wat* has been removed from within the DP-complement of the adjective *machtig*. It can be fronted to [Spec,CP] without violating ECP or subjacency in the following way: It can leave the object-DP, which is L-marked by the adjective, and subsequently move to [Spec,CP] via intermediate adjunctions to AP and VP, which are both non-argument type categories and therefore can function as hosts for adjunction operations.

Sentence (61c) involves extraction of *wat* from within the subject-DP. Note that the subject-DP is not L-marked and therefore is an L-barrier. Movement of *wat* to [Spec,CP] does not strongly violate subjacency, however, since it crosses only one L-barrier, viz. IP, which inherits barrierhood from the subject-DP. Notice that the subject-DP is not an L-barrier for *wat*, since *wat* is not dominated by this category because only one segment of DP contains *wat*. Although subextraction does not violate the Subjacency Condition, it violates the ECP. The moved question word *wat* occupying [Spec,CP] does not antecedent govern the trace within the DP, because IP is an intervening L-barrier.

In (61d), *wat* has been removed from within the DP-complement of a preposition. DP is L-marked by the P, and the PP is L-marked by the verb. So, *wat* can move to [Spec,CP] via adjunction to VP, without violating subjacency. Notice, however, that this extraction violates ECP. Of course, not because of the intervening L-barriers, as we have just seen, but because of minimality. Note that the moved *wat* cannot adjoin to PP, since the latter is

an argument type category. Hence, the first adjunction site is VP. The intermediary trace adjoined to VP does not antecedent govern the trace in DP, because PP is a M-barrier. It is a M-barrier, because it contains (i) the trace itself, (ii) a maximal projection including the trace (namely PP), and (iii) a head c-commanding the trace (i.e. P).

Consider also the ill-formedness of the discontinuous patterns in (62b,d):

(62) a. *Wat voor een boeken* heb jij gekocht?
What for a books have you bought

b. * *Wat voor een* heb jij *boeken* gekocht?
c. * *Wat voor* heb jij *een boeken* gekocht?
d. *Wat* heb jij *voor een boeken* gekocht?

In (62a) the entire *wat voor*-phrase is fronted, and in (62d) only the interrogative phrase *wat*. (62b and c) are ruled out by the principle of grammar which states that non-constituents cannot undergo movement operations. The strings *wat voor een* and *wat voor* do not form constituents and therefore cannot be extracted.

The ill-formedness of sentence (19b), repeated here as (63), is also due to the fact that a non-constituent has been fronted.

(63) * *Op wat* heb jij *voor hert* geschoten?
On what have you for deer shot

In conclusion, the presence or absence of split *wat voor*-phrases in various syntactic environments can be accounted for in terms of the Subjacency Condition and the ECP on the basis of the internal structure of the *wat voor*-phrase which has been defended in this chapter.

6.7 Conclusion

This chapter discussed the internal syntax and the movement behavior of *wat voor*-phrases in Dutch. At first sight it appears to be a phrase with many exceptional properties, but upon closer investigation it turns out to behave regularly in many respects. On the basis of the adjunction structure assumed for the *wat voor*-phrase, an analysis was presented of the split *wat voor*-phrase.

Notes to chapter 6

1. See Den Besten (1985) on German, and Lie (1982) on Norwegian.

2. Note that the preposition is part of the complex specifier. One could argue that the preposition *voor/für*, being part of the specifier, cannot govern the nominal element following the preposition and therefore cannot assign case to it.

3. That subject-finite verb agreement is not defined at D-structure but at a level after application of syntactic movement is suggested, for example, by passive and raising constructions. In these constructions a noun phrase (DP) is moved to the subject-position ([DP,IP]), which is empty at D-structure:

(i) a. $John_i$ seems [t_i to come]
b. $They_i$ seem [t_i to come]

(ii) a. $John_i$ was killed t_i
b. $They_i$ were killed t_i

After the DP has been raised into the subject-position, the agreement-relation (3sg in (ia) and (iia) and 3pl in (ib) and (iib)) between the finite verb and the subject can be defined.

4. For some speakers of Dutch I consulted, these sentences sound odd. They agreed, however, that they are much better than sentences in which a noun phrase is extraposed (as in (i)):

(i) * Jan heeft t_i gekocht [deze boeken]$_i$
John has bought these books

5. Den Besten's analysis uses a pre-Barriers definition of the Subjacency Condition. NP and S are considered the bounding nodes for Dutch.

6. A way out would be to say that the chain (V,P) can only be built if the two lexical items govern in the same direction (cf. a.o. Koster (1987) and Bennis & Hoekstra (1984) for approaches to the distribution of empty categories which are based on directionality of government). Since the trace of the fronted *wat* appears in a position to the left of the preposition *voor*, which is the head of [-V]^3, one could propose that the trace is accessible for proper government by the verb via the chain (V,P).

(i) [$_{VP}$ [$_{[-V]^3}$ wat voor boeken] V]
←—— ←——

The nonextractability of right branch complements in Dutch (as in (14)) would now be due to the fact that a chain cannot be built, because the V and the P govern in opposite directions.

Although this directionality requirement on chain formation might work for the *wat voor*-construction in Dutch, it does not for a language like Norwegian. In this language, the verb governs to the right. Since the trace of the extracted wh-element *hva* is to the left of the preposition *for*, which heads the *hva for*-phrase, no chain (V,P) can be built, if the directionality requirement holds on chain formation.

(ii)
[$_{VP}$ V [$_{[-V]^3}$ hva for bøker]]
——→ ←——

Hence, the prediction would be that *hva* cannot be extracted, because its trace cannot be properly governed. As we have seen in section 6.1, however, Norwegian also has a split *hva for*-phrase, which makes the directionality requirement on chain formation less plausible.

7. For recent views on reanalysis, see a.o. Haegeman & Van Riemsdijk (1986) and Di Sciullo & Williams (1987). My criticism of Bennis's (1983) reanalysis approach to the split *wat voor*-construction only applies to the theory of reanalysis presented in that article. Given the fact that the split pattern can be accounted for without making use of reanalysis (see section 6.6), I will not investigate the possibility of explaining the discontinuous pattern by making use of one of the above-mentioned views on reanalysis.

8. According to the (pre-Barriers) notion of subjacency which is assumed in Bennis's analysis, NP and S are the bounding nodes in Dutch.

9. Bennis's (1983) analysis uses a clausal structure in which S' dominates COMP and S, and S expands into NP and VP.

10. One might propose that in sentences like (ia) the NP selected by the determiner *een* is headed by an empty [+ singular] head noun which in turn selects the nominal complement *honden* (as in (ib)):

(i) a. [Wat voor een honden] heb je gezien?
What for a dogs have you seen
'What kind of dogs did you see?'

b. $[_{DP}$ Wat $[_{PP}$ voor $[_{DP}$ een $[_{NP}$ $[_{N}$ 0] [honden]]]]]

By assuming this empty head, the number agreement relation between the determiner D and the head of the selected NP is regular, i.e. a [+ singular] determiner selects an NP headed by a [+ singular] nominal head. If the plural NP *honden* was the head of the NP selected by D, one would have to account for the exceptional possibility of combining a [+singular] determiner with a [+ plural] NP.

Notice also that the structure given in (ib) appears to be supported by the existence of *wat voor*-phrases as in (ii), in which the headnoun position is lexically filled, creating some sort of partitive relation between the headnoun and its complement:

(ii) [Wat voor (een) soort honden] heb je gezien?
what for a sort (of) dogs have you seen
'What kind of dogs did you see?'

If one adopts such an analysis, however, one is forced to assume an empty [+ singular] N which takes the plural nominal *soorten honden* as its complement in the following sentence:

(iii) [Wat voor een soorten honden] heb je gezien?
What for a sorts (of) dogs have you seen
'What kind of dogs did you see?'

Notice now that sentence (iii) does not have a corresponding structure in which the N-position is lexically filled:

(iv) *? [Wat voor een soort soorten honden] heb je gezien
What for a sort (of) sorts (of) dogs have you seen
'What kinds of dogs did you see?'

An alternative analysis of the article *een* in the *wat voor*-phrase *wat voor een honden* would be to say that it has lost is [+ singular] interpretation and has become a fixed part of the complex interrogative string *wat voor een* (see als Duinhoven (1988)). Recall also that the exclamative article *een* could als take [+ plural] complements.

11. The frozen character of determiners in Dutch is exemplified in (i):

(i) * De/Deze$_i$ heb jij $[_{DP}$ t_i honden] gezien?
The/These have you dogs seen
'You saw the/these dogs'

For further discussion of the frozen character of determiners, see chapter 7.

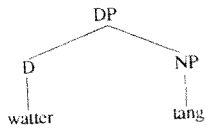
12. De Vooys (1967) argues that the interrogative pronouns *waffer* and *watter* ('what') in Afrikaans arose from *wat + voor*. Consider now the following facts from Afrikaans:

(i) a. [Watter tang] moet ek gebruik? (Ponelis (1979))
What pincers must I use

b. * Watter$_i$ moet ek [t_i tang] gebruik?

(ib) shows that the left branch question element cannot be fronted. Under the assumption that *watter* is an interrogative determiner occupying the D^o-position (as in (ii)), the nonextractability of this element can be accounted for in the following way: Being an X-zero category, *watter* cannot adjoin to VP under the structure preservingness requirement on adjunction operations and therefore cannot escape the L-barrierhood of this category. Hence, moving the X-zero category across VP yields an ECP-violation. Furthermore, the X-zero category would not be able to land in [Spec,CP], under the assumption that only maximal projections can land in that position.

(ii)



13. Of course, one could propose an analysis in which an empty PP-slot is base-generated to the right of the *wat voor*-noun phrase and to the left of the final verb. The split *wat voor*-phrase could then be derived as follows: First, the PP headed by *voor* is substituted for the empty PP-slot. Next, the entire *wat voor*-phrase containing the empty PP is moved to [Spec,CP].

An obvious problem for such an analysis, however, is the fact that ill-formed sentences like (ib) would also be derivable:

(i) a. Ik vraag me af [wiens geschiktheid [voor dit werk]]$_i$ hij t_i
I wonder REFL PRT whose capability of this job he

betwijfelde
doubted

b. * Ik vraag me af [wiens geschiktheid t_j]$_i$ hij t_i [voor dit werk]$_j$
I wonder REFL PRT whose capability he of that work

betwijfelde
doubted

In sentence (ia), the entire direct object noun phrase has been moved to the [Spec,CP] of the embedded CP. Notice now that analogously to the above-mentioned analysis of the split *wat voor*-construction, the ill-formed structure (ib) could be derived as follows: first the PP-complement *voor dit werk* is moved into a base-generated empty PP-slot. Then the entire noun phrase (including the trace of the moved PP) is moved into the [Spec,CP]-position of the embedded clause. This problem makes the above-mentioned analysis of the split *wat voor*-construction less plausible.

14. De Groot (1949; 95-96) calls these lexical items "bepalingspartikels" ('adjunct-particles') and Van der Lubbe (1978[3]; 158-160) calls them "vrije bepalingen" ('free adjuncts').

15. I should say that speakers of Dutch sometimes differ in their judgments of these sentences. This is related to the fact that for some speakers these 'free adjuncts' have a greater freedom of position than for other speakers. All speakers I have consulted, however, agree that a sentence like (30b) is much better than, for example, the b-sentence in the following paradigm:

(i) a. [Ongeveer welk bedrag] heb je uitgegeven?
Approximately what amount have you spent

b. * [Welk ongeveer bedrag] heb je uitgegeven?
c. [Welk bedrag ongeveer] heb je uitgegeven?

In (ia) and (ic), the free adjunct *ongeveer* is respectively left-adjoined and right-adjoined to the DP which is headed by the determiner *welk*. The ill-formedness of (ib) is caused by the fact that the NP-complement *bedrag*, which is selected by the determiner *welk*, is not a sister of this functional category because of the intervening free adjunct that is adjoined to DP.

16. Notice also the following orders:

(i) a. *Wat* heb jij *ongeveer voor een bedrag* uitgegeven?
b. *Wat* heb jij *ongeveer* uitgegeven *voor een bedrag*?
c. *Wat ongeveer* heb jij uitgegeven *voor een bedrag*?

In (ia), the interrogative element *wat* has been moved into [Spec,CP], leaving behind the free adjunct *ongeveer*. In (ib), the PP headed by *voor* has been extraposed and *wat* has been fronted. In (ic), the PP is extraposed and *wat* is moved to [Spec,CP] together with the free adjunct *ongeveer*. All speakers I have consulted, consider (ia) well-formed. The sentences (ib) and (ic) are less acceptable for those speakers who do not permit extraposition of the PP *voor een bedrag*.

17. Bennis (1983) gives the following example:

(i) 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)

18. According to the matching requirement, the categorial status of the wh-phrase in COMP of the free relative clause must be the same as the categorial status of the entire free relative construction as required by the matrix clause. So, in (32), the wh-phrase must be a noun phrase, because the verb *speelt* requires a noun phrase complement in this sentence.

19. The interrogative *wat* also behaves as a nonargument expression in constructions in which it has a measure phrase meaning:

(i) Ik vraag me af wat_i Jan t_i weegt
I wonder REFL PRT what John weighs
'I wonder how much John weighs'

I will briefly come back to this type of construction in chapter 8.

20. Another argument suggesting that *wat* in the *wat voor*-phrase is not an argument expression comes from Ross's (1983) observation that negation interferes with removal of a nonargument while it leaves unaffected the extractability of argument expressions. The following examples show that the argument *wat* can be extracted from the scope of a negative operator, whereas the nonargument *wat* of the *wat voor*-phrase cannot:

(i) a. Wat_i wist Jan niet dat ie t_i moest lezen?
What knew John not that he had-to read

b. *? Wat_i wist Jan niet dat ie [t_i voor boeken] moest lezen?
What knew John not that he for books had-to read

21. Another configuration in which a theta-marked maximal projection is headed by a non-theta-marked maximal projection is the small clause construction. In Chomsky (1986b, 85), it is argued that in a small clause construction like (i), the lower maximal projection AP, which is the head of AP', does not receive a theta-role, whereas the higher AP' is assigned a theta-role by the matrix verb *consider*.

(i) I consider [$_{AP'}$ Bill [$_{AP}$ angry at Tom]]

22. Note that the entire *wat voor*-phrase can also be moved across a negative operator, which also supports its argument status:

(i) Wat voor $boeken_i$ wist Jan niet dat ie t_i moest lezen?
What for books knew John not that he had-to read

23. In English, the preposition *for* can also be used as a predicative adjunct, as is shown by the following example:

(i) a. John mistook her [for a foreigner]
b. They had duck [for dinner] yesterday
c. I told her what I want [for a present]
d. I knew him at once [for a burglar]

Also in German, the preposition *für* can be used as a secondary predicate:

(ii) a. Ich halte ihn [für einen Dieb]
I took him for a thief

b. Ich nehme ihn [für voll]
I took him for full
'They consider him grown-up'

24. In Van Es & Van Caspel (1971-1975), it is argued that the *wat voor*-construction arose in the Middle Dutch period from the junction of two separate constituents, the question word *wat* and a PP headed by *voor*, which had the function of a predicative adjunct (cf. also Overdiep (1949)). Van Es & Van Caspel (p. 509) quote the following fragment from Middle Dutch, which shows the predication relation between the question word and the PP:

(i) *Wat* daer *voor vonnesse* worde gesproke, ... (Heelu 1613)
What there for judgement was spoken
'What was given there as judgement'

The PP headed by *voor* referred to a relation of "equivalence". *Wat* is the subject of the predication and *voor NP* is the predicate.

At a stage after the Middle Dutch period (cf. Duinhoven (1988)) the string *wat voor N* is reinterpreted. The question word *wat* and the PP headed by *voor* become a unit with the meaning of 'what kind of'.

25. Notice that many of these predicative PPs contain a noun phrase (DP) in which the indefinite article is optionally present.

(i) a. Karel leeft als (een) kluizenaar
Charles lives as (a) hermit

b. Ik neem dit mee als (een) aandenken
I take this with-me as (a) souvenir

c. Ik maakte hem uit voor (een) bedrieger
I called him PRT for (an) impostor
'I called him an impostor'

The optional presence of the indefinite article *een* can still be found in the interrogative *wat voor (een)*-phrase.

26. Sportiche (1983) argues that *weather*-verbs in Dutch, contrary to those in English, are verbs without any theta-marking properties. This conclusion is based on the fact that it cannot function as a controller of PRO:

(i) * Het regent hier altijd [na PRO gesneeuwd te hebben]
It rains here always after snowed to have
'It is always raining here after snowing'

If this analysis is correct, then (42) would be an example of a secondary predicate which is related to a true nonargument. See, however, Bennis (1986) for an alternative analysis of *weather*-verbs.

27. Notice that the preposition *voor*, heading a predicative phrase, also appears in VP-idioms:

(i) a. Iemand voor de gek houden
someone for the fool take
'to pull a person's leg'

b. Iemand voor lul laten lopen
someone for prick let walk
'to send a person on a fool's errand'

c. Iemand voor aap zetten
someone for ape put
'to make a person look silly'

28. Krijgsman (1982), for example, interprets them as phrases having the same properties.

29. That the *aan*-phrase behaves as a predicative phrase associated with the interrogative element *wat* is also shown by their co-occurrence in absolute *met* ('with')-constructions:

(i) a. [Met [dit aan geld]] is hij naar Frankrijk vertrokken
With this to money has he to France gone
'He went to France with this in the way of money'

b. [Met [wat aan geld]] is hij naar Frankrijk vertrokken?
With what to money has he to France gone
'With what did he go to France in the way of money?'

Absolute constructions are typical predication configurations (see a.o. Van Riemsdijk (1978) for a discussion). *Dit* and *wat* function as the subject of the absolute constructions in (i), and the PP headed by *aan* as the predicative phrase.

30. To be more precise, the interrogative element *wat* occupies the [Spec,CP]-position in (55). After having been moved into [Spec,IP] to receive nominative case, *wat* is moved to [Spec,CP].

7 DETERMINER, DEGREE WORD AND POSSESSOR EXTRACTIONS

7.1 Introduction

In this chapter, I will investigate the impossibility of removing left branch determiners, degree words and possessors in languages such as Dutch and English.[1] The organization of this chapter is as follows. Section 7.2 presents an analysis of the frozen character of determiners and degree words. It will be argued that their nonextractability is due to their head status. Section 7.3 discusses the inaccessibility of possessor noun phrases to movement operations. In section 7.3.1, it will be shown that the frozen character of these possessors cannot be accounted for in terms of the Subjacency Condition, ECP or Uniformity Condition under a traditional NP-structure. Section 7.3.2 presents an analysis of the nonextractability of these possessors under a DP-hypothesis. Section 7.3.3 examines the frozen character of left branch possessors that are part of a doubling possessive construction in a number of Germanic languages. In section 7.4, some well-known left branch extraction operations (e.g. *combien*-extraction in French) from within noun phrases and adjective phrases will be discussed briefly.

7.2 Determiner and degree word extractions in Dutch and English

In this section, I will give an account of the nonextractability of determiners and degree elements in English and Dutch. The frozen character of these categories is exemplified in (1) and (3) for English, and in (2) and (4) for Dutch:

(1) a. * The$_i$ I saw [t$_i$ picture of Mary]!
b. * That$_i$ I saw [t$_i$ picture of Mary]!
c. * Which$_i$ did you see [t$_i$ picture of Mary]?

(2) a. * De$_i$ zag ik [t$_i$ hond van Jan]!
The saw I dog of John

b. * Die$_i$ zag ik [t$_i$ hond van Jan]!
That saw I dog of John

c. * Welke$_i$ zag jij [t$_i$ hond van Jan]?
Which saw you dog of John

(3) a. * So$_i$ is John [t$_i$ proud of Mary]!
b. * That$_i$ John is [t$_i$ proud of Mary]!
c. * How$_i$ is John [t$_i$ proud of Mary]?
d. * As$_i$ is John [t$_i$ strong as Bill]!

(4) a. * Zo$_i$ is Jan [t$_i$ bang voor honden]!
So is John afraid of dogs

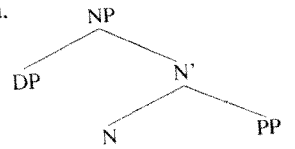
b. * Te$_i$ is Jan [t$_i$ bang voor honden]!
Too is John afraid of dogs

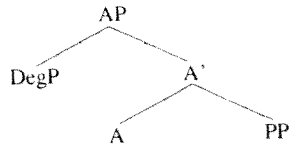
c. * Hoe$_i$ is Jan [t$_i$ bang voor honden]?
How is John afraid of dogs

d. * Even$_i$ is Jan [t$_i$ bang voor honden als Piet]
As is John afraid of dogs as Pete

Before turning to an analysis of these facts in terms of a DP- and DegP-structure, I will discuss possible approaches to the immobility of these elements in terms of a traditional NP- and AP-structure.

Under a traditional NP- and AP-structure, it is generally assumed that determiners and degree elements occupy the specifier position, i.e. the position immediately dominated by the maximal projection XP, except X' (cf. e.g. Jackendoff (1977)).

(5) a.


b.


The question arises whether under such an analysis the nonextractability of DP and DegP can be accounted for in terms of the Subjacency Condition and/or the ECP as formulated within the Barriers system.

The Determiner Phrase (DP) extractions in (1) and (2) are not ruled out by the Subjacency Condition. Notice, that the determiners are reordered out of a direct object-NP. Since a direct object-NP is L-marked, it does not form a barrier. So, the determiner can leave the containing NP without crossing an L-barrier. By first adjoining to VP, the DP can move upwards to its ultimate landing site, the specifier of CP. Since no L-barriers intervene between the links of the chain of the fronted DP, no subjacency violation is involved in (1) and (2).

Removal of the left branch Degree Phrase (DegP) as in (3) and (4) is not excluded either by the Subjacency Condition. Under the assumption that AP is not L-marked by the copula, AP is a BC and an L-barrier. Since AP is a nonargument type category, the fronted DegP can void the barrierhood of this category by adjoining to it and reach the [Spec,CP] via subsequent adjunction to VP, without crossing any L-barrier.

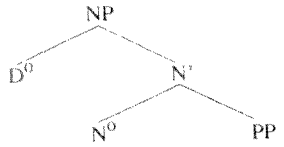
Extraction of determiners and degree elements does not yield an ECP-violation either. The DP-trace in the specifier position of the noun phrase will be antecedent governed by the intermediate trace which occurs in a position adjoined to VP. The same reasoning holds as above: No L-barrier intervenes between the trace in specifier position and its antecedent, since

the containing direct object NP is L-marked. The derivation of this structure is not excluded by the ECP via minimality either: The NP dominating the determiner does not count as a M(inimality)-barrier, since it does not contain a head c-commanding the trace.[2] The lower VP-segment which intervenes between the DP-trace occupying the [Spec,NP] and the antecedent-DP adjoined to VP does not count as a M-barrier excluding the antecedent-DP either.[3]

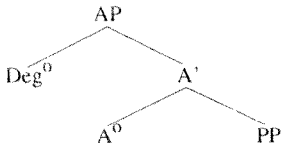
The DegP-trace occupying the specifier position of the AP is also accessible to antecedent government. The intermediate trace in the AP-adjoined position locally identifies the trace in the specifier position. The lower AP-segment does not count as an intervening L-barrier or M-barrier, since it does not exclude the antecedent trace which is adjoined to AP.

One approach to the nonextractability of determiners and degree elements from within NPs and APs would be to say that it is due to the categorial status of these elements. It could be argued, for example, that these elements are X^o-categories (as in (6)), and as such cannot be adjoined to dominating L-barriers (e.g. VP) under a structure preservingness requirement on adjunction operations.[4] Consequently, the barrierhood of dominating maximal categories cannot be voided. Direct removal of D^o and Deg^o from VP will yield an ECP violation because there is no local antecedent to properly govern the trace of the fronted determiner or degree word. Furthermore, if determiners and degree words are X^o-categories, they can never be moved into [Spec,CP] under the assumption that only maximal projections can occupy this position (cf. Chomsky (1986b)).

(6) a.



b.



The assumption that determiners and degree words are X^o-categories has several drawbacks, however. First of all, it is not clear why functional categories like I^o and C^o should be able to project to a maximal projection, but not D^o and Deg^o. Secondly, it is generally assumed in most versions of X-bar theory that satellite positions (i.e. complement, adjunct, specifier) are positions occupied by maximal projections (cf. Stowell (1981), Chomsky (1986b)). Thirdly, if it is assumed that determiners and degree words are X^o-categories, why can the specifier position that these elements occupy also be filled with constituents which are clearly maximal projections? Consider, for example, the following well-known facts from English and Dutch:

(7) a. I saw [*the man with the beard's* dog]
b. I saw [a [*much too much too* tall] man]

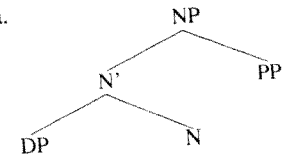
(8) a. [*Wiens vaders* broer] heb je gezien?
Whose father's brother have you seen

b. [Jan is [*net zoveel cm als Karel* te klein]
John is just as-many cm as Charles too small

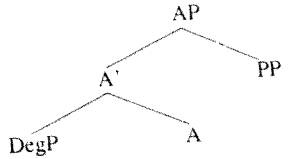
Given these objections, an analysis based on a traditional NP-/AP-structure, which attributes the immobility of determiners and degree words to their status as null categories, seems to be somewhat problematic.

An alternative approach to the frozen character of determiner and degree words would be an analysis which starts from the assumption that these elements are sisters of the head of the containing projection:[5]

(9) a.



b.



If one adopted a definition of minimality which states that the first projection of a head (N'/A') is a M-barrier (cf. Chomsky (1986b)), then removal of DP and DegP from within NP and AP respectively would violate the ECP by minimality. Notice that under this analysis, theta role assignment to the argument-PP no longer takes place under sisterhood, unless sisterhood is defined in a different way. It could be proposed, for example, that A is a sister to B if they are dominated by the same maximal projections. In that case, the heads N and A can still assign a theta role to their argument-PP.

Notice also that this structure has several consequences for the Binding Theory:

(10) a. Their$_i$ stories about each other$_i$
b. * Their$_i$ stories about them$_i$

The Binding Theory requires that anaphors (e.g. *each other*) be bound in their governing category, and that pronouns (e.g. *them*, *their*) be free in their governing domain. An element A is said to bind an element B if A c-commands B and is co-indexed with B. Notice that adoption of an NP-structure in which the possessive pronoun *their* is sister of the head has severe consequences for the Binding Theory. In (10a), for example, *their* incorrectly would not bind *each other*, because it does not c-command this anaphor. One would further make the incorrect prediction that in (10b) *their* and *them* can enter into a binding relation, because *their* does not c-command *them* and *them* does not c-command *their*. In other words both pronouns are free in their governing category, if a structure as in (9a) is assumed.

Notice further that an analysis in which a determiner is a sister of the noun implies that attributive adjective phrases in strings like *a big red car* are sisters of the noun as well. So, the determiner and the adjective phrases are daughters of the same node, viz. the immediate projection of the nominal head.

Such a flat structure, however, is problematic for the well-known *one*-pronominalization facts. Consider the following examples:

(11) a. John bought *a big red car* and Mary bought *one* too
b. John bought a big *red car* and Mary bought a small *one*
c. John bought a big red *car* and Mary bought a small yellow *one*

Given the fact that a proform like *one* can only take a syntactic constituent for its antecedent, one would expect under an analysis in which the determiner and the attributive adjectives are all sisters of N^o that this proform can only replace the entire noun phrase *a big red car* as in (11a) or the noun *car* as in (11c), but not the string *red car* as in (11b), since this string does not form a constituent. Of course, the pronominalization in (11b) is permitted as well, which suggests that a structure as in (9a) should not be adopted. Of course, the pronominalization facts above follow from a DP-structure as assumed in this study: The sentences (11a,b,c) involve replacement of the constituents DP, N' and N, respectively.

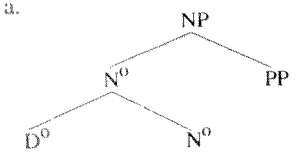
Let us next consider (9b). The following pronominalization fact seems problematic for this structure.

(12) John was [*very afraid of the pope*], but [much less *so*] was the archbishop of Canterbury

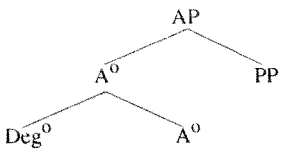
In this sentence, the string *afraid of the pope* has been replaced by the proform *so*. This pronominalization fact is problematic for structure (9b), since it would involve replacement of a string which does not form a constituent by the proform *so*. So, it would not be in accordance with the general assumption that *so* can only replace constituents. Under a DegP-structure as assumed in this study, the pronominalization in (12) involves replacement of the AP *afraid of the pope*, which is selected by the Deg^o *less*.

Before presenting an analysis of the nonextractability of determiners and degree words in terms of the DP- and DegP-structures assumed in this study, I want to mention a last potential approach to the frozenness of these elements, which is based on the assumption that they should be analyzed as forming compounds with the nominal and the adjectival head respectively (cf. Stowell (1981)). In other words, the sequences D^o-N^o and Deg^o-A^o would be formed by the word-formation rules rather than by the rules and principles of syntax.

(13) a.



b.



Taking these structures as point of departure, one could account for the nonextractability of determiners and degree words in terms of the Lexical

Integrity Hypothesis, which states that syntactic rules (Move alpha) cannot make reference to any aspect of the internal structure of a word. So, determiners and degree words, being part of a word-structure, are inaccessible to syntactic movement.

The hypothesis that the determiner forms a word with the noun has some problems, however. A first problem is the fact that categories which are generated in the syntactic component can intervene between the determiner and the noun, as in *a very big car*, for example. Of course, one could say that this string is built in the word-formation component as well: the adjectival modifier forms a nominal compound with the noun *car*, and the determiner *a* forms a more complex noun. In chapter 10, however, it will be shown that this analysis of prenominal attributive adjective phrases is untenable and that these phrases are generated in the syntax. This is especially clear in Dutch, where really complex adjective phrases can appear in between the article and the nominal head of the noun phrase. Consider, for the moment, (14) which clearly makes it dubious to argue that Dutch attributive modifiers should be analyzed as being part of a nominal compound:

(14) een [$_{AP}$ in het geheim op Julia verliefde] man
a in the secret with Juliet in-love man
'a man who is secretly in love with Juliet'

If attributive APs in Dutch are maximal projections and if maximal projections cannot be part of a compound noun, then the hypothesis that an attributive adjectival element is part of a compound noun can not be hold.

That determiners should not be analyzed as left branch members of compounds is also suggested by the fact that they can be separated from the nominal head by parentheticals. This is shown for Dutch and English in (15a) and (15b), respectively ((15b) taken from Siewierska (1987)).

(15) a. Marie is de, wat ze wel noemen, grootste saio van de klas
Mary is the, what they often call, biggest bore of the class

b. the, as you might say, sleeping partner

This separability of the determiner and the noun is unexpected if they build a compound, since generally compounds cannot be broken open by parenthetical phrases.

(16) a. * Ik heb met een groente - geloof ik tenminste - boer gesproken
I have with a green believe I at-least grocer spoken

b. * He is a cave - what people sometimes call - dweller

This different behavior between determiners on the one hand and members of compounds on the other at least suggests that they should not be treated in the same way.

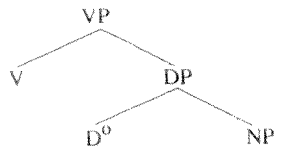
The following example from Dutch shows that it is also incorrect to interpret the sequence degree word-adjective as a compound:

(17) [Veel minder [PP daarvan] afhankelijk] was Jan!
Much less thereon dependent was John

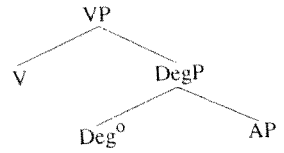
In this string, the degree word *minder* is separated from the adjective *afhankelijk* by the PP-complement of the adjective. Presumably, this PP-complement hangs from the category A'. Hence, the degree word *minder* cannot form a word-category with the adjective.

I will now turn to an account of the nonextractability of determiners and degree words in terms of a DP- and DegP-structure. Consider the following structures:

(18) a.



b.



Removal of the determiner and the degree word Deg is an instance of head movement. As such, movement of these elements are subject to the Head Movement Constraint (HMC), which has been proposed by Travis (1984) and later has been reduced to the ECP by Baker (1988). In Chomsky (1986b), the following definition of the HMC is given:

(19) **Head Movement Constraint** (Chomsky (1986b, 71))

Movement of a zero-level category **b** is restricted to the position of a head **a** that governs the maximal projection **g** of **b**, where **a** theta-governs or L-marks **g** if **a** is not C

Direct removal of the X°-categories D° and Deg° to the left periphery of the clause is not permitted. Consider first removal of the degree word, as in (3) and (4). Suppose the verb is a copular verb, which does not L-mark the DegP since it is not a theta-assigning verb. In that case the DegP is an L-barrier. So, direct removal of the degree word to the left periphery of the clause will violate the ECP, since the L-barrier DegP (but also the intermediate L-barriers VP and IP, the latter by inheritance) will block antecedent government of the initial trace. Direct fronting also violates minimality. VP is a M-barrier including the Deg°-trace, but excluding the fronted antecedent governor (i.e. the degree word). It is a M-barrier, since it contains the trace (i.e. the trace in Deg-position), a c-commander of the trace (viz. V°) and a maximal projection including the trace (viz. DegP). Besides the ECP, the Subjacency Condition is violated. The fronted degree word crosses the L-barriers DegP, VP and IP (the last one by inheritance).

Direct fronting of a determiner to [Spec,CP] is ruled out by the same conditions. Suppose the determiner is extracted from a direct object-DP (see (1)-(2)). Although DP does not count as an L-barrier (since it is L-marked), VP and IP (the latter by inheritance) are L-barriers blocking antecedent government of the initial trace by the fronted determiner. ECP is also violated via minimality, because the M-barrier VP includes the trace of the determiner, but excludes the antecedent (i.e. the fronted determiner itself). Finally, the Subjacency Condition is violated, since direct fronting crosses the L-barriers VP and IP.

The question, of course, arises whether the fronted D° and Deg° can escape the barrierhood of intervening categories by moving in successive steps to the left periphery of the clause. Notice that the determiner and the degree word, being X-zero categories, cannot void the barrierhood of intervening maximal projections by adjoining to them, since this would violate the structure preserving requirement that X-zero categories can only be adjoined to other X-zero categories, and hence not to maximal projections. So, in configuration (18a), the determiner cannot escape the barrierhood of the VP via adjunction to this maximal projection. In (18b), the barrierhood of the dominating DegP and VP cannot be circumvented either via adjunction.

Suppose instead that the landing sites of the fronted D° and Deg° are the intervening heads (in accordance with the structure preservation principle) and that the moved X°-categories climb up via successive cyclic adjunction to the intervening heads. Notice first that such a head to head movement operation is of no help for the degree word extractions. Adjunction of Deg° to V° crosses the L-barrier DegP, which is not L-marked by the copular verb. Hence, the ECP is violated. Of course, ECP is not violated because of minimality: Although the intervening DegP contains the trace and a maximal projection containing the trace (i.e. DegP), it does not contain a head c-commanding the trace.

Consider next the determiner extraction. The DP is L-marked and therefore is not an L-barrier. Hence, moving the determiner out of the DP to a position adjoined to V does not violate ECP because of crossing an L-barrier. The ECP is not violated because of minimality either, since DP does not count as a M-barrier, because it does not contain a head c-commanding the determiner-trace. Notice further that the adjunction operation is not ruled out by the Subjacency Condition, because no L-barrier is crossed. So, the first local step of the successive cyclic fronting operation is permitted. So, the ill-formedness of determiner-fronting must be due to a violation of the relevant principles of grammar by one of the intermediate local movements. If the determiner, which is adjoined to V°, is subsequently moved to the next (i.e. nearest) X-zero adjunction site, is the ECP violated? The next possible landing site of the determiner would be I°. Notice now that moving the determiner from the position adjoined to V° to a position adjoined to I° crosses the L-barrier VP (a non-L-marked category). Consequently, the intermediate determiner-trace adjoined to V° is not antecedent governed and therefore violates the ECP.[6]

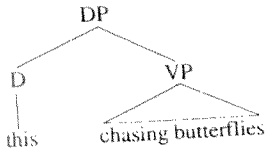
Although the successive cyclic movement of the determiner is already ruled out in the above-mentioned way, it is also excluded by a filter proposed in Baker (1988; 73) which states that a trace can never be nonexhaustively dominated by a zero-level category. As a consequence, once a lexical head is adjoined, it cannot be moved further on its own. Only the entire adjunction structure can be moved.[7]

Notice, finally, that fronting of determiners or degree words (as in (1)-(4)) can never move the elements in question into the left peripheral position [Spec,CP], under the structure preservingness hypothesis: this landing position only allows maximal projections, and therefore X-zero categories cannot move into it.[8]

The above-mentioned analysis also accounts for the following facts, in which a determiner is extracted from a gerund (i.e. configuration (21)):

(20) a. I don't like [this chasing butterflies]
b. * This$_i$ I don't like [t_i chasing butterflies]

(21)



The determiner *this* cannot escape the barrierhood of the dominating maximal projection VP. Nor can it adjoin to IP. Moving it into one swoop to the left periphery of the clause causes an ECP violation (i.e. lack of antecedent government of the trace in the D^o-position) and a strong subjacency violation. Furthermore, the fronted determiner cannot land in [Spec,CP] because of the structure preservingness requirement.

Consider also the following sentences in which the degree element *how* has been moved out of an adjunct.

(22) a. * How$_i$ have you picked up TNT [t_i carelessly]? (Ross (1967))
b. * How$_i$ did you buy [a [t_i big] car]?

In (22a), *how* has been extracted out of an adjunct-DegP. Extraction of *how* out of this Degree Phrase yields an ECP-violation, since the L-barrierhood of the dominating DegP-node cannot be circumvented by adjunction. Furthermore, movement of the X^o-category *how* into [Spec,CP] is not in accordance with the structure preservingness requirement on substitution: [Spec,CP] only permits maximal projections.

In (22b), the degree word *how* has been moved from within an attributive DegP. The fronted degree word cannot escape the barrierhood of the attributive phrase via adjunction, since an X^o-category cannot be adjoined to a maximal projection. So, removal of the degree word will always yield an ECP-

violation. Furthermore, also in this case, the X-zero category cannot land in [Spec,CP] because of the structure preservingness requirement.

The above-mentioned analysis of the impossibility of determiner and degree word extraction also applies to complementizer extractions. As is well-known, complementizers are categories which never move:

(23) a. * That$_i$ I hope [$_{CP}$ t_i she will come]
b. * Whether$_i$ I wonder [$_{CP}$ t_i they will like her]

(24) a. * Dat$_i$ Jan hoopte [$_{CP}$ t_i Marie kwam]
That John hoped Mary came
'John hoped that Mary would come'

b. * Of$_i$ Marie zich afvroeg [$_{CP}$ t_i Piet kwam]
Whether Mary REFL wondered Pete came
'Mary wondered whether Pete would come'

In these sentences, the left branch complementizer of the embedded clause has been fronted. The fronted complementizer cannot occupy the [Spec,CP] because of the structure preservingness principle. The C^o-position of the matrix clause, however, is a proper landing site for the moved complementizer. Notice that under former formulations of the Subjacency Condition and the ECP (see a.o. Chomsky (1981)), C^o to C^o movement is not ruled out by these principles. If the bounding nodes for English and Dutch are NP and S, then the above-mentioned complementizer extractions are not prohibited by the Subjacency Condition. And as far as proper government is concerned, it is not clear what blocks antecedent government (i.e. government by a coindexed category) of the trace in COMP by the higher COMP-position, which is now filled by the fronted complementizer. Notice also that if one adopts a theory which says that empty complementizers in English are permitted if they are properly governed by a lexical category (cf. Stowell (1981)), the ill-formedness of the sentences in (23) cannot be explained in terms of the ECP, since the verb of the matrix clause would be able to properly govern the empty complementizer.[9]

Assuming a theory of government and bounding as proposed in Barriers, the nonextractability of complementizers can be accounted for as follows. Suppose that the CP is an object of a theta-assigning verb. This means that the CP is L-marked and therefore not an L-barrier. So, C^o can cross the CP and attach to the next potential landing site, e.g. V^o. Now, further movement of C^o would violate the ECP, since it would cross VP, which is an L-barrier for the complementizer. Furthermore, if one adopts Baker's (1988) filter on adjunction structures, the C^o cannot be moved on its own, once it has been adjoined to another X-zero category.

7.3 On movement and left branch possessors

This section investigates the movement behavior of left branch constituents in Dutch and English. In section 7.3.1, it will be argued that the frozen character of left branch possessors cannot be explained in terms of Chomsky's Uniformity Condition. Section 7.3.2 presents an analysis of the immobility of possessive noun phrases and possessive pronouns in Dutch and English, which is based on a DP-structure. Section 7.3.3 discusses the frozen character of left branch possessors in possessive doubling constructions in Dutch and a number of other Germanic languages.

7.3.1 Left branch possessor extraction and the Uniformity Condition

As pointed out in Ross (1967), left branch possessors such as *whose* and *John's* cannot be moved out of a dominating noun phrase. This is exemplified in (25):

(25) a. * I recognized the boy whose$_i$ I know [t_i father]
b. * John's$_i$ I saw [t_i father]?

The possessors *John's* and *whose* have been removed from within a direct object noun phrase in the relative clause in (25a) and in the topicalization construction (25b), respectively. The two sentences are ungrammatical. It is necessary to pied pipe the noun *father*:

(26) a. I recognized the boy whose father$_i$ I know t_i
b. John's father$_i$ I saw t_i

The question arises whether it is possible to account for the frozen character of the left branch possessor in terms of the ECP or the Subjacency Condition if one adopts a traditional NP-structure? Under the assumption that the possessors in (25) are moved from the specifier position of NP, the ungrammaticality of these sentences does not follow from the ECP or the Subjacency Condition. The trace in the specifier position is 0-subjacent to the antecedent-trace which is adjoined to VP. And if one assumes that a noun phrase like *whose father* is derived from the D-structure *father whose* via NP-movement to [Spec,NP] and if one also adopts Lasnik & Saito's (1984) proposal that only the initial trace of a moved argument needs to be properly governed, then extraction of *whose* will never yield an ECP-violation, because the antecedent-trace standing in [Spec,NP] will always antecedent-govern (= properly govern) the argument trace.[10]

Since the ECP and the Subjacency Condition cannot account for the ill-formedness of the sentences in (25), I will investigate whether the impossibility of moving left branch possessors can be explained in terms of the Uniformity Condition as proposed by Chomsky (1986a). Before examining this condition, I will briefly discuss the case assignment theory as proposed there.

Chomsky differentiates between two types of case assignment: (i) structural case assignment, and (ii) inherent case assignment. Structural case (nominative and accusative in English) is assigned by a case assigning category at S-structure under government. Furthermore, no reference is made to the status of the thematic relation between the case assigner and the case receiving category. In other words, the nominative case, which is assigned by INFL, and the accusative case, which is assigned by V, are assigned under government to NPs to which they need not bear any thematic relation. Consider, for example, the following sentences:

(27) a. *It* seems that Bill is ill
b. I consider *Mary* a fool

The expletive subject *it* receives nominative case from INFL, but does not enter into any thematic relation with it. The same holds for the noun phrase *Mary* in (27b), which is the subject of a small clause. It is assigned accusative case by the verb *consider*, but does not get a theta-role from this verb.

The second type of case that Chomsky posits, inherent case, involves a thematic relation between the case assigner and the case receiving category. This theta-related case is assigned at D-structure. Inherent case assigning relations include a.o.: (i) the oblique case assigned by prepositions; (ii) the genitive case assigned by nouns (as in *John's car*) and the genitive and dative case assigned by certain adjectives in a language like German (cf. Van Riemsdijk (1983)).

Chomsky assumes that case assignment by lexical categories in English is uniformly to the right. This means that genitive case assignment by N^0, which is realized either as *of* or as *'s* in Chomsky's system, is rightwards. Since genitive case can be realized in the (left branch) specifier position of the noun phrase, a distinction is made between case assignment (at D-structure for inherent case) and case realization (at S-structure for inherent case).

Chomsky proposes that both assignment and realization of inherent case take place under government and are subject to the requirement of thematic-relatedness. This proposal is worded in the following condition:

(28) **Uniformity Condition** (Chomsky (1986a))

If A is an inherent Case-marker, then A Case-marks (= case assignment and case realization) NP iff A theta-marks the chain headed by NP

This condition requires that inherent case will be realized on an NP iff it is governed by the category which theta-marks the NP at D-structure. So, inherent case relations must meet the Uniformity Condition.

Chomsky proposes this condition in order to rule out ungrammatical instances of NP-movement as, for example, in the following sentence:

(29) * [John's$_i$ [destruction of [a [statue t_i]]]]

These examples of NP-internal raising are not ruled out by the ECP in Chomsky's (1986a) system, because the trace is theta-governed by N. The Subjacency Condition is not violated either, since movement of the NP to the specifier position of the higher NP does not cross an L-barrier, because the NP headed by *statue* is L-marked by the N° *destruction*.

How does the Uniformity condition rule out this sentence? Chomsky (p. 194) argues that "[(28)] amounts to the requirement that inherent case must be realized on NP under government by the category that theta-marks NP at D-structure." In other words, an NP that receives inherent case from an inherent case-marker (e.g. N) must always be (i.e. at D-structure and at S-structure) within the government domain of that case marker. This explains why you can have (30), but not (29):

(30) [The destruction of [John's$_i$ statue t_i]]

In the S-structure representation (30), the inherent (genitive) case can be realized on the possessor NP, since this NP is still within the government domain of the category that theta-marks it at S-structure. The S-structure (29) is out, because the possessor NP *John*, the head of the A-chain, is outside the government domain of the noun *statue*, by which it is theta-marked at D-structure.

In the examples above, the Uniformity Condition applies to A-chains, which are the result of NP-movement operations. If this condition also applies to wh-chains, one might account for the ill-formedness of a sentence like (25a), repeated here as (31), in terms of the Uniformity Condition.

(31) * Whose$_i$ did you see [t'$_i$ father t_i]?

This sentence is ruled out by the Uniformity condition, because the wh-possessive *whose* is outside the government domain of the noun *picture* by which it is assigned a theta-role at D-structure.

There are a number of problems with Chomsky's case assignment theory and the way in which certain movement operations (like the one in (31)) are excluded by the Uniformity Condition. The following objections can be raised concerning Chomsky's analysis of genitive case. First of all, it is not clear from his analysis why the genitive marker *'s* can only be realized on NPs in prenominal position (as in *the city's destruction*), and not, for example, in postnominal position (e.g. *the destruction the city's*). It does not follow from the requirement that case realization takes place under government, since both positions are governed by N. The same, actually, holds for the genitive case realization in the form of the preposition *of*. Chomsky suggests that *of* is an affix-like element adjoined to NP, rather than an independent preposition which heads a PP. Under that assumption it is not clear why the *of*-NP-constituent cannot be realized on both sides of the head noun, since again both positions are within the government domain of N. Another problem, noted

by Abney (1987), is that it is difficult for this approach to explain why *'s* can show up in gerunds (e.g. *John's eating the pie*), given the assumption that *'s* can only be inserted at S-structure under government of N.

What objections can be made with respect to the account of the non-extractability of possessors in terms of the Uniformity Condition? First of all, if a sentence like (32a) is excluded by the Uniformity Condition, then under the same reasoning one would expect a sentence like (32b) to be out:

(32) a. * Whose$_i$ did you see [t_i picture t_i]?
b. Of whom did you see [a picture t_i]?

The b-sentence, in which *of whom* is outside the government domain of the inherent case governor *picture*, is reasonably acceptable, however. The Uniformity Condition incorrectly rules it out.

A second problem concerns so-called adverbial possessors as in the following sentences:

(33) a. I prefer [yesterday's weather]
b. John was preparing [tomorrow's lecture]
c. I liked [last week's concert]

In these sentences, an adverbial noun phrase denoting time appears as a genitive noun phrase. Presumably, these noun phrases are not assigned their theta-role by N, but carry their own adjunct role (cf. Anderson (1984)). Notice that it is unclear under Chomsky's theory of case assignment how the inherent genitive case is realized on the adverbial noun phrase, since there seem to be no thematic relation between them. Furthermore, the Uniformity Condition does not exclude the following sentences, in which the genitive time adverbial has undergone wh-movement.

(34) a. * Yesterday's$_i$ I prefer [t_i weather]
b. * Tomorrow's$_i$ John was preparing [t_i lecture]
c. * Last week's$_i$ I liked [t_i concert]

For a third problem with the Uniformity Condition, consider the following examples taken from Chomsky (1981; 26):

(35) a. I'd prefer [its being clear who won]
b. I'd prefer [its raining in September]

In these sentences, the specifier of the gerund is occupied by an expletive noun phrase. If expletives are not assigned a theta-role, then it is unclear how they are assigned inherent case. Notice also, that in that case the Uniformity Condition does not prevent removal of the genitive expletive NPs. Extraction of these elements, however, is completely out:

(36) a. * Its$_i$ I'd prefer [t_i being clear who won]
b. * Its$_i$ I'd prefer [t_i raining in September]

A fourth problem with a uniformity account is that in many languages in which inherent case assignment is a general phenomenon, extraction of a noun phrase bearing inherent case is possible. Consider, for example, the following examples from German:

(37) a. Welcher Sprache$_i$ wird er niemals [t_i mächtig] werden?
Which-GEN language will he never competent become
'Which language will he never master?'

b. Der Toten$_i$ gedenken wir t_i!
The-GEN dead commemorate we
'We commemorate the deceased'

In the a-sentence, a noun phrase which is assigned genitive case by the adjective *mächtig* (cf. Van Riemsdijk (1983)), is extracted from an AP. Although the noun phrase is outside the government domain of the adjective, the sentence is well-formed. The same holds for the b-sentence (cf. Den Besten (1989)), where the NP *der Toten* is assigned genitive case, but nevertheless can occupy a position outside the government domain of the verb *gedenken*, which assigns this inherent case.

In conclusion, the nonextractability of possessor noun phrases cannot be accounted for in an appropriate way in terms of the Uniformity Condition. Given the above-mentioned problems, I will propose an alternative analysis of the immobility of left branch possessors in the next section.

7.3.2 Possessor extraction and the DP-hypothesis

In this section, I will give an account of the impossibility of extracting a left branch possessor like *whose* from within a noun phrase, making use of the DP-hypothesis. Crucial in my analysis is the interpretation of the possessive marker *'s*. What sort of an element is it and what position does it occupy within DP?

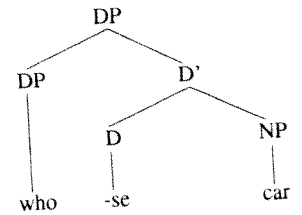
Presumably, *'s* is not a morphological case affix, since it is not attached to the nominal head as case markings normally do, but cliticizes onto the entire possessor noun phrase (cf. a.o. Siegel (1974), Klavans (1985)). This is exemplified in (38) and (39):

(38) a. [the man with the beard]*'s* bike
b. * the man*'s* with the beard bike

(39) a. [Who the hell]*'s* car
b. *? Whose the hell car

Instead of considering *'s* a genitive case inflection (i.e. a case realization), I regard it as a phrase-final clitic occupying the D-position of the DP (cf. also Janda (1980), Abney (1987) and Fabb (1984)).[11]

(40)



A number of facts follow immediately from the assumption that *'s* occupies the D-position. First, the complementary distribution between determiners like *the* on the one hand and the *'s*-marker on the other is accounted for. Second, the fact that possessors like *John's* only appear in prenominal position follows directly, since *'s* occupies the D-position which always precedes the rest of the noun phrase given the setting of the head-final-first-parameter.

Notice that the possessor in [Spec,DP] and the possessive particle do not form a constituent in (40). Now the impossibility of reordering possessors such as *whose* and *John's* out of their containing DP directly follows from the well-known restriction that it is not allowed to move non-constituents. So, the sentence is out by the same requirement which rules out fronting of the complementizer together with the element occupying the specifier position of CP. Consider, for example, the following sentences from Dutch, a language in which the [Spec,CP] and the complementizer can be filled at the same time within an embedded clause.

(41) a. Jan vroeg zich af [$_{CP}$ *wie*$_i$ *of* [$_{IP}$ zij t_i gezoend had]]
John wondered REFL PRT who whether she kissed had

b. * *Wie of* vroeg Jan zich af [- - zij gezoend had]?

(41a) shows that doubly filled COMPs are permitted in Dutch. The ill-formedness of (41b), in which the element occupying the [Spec,CP] and the complementizer *of* are moved together to the [Spec,CP] of the matrix clause, is due to a violation of the requirement that only constituents may undergo movement.

Of course, this analysis also accounts for the ungrammaticality of the following sentences in which a time adverbial has been fronted:

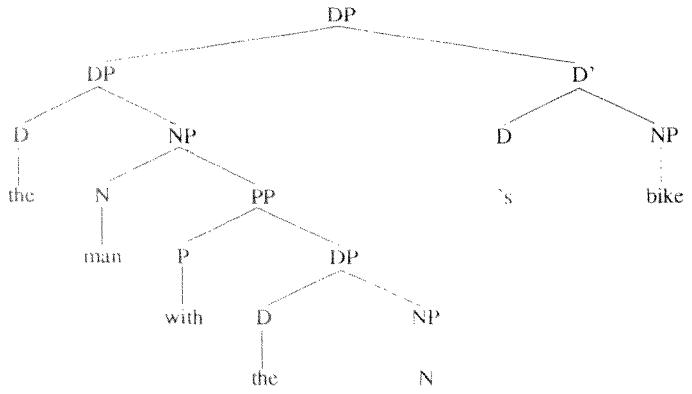
(42) a. * Yesterday's$_i$ I prefer [t_i weather]
b. * Last week's$_i$ I liked [t_i concert]!

Their ill-formedness is simply due to the fact that they violate the constituenthood-requirement on movement operations.[12]

The objection could be raised that there is adjunction of the clitic *'s* to a zero-level category within the DP occupying the specifier position of the containing DP, before the possessor is moved to the [Spec,CP]-position. After adjunction of *'s* to the possessor, removal of DP+*'s* would be movement of a

constituent. Notice that adjunction of *'s* to DP would involve head to head movement. If head to head movement is involved, then the Head Movement Constraint (HMC) applies. According to this condition, which is derivable from the ECP (cf. Baker (1988)), the D *'s* may only move to a position by which it is properly governed. In this case, the trace in the D-position must be antecedent-governed. An example which is clearly problematic for an analysis which first adjoins *'s* to a zero-level category contained within the DP which occupies the [Spec,DP] is the following:

(43)



beard

If the *'s* gets adjoined to the noun *beard* via head-to-head movement in syntax, then the Head Movement Constraint is violated. The *'s*-marker, which is adjoined to the noun *beard* does not properly govern the trace occupying the D-position. So, the *'s* remains in D in syntax. Consequently, removal of DP+*'s* will always involve movement of a non-constituent in syntax.[13]

Let us now turn to the nonextractability of left branch possessors in Dutch. The frozen character of these elements is exemplified in (44):

(44) a. * *Jans* heb ik [- boek gezien]!
John's have I book seen
'John's book I have seen'

b. * *Mijn tantes* heb ik [- vriend] ontmoet!
My aunt's have I friend met
'My aunt's friend I have met'

It should be noted that the *'s*-ending in Dutch has become obsolete with common nouns. At present, it is mainly used with proper names as in *Jan-s boek* (john-s book) and also with certain nouns indicating family relations (e.g. *opa's hoed* ('grandpa's hat'), *mijn tante's beste vriendin* ('my aunt's best

friend')). Furthermore, as opposed to the English marker *'s*, the Dutch *'s* must be adjacent to the headnoun.[14] This is exemplified below:

(45) a. * Ik ken [de man met de baard's vader]
I know the man with the beard's father

b. * [Die dochter van haar's vriend] heet Jan
That daughter of her's friend is-called John

This adjacency requirement suggests that the marker *'s* is a remnant case form. The ill-formedness of the constructions in (45) follows from the fact that case forms must be realized on the head of the phrase. Therefore, the nominal head must be adjacent to the case morpheme (cf. also Haider (1987) for German). The question now arises whether this *'s* marker is realized on the headnoun just like other inflectional markings (e.g. plural affix *-en*) or whether *'s* occupies an independent syntactic position at D-structure, namely the D^0-position. The coordination facts in (46) suggest that it occupies an independent syntactic position, viz. D^0 ((46d) taken from Van Es & Caspel (1971-1975)):

(46) a. [[Jan en Piet]'s moeder] is gisteren overleden
John and Pete's mother has yesterday died

b. [[Mijn vader en moeder]'s grootste wens] is een reis naar de VS
My father and mother's greatest wish is a trip to the USA

c. [[Mijn oom en mijn tante]'s laatste gezamenlijke optreden]
Mijn uncle and my aunt's last joint appearance

was een daverend succes
was a roaring success

d. Dit waren [[mijn oom en tante]'s onwrikbare leefregels]
These were my uncle and aunt's unswerving rules of life

e. [[Jan en Marie]'s kritiek op elkaar] is iedereen bekend
John and Mary's criticism of each other is (to) everyone known

In these sentences, the possessive marker *'s* is phonologically attached to the rightmost noun of a coordinated nominal structure. If *'s* was a normal case affix which must be realized on the headnoun, one would expect it to occur on both nominal elements. This is also true for other flection morphemes which appear on the head, like plural morphemes:

(47) a. * de [paard- en koei-en] van boer Pietersen
the horse and cow-PL of farmer Peterson
'the horses and cows of farmer Peterson's'

b. * Mijn [oom- en tante-s] komen morgen ook
My uncle and aunt-PL come tomorrow too
'My uncles and my aunts will come tomorrow as well'

(48) a. de [paard-en en koei-en] van boer Pietersen
the horses and cows of farmer Peterson

b. [Mijn oom-s en tante-s] komen morgen ook
My uncles and aunts come tomorrow too

In (47), the inflectional plural morpheme *-en* is only attached to the rightmost member of two coordinated nouns, yielding an ungrammatical structure. The examples in (48) show that the plural morpheme must be realized on both nouns of the coordinated structure. Given the contrast between the inflectional plural marker on the one hand and the possessor marker *'s* on the other, let us assume that *'s* occupies an independent syntactic position, viz. the D^o-position. If this assumption is correct, the nonextractability of the left branch possessors in (44) can also be explained in terms of the prohibition against removal of non-constituents.

So far, I have discussed the nonextractability of left branch possessor noun phrases. Another question which should be addressed is how to analyze the immobility of possessive pronouns in languages like English (see (49a)) and Dutch (see (49b)):

(49) a. * His_i I saw [t_i car]

b. * $Haar_i$ heb ik [t_i auto] gezien
Her have I car seen

In order to answer this question, we must find out what the categorial status of these elements is and, related to that, what position they occupy within the noun phrase (i.e. DP). As far as their categorial status is concerned, I will assume that they are determiner-like. As far as their position within the noun phrase is concerned, two potential analyses come to mind. One analysis would be to say that pronouns like *his* and *her* are suppletive forms from personal pronoun plus marker *'s*:

(50) $[_{DP}\,[_{DP}$ he] 's $[_{NP}$ car]] ⋯⋯→ his car

An alternative analysis would be to say that these pronouns occur in the D-position itself.

(51) $[_{DP}\,[D^o$ his] $[_{NP}$ car]]

Under both analyses, the complementary distribution between determiners on the one hand and possessive pronouns on the other hand is accounted for (e.g. **the his car*, **his the car*). In the suppletion analysis, the possessive marker occupies the D-position and in the determiner analysis it is the

possessive pronoun itself which fills this position. So, there is no position left for the determiner.

Notice further that the two approaches block removal of the possessive pronoun. In (50), movement of the possessive would be blocked by the condition prohibiting extraction of non-constituents. In (51), extraction of the possessive pronoun would be removal of D^o. As we have seen in section 7.2, removal of this category is blocked by the ECP among others. Furthermore, the X^o-category cannot land in [Spec,CP], since this position only permits maximal projections.

It is not very easy to decide which of these structures is the correct one. I will tentatively adopt structure (51) to be the correct structure on the basis of the following arguments. A first argument comes from the existence of so-called doubling possessive constructions in languages such as Dutch and German (see section 7.3.3):

(52) [Wie z'n vader] heb jij ontmoet?
Who his father have you met
'Whose father did you meet?'

(53) [Wem seinen Wagen] hast du gesehen?
Who-DAT his-ACC car have you seen
'Whose car did you see?'

The cooccurrence of the possessive pronoun and the interrogative possessor can be easily accounted for under structure (51), since there are syntactic positions available for both the possessive pronoun and the interrogative possessor: the interrogative *wie* occupies the [Spec,DP] and the possessive pronoun fills the D^o-position. Under a suppletion analysis, the possessive pronoun occupies the [Spec,DP]. The question then arises what position the left branch possessor (e.g. *wie* in (52)) occupies. One could propose that *wie* occupies the [Spec,DP] position of the possessive pronoun. This would yield the following structure:

(54) $[_{DP}\,[_{DP}$ [wie] z'n] $[_{D'}$ vader]]

As will be shown in section 7.3.3 on the basis of certain extraction facts from Norwegian, such a structure, in which the interrogative pronoun and the possessive pronoun form a constituent, is problematic. In this language, it is possible to reorder the question word out of the doubling possessive construction in certain syntactic environments. It is never possible, however, to front the string corresponding to *wie z'n* in (54). Under a structure as in (54), this is unexpected, since *wie z'n* is a constituent, so that extraction would never violate the requirement that only constituents can undergo movement. Furthermore, it is not very clear under such an analysis why the deeply embedded *wie* can be removed, but not the less deeply embedded specifier *wie z'n*. I will come back to this later.

A second argument in support of a structure in which a possessive pronoun like *his* occupies the D°-position comes from consideration of a language like French, in which there are only left branch possessive pronouns. That is to say, full nouns cannot appear to the left of a nominal head.

(55) a. J'ai vu [son livre]
I have seen his book

b. * J'ai vu [Jean livre]
I have seen John book
'I have seen John's book'

If *son* was a nominal occupying the [Spec,DP] position, it would not be entirely clear why other nominals like *Jean* could not be moved into the same position. If possessive pronouns are analyzed as determiner-like elements then this contrast can be accounted for: *Son*, being a determiner, can occur in D, but *Jean*, which is not a determiner, can not.

If structure (51) is adopted or the basis of the considerations above, then removal of left branch possessors such as *his* and *haar* ('haar') is out for the same reasons as extraction of determiners such as *the* and *that*.[15]

With respect to this determiner-analysis, the following two questions arise: (i) How does a noun discharge its theta-role to a possessive pronoun, if the latter is not a sister of the noun at D-structure (as in *his picture*)? (ii) what case is assigned to it? With respect to the first question, one might adopt Higginbotham's (1985) theta-binding proposal, according to which determiners can bind thematic roles which are associated with the noun. With respect to the second question, I will assume that a pronoun like *his*, for example, when it occupies the D-position of a direct object-DP, simply bears the accusative case which is assigned to the entire DP by the verb. In other words, it bears the same case as the one which has been assigned to the dominating DP. In a language like German, in which case is morphologically realized, this is visible. Consider, for example, the following sentences:

(56) a. Ich habe [seinen Wagen] verkauft
I have his-ACC car sold
'I sold his car'

b. [Sein Wagen] wurde von mir verkauft
His-NOM car was by me sold
'His car was sold by me'

In (56a), the possessive bears accusative case, and in (56b) nominative. I will assume that the same holds for possessive pronouns in Dutch and English, although case is abstract in those languages.

In conclusion, an account has been given of the nonextractability of left branch possessive elements on the basis of the DP-structure. Possessive noun phrases like *John's* cannot be reordered because of the condition that only

constituents can undergo movement. Possessive pronouns in English and Dutch were analyzed as occupying the determiner-position. Like other determiners, these left branch elements cannot be moved into [Spec,CP] because of the structure preservingness requirement. Furthermore, fronting of these elements yields a violation of the ECP and the Subjacency Condition.

7.3.3 On possessor extraction in doubling possessive constructions

In this section, I will explore certain properties, among which the movement properties, of left branch possessors that occur in so-called doubling possessive constructions in languages such as Dutch and German. The doubling possessive noun phrase has the following pattern: possessor - pronoun - N, where the possessor and the pronoun are coreferential. This pattern is exemplified in (57):

(57) a. Ik heb [$_{DP}$ Jan z'n auto] verkocht
I have John his car sold
'I have sold John's car'

b. Ik heb [$_{DP}$ dit meisje d'r fiets] gestolen
I have this girl her bike stolen
'I stole this girl's bike'

c. Ik heb [$_{DP}$ deze meisjes d'r/hun ouders] ontmoet
I have these girls their/their parents met
'I met the parents of these girls'

The strings in brackets are noun phrases (i.e. DPs). Their constituenthood is shown among others by the fact that they can undergo movement rules such as (i) movement to [Spec,CP] (as in (58a)) and NP-movement (as in (58b)).

(58) a. [$_{CP}$ [Jan z'n auto]$_i$ [$_{C'}$ heb$_j$ [$_{IP}$ ik t_i verkocht t_j]]]
John his car have I sold
'John's car I sold'

b. Ik geloof dat [$_{IP}$ [Jan z'n auto]$_i$ gisteren t_i werd verkocht]
I believe that John his car yesterday was sold
'I believe that John's car was sold yesterday'

The following sentences show that it is impossible to reorder the left branch possessor out of the containing complex DP.

(59) a. * Wie$_i$ heb je [t_i z'n auto] verkocht?
Who have you his car sold
'Whose car did you sell?'

b. * Wie$_i$ heb je [t_i d'r fiets] gestolen?
Who have you her bike stolen
Whose bike did you steal?'

The sentences are well-formed if the other material contained within the possessive noun phrase is moved along with *wie*:

(60) a. [Wie z'n auto]$_i$ heb je t_i verkocht?
b. [Wie d'r fiets]$_i$ heb je t_i gestolen?

Before exploring several ways to account for the frozeness of the left branch possessor, I will briefly investigate the internal structure of this possessive construction and its case and thematic properties.

A first question concerning the internal syntax of this possessive noun phrase is which element is the head of it. One analysis would be to say that in a phrase like *wie z'n auto* the interrogative element *wie* is the head and *z'n auto* some sort of a modifier of this element. The following agreement facts show that such an analysis is incorrect.

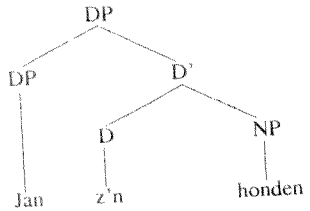
(61) a. ..dat [Jan z'n hond] heeft geblaft
..that John his dog has barked
'..that John's dog has barked'

b. ..dat [Jan z'n honden] hebben geblaft
..that John his dogs have barked
'..that John's dogs have barked'

The doubled possessive noun phrase has the function of subject in these sentences. If *Jan* was the head of the noun phrase, then one would expect the finite verb in (61b) to be third person singular as well. The plural form of the verb (*hebben*) shows that *Jan* is not the head.

I will assume that the possessive pronoun (*z'n*) heads the complex noun phrase. This element, which agrees with the headnoun of the complement-NP, carries the number feature [+sg] in (61a) and [+pl] in (61b). The nominal to the left of *z'n* occupies the [Spec,DP]. So, we have the following configuration:

(62)



Notice that *z'n* occupies the same position as *'s*. That they occupy the same position is suggested by the fact that they are mutually exclusive. That is, the occurrence of *z'n* excludes *'s* and vice versa.

(63) a. Jans auto
John's car

b. Jan z'n auto
John his car

c. * Jans z'n auto
John's his car

The following coordination facts further show that the possessive pronoun and the NP complement can form a constituent:

(64) [Wie [z'n vader en z'n moeder]] komen allebei uit Afrika?
Who his father and his mother come both from Africa
'Whose father and mother come from Africa?'

In this construction, two D'-constituents are coordinated by the coordinator *en*.

Given the structure in (62), how is case assigned to the possessor occupying the [Spec,DP]? Presumably, it does not get case from outside by an external case assigner (as in exceptional case marking contexts (cf. Massam (1985))). Under the assumption that a case assigner may assign a case X only once, assignment of case to the left branch possessor occupying the [Spec,DP]-position from outside would always yield a Case Filter violation, since the DP containing the left branch nominal would not be assigned case anymore. So, case assignment of the left branch possessor from outside is not very likely.

In a language like German, in which case is morphologically realized, it can be shown that the element in the specifier position does not get case from outside (cf. also Van Riemsdijk (1983)):

(65) a. Ich habe [dem Mann [seinen Wagen]] gesehen
I have the-DAT man his-ACC car seen
'I saw the man's car'

b. [[Dem Mann] seiner Wagen] wurde gestohlen von Karl
The-DAT man his-NOM car was stolen by Charles
'The man's car was stolen by Charles'

In these sentences, the possessor phrase bears dative case, i.e. an oblique case form. It is not assigned structural (accusative or nominative) case from outside. The DP containing the possessor is assigned case by a governing case assigner. In (65a), accusative case is assigned by the verb and in (65b) nominative case is assigned to it. As is shown by the examples, these cases are realized overtly on the possessive pronoun *sein*.

I will further make the assumption that the left branch possessor is base-generated in [Spec,DP]. It does not originate within the complement position of the noun, where it normally would be assigned a thematic role, because the theta-role is already theta-bound by the possessive pronoun occupying the D-position. Let us assume that the possessor DP gets its theta-role indirectly via the possessive pronoun it is coindexed with.

After this brief discussion of the internal structure of this possessive construction, let us try to find out what might account for the inaccessibility of the left branch possessor to movement operations.

(66) * Wie$_i$ heb je [t_i z'n auto] gewassen? (Dutch)
Who have you his car washed
Whose car did you wash?

(67) * Welchem Mann haben Sie [t_i seinen Wagen] gesehen? (German)
Which man have you his car seen
'Which man's car did you see?

Movement of the left branch possessor DP to the specifier position of CP does not violate the structure preservingness hypothesis. It also obeys the constraint that only constituents may be moved. Furthermore, extraction of *wie* does not seem to be prohibited by any phonological constraint, since *z'n* can occur independently, as is shown by (68):

(68) Ik heb z'n auto gewassen
I have his car washed

Is it due to the oblique case on the DP? In principle nothing blocks movement of a DP bearing oblique case. This is shown among others by the extractability of oblique DPs that are sisters of adjectives in German. It appears that the Subjacency Condition and the ECP are not violated either: DP is L-marked by the verb and therefore not an L-barrier. So, via adjunction to VP, the possessor should be able to reach the [Spec,CP]. Clearly, the same syntactic configuration is involved that is found with extraction of an element out of the specifier position of a complement-CP of a verb.

Of course, one might explore the possibility of some other factor which is responsible for the barrierhood of the DP. As Henk van Riemsdijk has suggested to me, it may be that "case" is the relevant factor. It could be that the specifier of maximal functional categories that are assigned case is inaccessible to antecedent government from outside. One might also see it this way: If a potential case assigner (i.e. a governor) can govern the [Spec,XP] of a maximal projection XP because of the fact that XP does not need case, then an antecedent governor which is adjoined to the maximal projection of the potential case assigner can also antecedent govern the [Spec,XP] position. Under this formulation, there is a relation between case government and antecedent government: if a case assigner (X-zero category) has access to the specifier position of its complement, then a local antecedent governor has too (see also Kayne (1984)).

Consider now the following configurations (the order of V and the complement is irrelevant):

(69) a. [$_{VP}$ XP [$_{VP}$ V [$_{CP}$ Spec [$_{C'}$...]]]]..
b. [$_{VP}$ XP [$_{VP}$ V [$_{IP}$ Spec [$_{I'}$...]]]]..
c. [$_{VP}$ XP [$_{VP}$ V [$_{DP}$ Spec [$_{D'}$...]]]]..

The [Spec,CP]-position is accessible for antecedent government by XP, which is adjoined to VP. CP is not an L-barrier. It is L-marked by the verb. Furthermore, it does not need case. Consequently, the [Spec,CP] position is accessible to government by the verb, and therefore also to government by the antecedent XP.[16]

(69b) represents an exceptional case marking-configuration. IP is L-marked by V, and therefore it is not an L-barrier. Furthermore, IP is not a barrier for case reasons. It does not need case, and therefore the verb can govern and assign case to the DP occupying the [Spec,IP]. Since the verb has access to the [Spec,IP], so has the antecedent governor XP which is adjoined to VP.

Consider, finally, configuration (69c). The important question is whether XP can antecedent govern the trace occupying [Spec,DP]. Of course, the verb L-marks DP. So, absence of L-marking does not create an L-barrier in this configuration. However, given the above-mentioned stipulation, DP becomes a barrier because of the fact that it bears case. If it must receive this case from the verb, then the verb can no longer case-govern an element occupying the [Spec,DP]. Following the above-mentioned relation between case-government and antecedent government, the antecedent governor XP would not be able to govern the [Spec,DP] position either.

Consider now again the ill-formed sentences in (66) and (67): In these sentences, the trace of the fronted interrogative possessor occupies the [Spec,DP]. The closest antecedent governor is the intermediate trace adjoined to VP. This potential antecedent cannot govern the trace in [Spec,DP], however, since the verb cannot case-govern the [Spec,DP] either, because it must assign case to the dominating DP.

At this point, the fact should be mentioned that in Norwegian, which also has the possessive doubling construction, subextraction of the left branch possessor is permitted if the complex noun phrase is a predicate nominal (see Fiva (1985), Taraldsen (1977)). Consider the following sentences:[17]

(70) a. Hvem$_i$ er det [t_i sin tante]?
Who is it his aunt
'Whose aunt is it?'

b. Hvem$_i$ er det [t_i sin bil]?
Who is it his car
'Whose car is this?'

c. Hvem$_i$ er han [t_i sin bror]?
Who is he his brother
'Whose brother is he?'

These sentences are also well-formed if the rest of the noun phrase is pied piped:

(71) a. Hvem sin tante er det?
b. Hvem sin bil er det?
c. Hvem sin bror er han?

What is interesting is that subextractions from noun phrases that are not sisters of a copular verb, are judged ungrammatical, or at least much worse.[18]

(72) a. * Hvem$_i$ skal vi forføre [t$_i$ sin søster] nå?
Who shall we seduce his sister now
'Whose sister shall we seduce now?'

b. ?* Hvem$_i$ kjenner du [t$_i$ sin bror]?
Who know you his brother
'Whose brother do you know?'

How can we account for the fact that extraction of the left branch possessor is permitted when the containing DP is a predicate nominal but not when it is an argument noun phrase of a non-copular verb? Another question which is raised is: Why are extractions as in (70) allowed in Norwegian, but not in Dutch?

(73) a. * Wie$_i$ is dit [t$_i$ z'n tante]?
Who is this his aunt
'Whose aunt is this?'

b. * Wie$_i$ is hij [t$_i$ z'n broer]?
Who is he his brother
'Whose brother is he?'

It seems that the above-mentioned idea that the specifier of a DP which is case marked by its sister is not accessible to antecedent government by a VP-adjoined trace, might shed some light on these puzzling facts. Consider first, the facts in (72), in which the possessor is reordered out of a DP which is not a predicate nominal. The verb assigns case to the DP containing the left branch possessor. So, it does not govern into the [Spec,DP] of that DP. The trace occupying the [Spec,DP] position after removal of the left branch possessor, will not be antecedent governed by the VP-adjoined trace because of the barrierhood of the DP which is case marked by the verb. So, extraction yields an ECP-violation.

Let us now turn to the contrast between the Norwegian sentences in (70) and the Dutch sentences in (73). Can this contrast be explained by using the idea that a DP becomes a barrier if it is case assigned by the verb? Consider first Dutch. In this language, the copular verb *zijn* ('to be') assigns accusative case to its complement (i.e. the predicate nominal):

(74) a. Ik ben *hem*
I-NOM am him-ACC

b. Ik denk dat 't *'m* is
I think that it-NOM him-ACC is

In these sentences, *hem* and its reduced form *'m* are both predicate nominals carrying accusative case (notice that *'t* is the reduced form of *it* ('het')). So, the predicate nominal is assigned case by the verb, and does not, for example, receive nominative case under predication from the subject, which is another a case assignment procedure which can be found in natural languages. The nonextractability of *wie* in (73) can now be accounted for as follows: The copular verb assigns case to the DP-complement. Therefore, V cannot case-govern the [Spec,DP] position. Since V cannot govern the [Spec,DP] position, the intermediate antecedent trace adjoined to VP does not govern that position either. The case-marked DP creates a barrier. So, the initial trace occupying the [Spec,DP] after removal of the left branch possessor, is not antecedent governed and therefore violates the ECP.

Let us now try to find out what makes it possible to extract a left branch possessor from a doubling possessive construction in Norwegian if the DP containing the possessor is a predicate nominal. If the case-story is correct, then the predicate nominal should not be, or at least should not have to be, assigned case by the verb, because if it is assigned case by the verb, then it is a barrier for external governors. It turns out now that a predicate nominal may bear nominative case in Norwegian. Although, it seems to be preferred to use accusative case, nominative is possible as well. Consider, for example, the following sentences from Marm & Sommerfelt (1986):[19]

(75) a. Det er meg/jeg
That is me/I

b. Det var ikke ham/han
That was not him/he

Suppose that nominative case is assigned to the predicate nominal via the subject-DP under predication. This means that the copular does not function as the case assigner of the predicate nominal. Now, the idea would be the following: The possibility of assigning case to the predicate nominal under predication makes it possible for a verb to govern into the [Spec,DP]-position, since it need not assign case to the predicate-DP. In other words, the DP is transparent for government by the copular verb and therefore also for antecedent government from outside.[20] So, extraction of the left branch possessor out of the [Spec,DP]-position is not barred, since DP does not constitute a Barrier.[21]

Consider also the following facts from Taraldsen (1977):

(76) a. Hvem sin tante$_i$ er det [t_i sin katt]?
Who his aunt is it her cat
'Whose aunt's cat is it?'

b. * Hvem$_i$ er det [[t_i sin tante] sin katt]?
Who is it his aunt his cat

In (76a), the DP *hvem sin tante* is extracted from the [Spec,DP] of the predicate nominal, yielding a well-formed sentence. The predicative DP is not a barrier, since it need not be assigned case by the verb. In (76b), *hvem* is extracted out of the [Spec,DP]-position of the possessor DP which occupies the [Spec,DP]-position of the predicate nominal. Movement of *hvem* to [Spec,CP] violates the ECP and the Subjacency Condition. The DP *hvem sin tante*, which contains the interrogative pronoun, occupies the specifier position of the predicate nominal. Occupying the [Spec,DP]-position, *hvem sin tante* is not L-marked by any head. Therefore, it is a BC and an L-barrier. The dominating predicate nominal (DP) inherits L-barrierhood from the DP occupying its specifier position. So, extraction of *hvem* to the nearest landing site (a position adjoined to VP) crosses two L-barriers, yielding a subjacency violation. ECP is also violated, because the intermediate trace adjoined to VP does not antecedent govern the trace of *hvem*: there are two L-barriers including the lower trace but excluding the intermediate trace adjoined to VP.[22]

Consider, finally, the following facts from Norwegian and Dutch, respectively ((77) taken from Taraldsen (1977)):[23]

(77) * *Hvem sin* er det *tante*?
Who his is this aunt

(78) * *Wie z'n* heb jij *tante* gezien?
Who his have you aunt seen

In these sentences, the strings *hvem sin* and *wie z'n* have been moved into [Spec,CP]. Obviously, the ungrammaticality of these sentences is due to a violation of the requirement that only constituents can undergo movement.[24]

7.4 A brief note on left branch accessibility in other languages

This section presents a tentative proposal for dealing with the following well-known types of left branch extractions from noun and adjective phrases as noted in the literature.[25]

(79) a. Combien$_i$ a-t-il lu [t_i de livres]? (French)
How-many has he read of books
'How many books did he read?'

b. [Cît]$_i$ e Maria [t_i de frumoasă]! (Rumanian)
How is Mary of beautiful
'How beautiful Mary is!'

c. ¿[Cómo]$_i$ dices que es [t_i de inteligente]? (Spanish)
How (you) say that (he) is of intelligent
'How intelligent do you say he is?'

In (79a), the left branch quantifier *combien* is extracted from a direct object noun phrase. In (79b and c), the quantifier *cît* and the quantifying element *como* are reordered out of an adjective phrase. The three phrases from which a left branch constituent has been removed have the following pattern in common: quantifier - P - N/A. Notice also that the rest of the noun phrase can move along with the fronted quantifier:

(80) a. [Combien de livres] a-t-il lu?
b. [Cît de frumoasă]$_i$ e Maria t_i!
c. ¿[Cómo de inteligente]$_i$ dices que es t_i?

I will tentatively assume that the strings in brackets have the following internal structure:

(81) a. $[_{DP}$ combien $[_{D'}$ $[_{D}$ de] $[_{NP}$ livres]]]
b. $[_{DegP}$ cît $[_{Deg'}$ $[_{Deg}$ de] $[_{AP}$ frumoasă]]]
c. $[_{DegP}$ cómo $[_{Deg'}$ $[_{Deg}$ de] $[_{AP}$ inteligente]]]

In these structures, the quantifying phrase occupies the specifier position of the functional category. Furthermore, the preposition *de* occupies the head position of DP and DegP.[26] So, in a way, *de* in (81a) is a prepositional determiner, and *de* in (81b,c) is a prepositional degree element. The idea that a preposition fills the head position of a functional category is not new. It is often assumed that *for* is a prepositional complementizer in English:

(82) I want very much [for John to come]

In this construction, the prepositional complementizer *for* assigns case to the subject-DP of the infinitival clause.

Let us now turn to the question why extraction of the left branch constituent is permitted in these examples. Recall that in the previous section, it was tentatively proposed that the [Spec,DP]-position is inaccessible to antecedent government by an element adjoined to VP, if the verb which selects the DP must assign case to it. The idea was that an antecedent governor could only govern into a DP, if the verb could case-govern the specifier position. Now consider first the *combien*-extraction fact: The idea would be the following: The verb need not assign case to the DP containing *combien*. Possibly, DP need not be assigned case because of its prepositional-like status (it is headed by *de*). Case assignment is taken over by the prepositional determiner *de*. This element assigns case to the NP complement (*livres* in (79a)). Since the verb need not assign case to the DP, the DP becomes transparent for an external

antecedent governor. So, if there is a trace in [Spec,DP], then this position can be antecedent governed by an intermediate trace adjoined to VP.

Consider next (79b and c). Suppose that adjective phrases, like noun phrases, need case (see a.o. Manzini (1983), Emonds (1985), Larson (1985)). In these sentences, the Deg°-position is filled by a preposition-like element. The DegP, being headed by *de*, does not need to be assigned case by the verb, and therefore is transparent to external governors and to the nearest antecedent governor. The prepositional element *de* assigns case to the AP which is selected by the prepositional degree word.[27]

Compare, finally, the following examples from Rumanian (83) and Spanish (84) with those in (79b) and (79c), respectively:[28]

(83) a. [Ce frumoasă]$_i$ e Maria t_i!
How beautiful is Mary

b. * [Ce]$_i$ e [t_i frumoasa] Maria!

(84) a. ¿Cuán grande es este árbol?
How tall is this tree

b. * ¿Cuán es grande este árbol?

In these constructions, the question elements *ce* and *cuan* cannot be reordered out of the adjective phrase. I will assume that the frozen character of these elements is due to the fact that they occupy the Deg°-position, and not like *cît* and *como* the [Spec,DegP] position. As we have seen, degree words (being zero-level categories) cannot escape the barrierhood of the non-L-marked DegP (and VP). Hence, extraction will yield an ECP-violation and a Subjacency Condition-violation. Furthermore, the Deg°-constituent cannot be moved into [Spec,CP] under the structure preservingness hypothesis.

7.5 Concluding remarks

In this chapter, I discussed the nonextractability of the following types of elements: determiners, degree words and possessive elements. It was shown that the X-zero category status of determiners and degree words in Dutch and English caused their immobility. Extraction of these elements yields an ECP-violation and a violation of the Subjacency Condition, since these elements cannot escape the L-barrierhood of the dominating non-L-marked maximal projections. The frozenness of possessive pronouns was also explained along these lines. The fact that possessives such as ***John's*** in ***John's car*** can not be reordered out of a DP was said to be due to the syntactic requirement that only constituents can undergo movement. Finally, I explored an approach to the movement behavior of left branch possessors in possessive doubling constructions and of certain left branch quantifying elements in a number of Romance languages.

Notes to chapter 7

1. I will use the term "possessor" to refer to elements such as *John's* and *his* in *John's car* and *his car*. For my convenience, I will also use it to refer to elements like *john's* and *his* which do not express a possessive relation, as in *the city's destruction*, *his arrival*, etc.

2. The notion of minimality assumed here is the one given by Chomsky (1986, class lectures Fall):

(i) **a** is a M-barrier for **b** iff **a** includes **g** and **d**, where **g** is a maximal projection (not necessarily distinct from **a**) including **b**, and **d** a head c-commanding **b**.

3. Of course, one might propose a different formulation of minimality in order to account for the nonextractability of determiners and degree words. One could adopt, for example, Chomsky's (1986b) broader definition of Minimality: **g** is a M-barrier for **b** if **g** is a projection of **d**, a zero-level category distinct from **b**. In that case, a trace in the determiner or degree word position will not be accessible for external governors, since NP and AP form M-barriers, respectively. This broader definition of minimality meets some problems, however. It would imply a.o. that adjunct-positions within PPs and APs are inaccessible to antecedent-governors external to these categories. As we will see in later chapters, however, left branch adjuncts can be extracted from these maximal categories. Another unwanted consequence of this broader definition is that CP can be a M-barrier for external governors, so that a nonargument-trace in the [Spec,CP]-position cannot be antecedent-governed by an intermediate trace adjoined to VP, for example.

4. See for example Bowers (1975) for an analysis of determiners and degree elements as X-zero-elements occupying the specifier of NP and AP respectively. See also Van Riemsdijk (1989) for an X-bar theory in which specifiers are considered X-zero-categories.

5. See Yagi (1977), Namiki (1979), Chomsky (1981).

6. I assume that D°-categories cannot be arguments, as opposed to DPs. Of course, this follows from the fact that D°-categories are never assigned a theta-role by an argument taker. Only the maximal projections which they head are (see als Baker (1988)). Given its nonargument status, all intermediate traces of the moved determiner must be properly governed (see Lasnik & Saito (1984, forthcoming)).

7. Baker (1988, 73) notes that successive cyclic movements can be ruled out by morphology theory. Move alpha in general cannot move part of a word to some other place in the string.

8. It should be noted that in certain languages, the equivalent of *how* is extractable. Consider, for example, the following examples ((ia) from Bracco (1980)) (see also Giorgi & Longobardi (forthcoming) and Rizzi (1989)):

(i) a. Quanto$_i$ è [t_i alto] Gianni? (Italian)
How-much is old John
'How old is John?'

b. Jak$_i$ koncert trwal [t_i długo]? (Polish)
How concert lasted long
'How long did the concert last?'

At first sight, these facts may seem problematic for our analysis. Upon closer consideration, however, these fronted elements look like quantifying adjectives. Consider, for example, Italian *quanto*. This element exhibits the same behavior as the non-interrogative quantifying elements

troppo ('too'), *molto* ('much'), etc. These elements behave like other adjectives: (1) They can occur as complements of copular verbs, exhibiting agreement (ii); (2) they can appear within noun phrases exhibiting agreement with the noun, just like other adjectives.

(ii) I nostri avversari sono molti/troppi
The our opponents are many-pl/too-many-pl

(iii) a. troppa frutta ('too much fruit')
b. troppi libri ('too many books')
c. le troppa luce ('the too-much light')
d. Quanto oro ('how much gold')

The adverbial form of this quantifying adjective is *quanto/troppo/molto*:

(iv) a. Lei lavora molto/poco/troppo
They work much/little/too much

b. Questa casa è [molto antica]
This house is much old
'This house is very old'

So, it seems that *quanto* should be analyzed as a quantifying adjective (AP). This means that a string like *how tall* and *quanto alto* have a different underlying structure. *How tall* is a DegP, in which *how* occupies the Deg^0-position. Given its head status, it cannot be fronted: it cannot escape the barrierhood of maximal projections via adjunction and it cannot be moved into [Spec,CP] under structure preservingness. *Quanto*, however, is a quantifying adjective heading a maximal projection AP, which is a modifier within the AP headed by *alto*. The AP *quanto* can leave the containing AP via adjunction to this maximal projection (Recall AP is a nonargument type category and therefore permits adjunction). Furthermore, *quanto* can also escape the barrierhood of other intervening maximal projections (e.g. VP), since, being a maximal projection itself, it can adjoin to these categories. Finally, it can be moved into [Spec,CP] without violating the structure preservingness requirement.

It seems that Polish *jak* can also be interpreted as an adjectival element: (1) It can occur as a complement of a copular verb, exhibiting agreement (ii); (2) it can appear within a noun phrases exhibiting agreement with the noun, just like other adjectives. Consider, for example, the following facts (taken from Borsley (1981)):

(v) a. Jaki jest Jan?
How is John
'How is John'

b. Jakiego aktora widziales?
What actor (you) saw
'What kind of actor did you see?'

So, *jak* in (ib) is the uninflected (adverbial) form of the adjective. It occurs like other adjectival modifiers within the AP it modifies. Now, the extraction pattern in (ib) can be accounted for as follows: The AP *jak* is moved ito [Spec,CP] via intermediary adjunctions to the dominating AP headed by *dlugo* and via VP.

9. The ill-formedness of the sentences in (24) cannot be due to some requirement which says that complementizers can never appear in main clauses. In Dutch, there are constructions in which complementizers do occur in main clauses:

(i) a. Een boeken *dat* ie heeft!
A books that he has
'He has so many books'

b. *Of* hij vandaag nog vertrekt?
Whether he today still leaves
'Whether he will leave to day (is still the question)?'

In these special constructions, the COMP-position is filled by the complementizers *dat* and *of*. For further discussion of these constructions, see Den Besten (1989).

10. David Pesetsky (personal communication) has pointed out to me that the fact that the sentences in (25) do not get any better when a resumptive pronoun occupies the position of the trace also suggests that no subjacency or ECP violation is involved.

(i) a. * Whose_i did you see [his_i father]?
b. * I recognized the boy whose_i I know [his_i father]?

Often, sentences that violate the Subjacency Condition or the ECP get somewhat better when a resumptive pronoun occupies the position from which an element has been moved to [Spec,CP]. This is illustrated by (i), in which a resumptive pronoun occupies the direct object position within a complex NP.

(i) ?? The man that I believed the claim that John killed him

11. According to Janda (1980), the genitive *'s* ending in Middle English was reinterpreted as the weak form of the possessive pronoun *his*, which occurred in noun phrases as in (i) (examples from Janda).

(i) a. the Busshoppe of Rome his laws 'the bishop of Rome's laws'
b. Margaret ys doughter 'Margaret's daughter'

These doubling constructions were gradually replaced by constructions with the invariable enclitic *'s*.

12. This analysis also accounts for the impossibility of shifting possessives to the right, as in the following examples from Ross (1967):

(i) a. We elected $[t]_i$ president [the boy's guardian's employer]$_i$
b. * We elected [$[t]_i$ employer] president [the boy's guardian's]
c. * We elected [[$[t]_i$ guardian's] employer] president [the boy's]$_i$

In (ia), a non-possessive noun phrase has been shifted to the right, which is permitted. The antecedent adjoined to VP antecedent governs the trace. In (ib) and (ic), a left branch possessor has been moved rightward. The ill-formedness of these constructions is due to the fact that a non-constituent has been moved.

13. In this discussion of the nonextractability of left branch possessors, the following fact reported in Grosu (1974) should be mentioned:

(i) * Whose_i did you see [a picture of t_i]?

In his discussion of Ross's Left Branch Condition, Grosu argues that sentences like (i) are problematic for this condition. The genitive NP cannot be extracted even though it is not on a left branch. So, it seems that the frozen character of genitive NPs has nothing to do with the property of being a left branch constituent. As an alternative, Grosu proposes his Genitive

Constraint, which states that no genitive NP be removed from its position. In other words, in his analysis the relevant factor determining nonextractability is being a category bearing genitive case. Notice that Grosu's interpretation of these facts suggest that he regards the possessor NPs in (i) as being the complement of the preposition. Since, only under that interpretation, the possessor NP is on a right branch. However, the following facts are problematic under this interpretation:

(ii) a. Whose did he read?
b. Whose do you think he likes most?

I will assume that *who* and *-se* in (i) and (ii) occupy the [Spec,DP] and the D-position respetively of a nominal, of which the N-position is not lexically filled (see also Jackendoff (1977), Anderson (1984)). Following Anderson, I will further assume that *of whose* is a restrictive modifier rather than a complement. The head noun does not assign a theta role to the PP and is not subcategorized by it. Evidence in favor of this interpretation comes from ordering facts concerning complement-PPs and adjunct-PPs. In English, PP-complements selected by a noun must occur closer to that noun than PP-adjuncts contained within the maximal projection of that noun (see Jackendoff (1977)).

(iii) a. a picture of John of Mary's
b. * a picture of Mary's of John

The unacceptable status of (i) may now be due to the fact that an element is extracted out of an adjunct-PP. If the possessor *whose* uses [Spec,NP] as an escape hatch, then Subjacency is only weakly violated. If the possessor is moved directly to a position outside of the dominating NP, this yields a stronger violation.

14. Actually, this statement seems to be somewhat too strong. Some speakers (including myself) do not consider sentences as in (i) below to be completely out:

(i) a. % De president van Amerika's tweede vrouw heet Nancy
The president of America's second wife is-called Nancy

b. % De burgemeester van Goirle's eerste toespraak kwam op de radio
The major of Goirle's first speech was on the radio

The following counterparts are considered much worse:

(ii) a. * De president van dit land's tweede vrouw heet Nancy
The president of this country's second wife is-called Nancy

b. * De burgemeesters van dat dorp's eerste toespraak kwam op de radio
The major of that village's first speech was on the radio

Presumably, the sentences in (i) are better because of the fact that the bound morpheme *'s* is phonologically attached to a nominal which can also function as a host for *'s* when it occupies the [Spec,DP]-position. That the nominals *Amerika* and *Goirle*, as opposed to *dit land* and *dat dorp*, can occur in the configurations at issue is shown by the following examples:

(iii) a. Amerika's eerste president
America's first president

b. Goirle's oudste inwoner
Goirle's oldest inhabitant

(iv) a. * Dit land's eerste president
This land's first president

b. * Dat dorp's oudste inwoner
That village's oldest inhabitant

15. As expected, in French it is also impossible to extract *son*, just like other determiners.

(i) a. * Son_i j'ai lu [livre]
His I have read book

b. * Ce_i j'ai lu livre!
This I have read book

16. See also Kayne (1984) for arguments from French showing that verbs can assign case to noun phrases occupying the [Spec,CP].

17. The sentences (70a) and (70b) are taken from Taraldsen (1977) and Fiva (1985), respectively. Example (70c) is from Lars Hellan (p.c.)).

18. Sentence (72a) is from Taraldsen (1977) and (72b) from Hellan (p.c.).

19. In Marm & Sommerfelt (1986), it is argued that common usage would in most cases prefer the object form *meg*.

20. In German, a predicate nominal also receives its case under predication. Consider, for example, the following sentence:

(i) Er ist sein Freund/ *seinen Freund
He-NOM is his-NOM friend/ *his-ACC friend

The copular verb cannot assign accusative case to the predicate nominal. So, in this sense German differs from Dutch and Norwegian. Notice now that although the predicate nominal can receive case under predication, extraction of the left branch possessor from within a doubling possessive NP is still not possible (Note that the finite verb is moved into COMP):

(ii) a. [Dem Karl sein Freund]$_i$ ist$_j$ er$_i$ t_i t_j
The-DAT Charles his-NOM friend is he

b.* Dem $Karl_i$ ist$_j$ er [t_i sein Freund] t_j!
The-DAT Charles is he his-NOM friend
'He his Charles's friend'

The nonextractability of the the left branch possessor still follows from the proposal that the [Spec,DP]-position is only accessible to an external antecedent-governor adjoined to the maximal projection of a Verb, for example, if that particular verb can case-govern (i.e. assign structural case to) into the [Spec,DP]-position. As is shown by (i), the copular verb *is* does not have a case assigning property and therefore automatically cannot case-govern into a DP. Since the copular verb cannot case-govern into the [Spec,DP]-position, a potential antecedent-governor adjoined to VP does not have access to this position either.

21. Taraldsen (1977) notes that extraction of *hvem* is not permitted from a subject position:

(i) * $Hvem_i$ er [t_i sin soster] penest?
Who is his sister nicest
'Whose sister is the nicest?'

Of course, this extraction operation violates both the ECP and the Subjacency condition: The subject-DP is not L-marked and therefore an L-barrier. IP inherits barrierhood. Consequently moving *hvem* into [Spec,CP] crosses two L-barriers, yielding a Subjacency violation. The antecedent in [Spec,CP] cannot antecedent govern the trace because of the intervening barriers. Therefore, this sentence also violates the ECP.

22. Notice also that it is not permitted to extract the interrogative element *wat* in Dutch from within a *wat voor*-phrase which occupies the [Spec,DP]-position of a possessive doubling construction.

(i) a. [[Wat voor een man] zijn fiets] heb jij gepoetst?
What for a man his bike have you cleaned
'What kind of a man's bike did you clean?'

b. * Wat_i heb jij [[t_i voor een man] zijn fiets] gepoetst?
What have you for a man his bike cleaned

Extraction of *wat* yields an ECP-violation: The possessor DP is not L-marked and therefore a BC and an L-barrier. The DP containing the possessor inherits L-barrierhood. The first possible landing site for *wat* will be a position adjoined to VP: the intermediate trace adjoined to this position does not antecedent govern the trace contained within the possessor-DP.

23. Notice that these facts suggest that it is not correct to assign strings like *hvem sin bil* the following structure:

(i) $[_{DP}\ [_{DP}$ hvem sin$]\ [_{D'}$ bil$]]$

In this structure, *hvem sin* would occupy the [Spec,DP] of the highest DP. Under such an analysis, it is not clear why *hvem sin*, which is a constituent here, cannot be fronted, whereas the more deeply embedded question phrase *hvem* can.

24. As in English, extraction of the left branch possessor is not permitted if the marker *'s* is involved (example from Fiva (1985)):

(i) * Hvems er det [- bil]?
Whose is that car

The Norwegian possessive marker *'s* exhibits the same behavior as the English possessive marker. I will assume that it occupies the D^0-position. Then, the ill-formedness of (i) is caused by a violation of the requirement that non-constituents cannot be moved.

25. See Obenauer (1976; 1984), Grosu (1974), Rivero (1980).

26. Giorgi & Longobardi (forthcoming) report the following fact from French:

(i) * J'ai rencontré beaucoup, hier, d'étudiants
I have met many yesterday of students
'I met many students yesterday'

The impossibility of extraposing the string *d'etudiants* follows from our structure: this string is a D'-constituent; under the assumption that only X-zero categories and maximal projections can undergo movement, this extraposition operation is not permitted.

27. It should be noted that even if these DegPs do not need case and therefore do not create an L-barrier, absence of L-marking of these categories nevertheless makes them into an L-

barrier (note: the copular verb does not assign a theta-role to them). However, if it is assumed that adjunction to DegP is possible, the L-barrierhood of DegP can be circumvented.

28. The examples from Rumanian are taken from Grosu. It should be noted that the Spanish constructions with *cuán* are archaic (data from Vos (1989)).

8 LEFT BRANCH EXTRACTION FROM DEGP AND AP

8.1 Introduction

This chapter is concerned with the extraction possibilities of left branch constituents from DegPs and APs. In chapter 7, an analysis was already given of the nonextractability of degree words from within adjective phrases. It was argued that the frozen character of these elements was due to their head status. A Deg^0 could not escape the barrierhood of the dominating maximal projection(s) (e.g. DegP, VP) via adjunction, since it was not permitted to adjoin an X-zero category to a maximal projection under the structure preservation requirement. Hence, extraction of a left branch degree word will yield an ECP-violation. This requirement also prevented substitution of the degree word for the [Spec,CP] position, under the assumption that this position only permits maximal projections.

Since many of the relevant left branch extractions discussed in this chapter (and in later chapters) involve measure phrases, I will first examine in section 8.2 certain syntactic and semantic properties of measure phrases, focussing on measure phrases that are selected by verbs. Section 8.3 investigates the extractability of complements of adjectives. Section 8.4 is devoted to an analysis of the accessibility of left branch constituents within DegP to movement operations. In section 8.5 comparative considerations become relevant. On the basis of a number of languages it will be shown that the mobility of left branch elements contained within DegP is a phenomenon present in languages from different families. Next, I will examine in section 8.6 the movement behavior of measure phrases that are contained within AP in Dutch and English. Section 8.7 investigates the possibility of reordering adjectival modifiers out of APs. In section 8.8, finally,I will discuss certain minimality effects on the basis of extractions out of sentential complements of adjectives.

8.2. Some notes on measure phrases

Before I actually turn to a discussion of the extractability of left branch constituents from DegP and AP, some remarks about measure phrases are in order, since it is this type of phrases that often appear as left branch elements within categories such as AP and DegP, but also in PPs, as we will see in chapter 9. Evidence will be presented in this section in favor of the nonargument status of nominal measure phrases. As will become clear in this chapter and later chapters, the nonargument status of measure phrases plays an important role in left branch extractability. As is well-known, argument and nonargument traces behave differently with regard to proper government; Following Lasnik & Saito (1984), it will be assumed that only the initial trace of a moved argument needs to be properly governed, whereas all traces of a moved nonargument must be properly governed.

The examples in (1)-(4) show that measure phrases can appear within different syntactic environments:

(1) a. John [weighs [ninety pounds]]
    b. The concert [lasted [three hours]]

(2) a. John [slept [three hours]]
    b. John [walked [twenty miles]]

(3) a. John is [five feet [tall]]
    b. John is [2 inches [too small]]

(4) a. John went [[two miles] into the woods]]
    b. I met her [twenty meters [under the ground]]

The measure verbs in (1) are subcategorized for a measure phrase. The measure phrases in (2), on the other hand, do not subcategorize the verb. In (3a), a measure noun phrase occurs within an AP headed by the measure adjective *tall*, and in (3b), the measure phrase occupies the [Spec,DegP] of the Degree Phrase headed by *too*. In (4a), a PP-complement contains a modifying measure phrase, whereas in (4b) the measure phrase is contained within an adjunct-PP.[1]

The non-subcategorizing measure phrases behave like true nonarguments (i.e. expressions that are not assigned an internal or external theta-role). It turns out, however, that the subcategorizing measure phrases in (1), for example, behave like nonargument expressions as well. They are "adverbial" complements which specify some value such as height, measure, duration, etc. (cf. also Emonds (1985)).

Let us turn to some evidence showing the nonargument status of these subcategorizing measure phrases and compare them with argument noun phrases. In my discussion, I will focus on the behavior of measure phrases selected by measure verbs (as in (1)). The phenomena which will be discussed can also be found in the other measure phrase configurations mentioned above.

A first indication of the different status of measure phrases and argument-noun phrases is the fact that the two cannot be coordinated. This is exemplified in (5). As has often been noted, coordinate conjoined structures are in some contexts subject to semantic "parallelism" requirements. The ill-formedness of this coordinate noun phrase is presumably due to different semantic status of the two conjuncts, one being an argument of the verb assigned a thematic role Theme, the other being a measure phrase not bearing a Theme-role.

(5) * John weighs 200 pounds and the pig

A second piece of evidence showing the nonargument status of measure phrases selected by measure verbs is the fact that extraction of such measure phrases out of wh-island configurations yields strongly ill-formed sentences, whereas

removal of an argument expression out of the same syntactic configuration is much more acceptable (see Koopman & Sportiche (1985, 1988)).[2]

(6) a. ?? How many apples$_i$ did you wonder whether John weighed t_i?
b. * How many pounds$_i$ did you wonder whether the refrigerator weighed t_i?

This contrast also holds for Dutch:[3,4]

(7) a. ?? Welke baby$_i$ vroeg Sue zich af wanneer de
Which baby wondered Sue REFL PRT when the

dokter t_i zou gaan wegen
doctor would go weigh

b. * Hoeveel kilo$_i$ vroeg Sue zich af wanneer Piet t_i woog?
How-many kilo wondered Sue REFL PRT when Pete weighed

The a-sentences in (6) and (7) weakly violate the Subjacency Condition, since the fronted argument crosses CP, which inherits barrierhood from the non-L-marked IP. The ECP is satisfied, since the initial trace of the moved argument is properly governed by the nearest antecedent-trace, which is adjoined to the lower VP. Besides weakly violating the Subjacency Condition, the b-sentences are also ruled out by the ECP. Although the initial trace of the fronted measure phrase is antecedent-governed by the intermediate trace adjoined to the VP of the embedded clause, this intermediate trace itself is not properly governed by a local antecedent. The nearest antecedent for this trace is the intermediate trace adjoined to the VP of the matrix clause. This trace does not properly govern the lower VP-adjoined trace, because it is excluded by the L-barrier CP.

Notice that this contrast between measure phrases and arguments not only shows up in wh-island configurations, but also in other syntactic environments:

(8) a. John is taller [than Bill]
b. John is taller [than three feet]
c. Who$_i$ is John [taller [than t_i]]?
d. * How many feet$_i$ is John [taller than t_i]]?

(9) a. John died [after [that car accident]]
b. John died [after [two minutes]]
c. (?)Which car accident$_i$ did John die [after t_i]?
d. * How many minutes$_i$ did John die [after t_i]?

The examples in (8) show that the measure phrase *how many feet* cannot be extracted from within the *than*-phrase, which presumably should be analyzed as a PP (see a.o. Hankamer (1974)), whereas the argument expression *who* can. A similar contrast is found in (9). Removal of the measure phrase *how many minutes* from within the adjunct-PP yields a strongly ill-formed sentence, but

extraction of the argument noun phrase *which car accident* is much more acceptable.[5] The PPs in these constructions are not L-marked: The *than*-phrase appearing within the DegP is not L-marked by the non-theta assigning category Deg^o and the temporal adjunct-PP headed by *after* is not assigned a theta-role by the verb. If Lasnik & Saito's (1984) hypothesis is adopted that only the initial trace of an argument expression needs to be properly governed but all traces of a non-argument chain and if furthermore Van Riemsdijk's (1978) escape hatch theory for P-stranding is assumed, then this contrast can be accounted for in the following way: Extraction of the argument from within the adjunct-PP yields a fairly acceptable sentence, since the initial trace in the complement position of PP is antecedent governed by the intermediate trace occupying the [Spec,PP]. In other words, there is no ECP-violation. Extraction of the non-argument (i.e. measure phrase) expression is not allowed, since even if one moves through [Spec,PP], there will always be a trace (initial or intermediate) which is not antecedent governed because of the fact that the adjunct-PP is an L-barrier which includes a nonargument trace but excludes a potential governor of that trace.

A third indication of the nonargument status of the noun phrase selected by a measure verb concerns the possibility of having the quantitive R-pronoun *er* ('there') with the noun phrase in question. As Blom (1977) and Bennis (1986) have pointed out, the quantitive use of *er* is found when there is a quantified argument-noun phrase containing an empty head or an empty N'. This is exemplified in (10):

(10) a. Jan heeft toen [drie boeken] gekocht
John has then three books bought

b. Jan heeft er$_i$ toen [drie t_i] gekocht
John has there then three bought

An indication of the nonargument status of measure noun phrases selected by a measure verb is the fact that the nominal head of such a measure phrase cannot be replaced by the *er*. As such, they differ from argument noun phrases selected by the verb, but correspond to adverbial noun phrases. The impossibility of having quantitive *er* with adverbial NPs is illustrated in (11):

(11) a. * Jan heeft er$_i$ toen [dertig t_i] gewandeld
John has there then thirty walked (e.g. kilometers)

b. * Jan moest er$_i$ toen [vijf t_i] in bed blijven
John had there then five in bed to-stay (e.g. days)

Consider now the following constructions which show that quantitive *er* cannot occur with measure noun phrases selected by measure verbs:[6]

(12) a. *? Jan zei dat het varken er$_i$ toen [tachtig t_i] woog
John said that the pig there then eighty weighed

b. *? De boer zei dat zijn kudde er_i toen [twintig t_i]
The farmer said that his herd there then twenty

telde
numbered

c. * Jan zei dat die aria er_i toen [tien t_i] duurde
John said that that aria there then ten lasted

The symmetric behavior with adverbial noun phrases suggests that measure noun phrases are non-arguments as well. This accounts for the following contrast:

(13) a. *? Jantje heeft er_i vroeger [twintig t_i] gewogen
Johnny has there formerly twenty weighed (kilos)

b. De boer heeft er_i gisteren [twintig t_i] gewogen
The farmer has there yesterday twenty weighed (pigs)

(14) a. * De kuddevan die herder heeft er_i vroeger [twintig t_i]
The herd of that shepherd has there formerly twenty

geteld
numbered (sheep)

b. De herder heeft er gisteren [twintig] geteld
The shepherd has there yesterday twenty counted (sheep)

In the a-sentences, the R-pronoun is related to a quantified measure phrase selected by a measure verb. Presumably, the adverbial status of the noun phrase blocks removal of the R-pronoun. In the b-sentences, the R-pronoun is associated with a quantified NP which functions as an argument of the verb.

Another diagnostic showing the different behavior between argument-complements on the one hand and measure phrase complements on the other concerns Ross's (1983) observation that negation interferes with the extractability of adverbial constituents, but not with the mobility of argument expressions (cf. also Rizzi (1989)):

(15) a. How many pigs did you believe that he weighed yesterday
b. How many kilos did you believe that he weighed yesterday

(16) a. How many pigs didn't you believe that he weighed yesterday
b. * How many kilos didn't you believe that he weighed yesterday

The above-mentioned diagnostics show that measure phrases selected by measure verbs behave more like nonarguments (i.e. adjuncts) than like argument expressions. So, while a measure verb like *to last* subcategorizes a measure noun phrase, it does not assign an internal thematic role to it. In other words, the argument structure of the measure verb contains one

thematic role, viz. the external theta-role. The lexical entry of the measure verb *last* would look as follows, where Theme is the external theta-role:

(17) last, V, <NP>, (Theme)

Notice further that there are two types of lexical entries for a verb like *to weigh* in the lexicon.

(18) a. Dutch:wegen /English: weigh, V, <NP>, (Theme)
b. Dutch:wegen /English:weigh, V, <NP>, (Agent, Theme)

The latter lexical entry is the one for the measure verb *weigh* as in *John weighs the pig*. The former lexical entry stands for the verb *weigh* occurring in constructions like *John weighs 130 pounds*. The measure verb is "agentless", the non-measure verb *weigh* does assign a agent role.[7,8]

On the basis of the facts above, it seems fair to conclude that measure phrases in Dutch and English behave like nonarguments (even when they are subcategorized for).[9] The relevance of the nonargument status for left branch extractability will become clear in this chapter and the next two chapters.

8.3 Extraction of complements

Before discussing the extractability of left branch specifiers and modifiers in the next sections, I will consider the accessibility of complements contained within adjective phrases to movement operations. I will start my discussion with the possibility in languages such as Dutch and English of stranding the preposition which is the head of the PP-complement of the adjective phrase. Consider the following examples:

(19) a. Ik vraag me af waar$_i$ Jan [trots [t_i op t_i]] is
I wonder REFL PRT where John proud of is

b. Ik vraag me af waar$_i$ Jan [verbaasd [t_i over t_i]] was
I wonder REFL PRT where John astonished about was

(20) a. Who$_i$ is she [proud [t_i of t_i]]?
b. Which dog$_i$ is she [afraid [t_i of t_i]]?

The well-formedness of these examples follows from the Barriers system. Neither the ECP nor the Subjacency Condition is violated. The initial (argument) trace of the complement of the preposition is properly governed PP-internally by the intermediate trace occupying [Spec,PP]. Hence, ECP is satisfied. The Subjacency Condition is not violated either because no L-barrier is crossed. The PP-complement is L-marked by the adjective and therefore not an L-barrier. Assuming that copular verbs do not assign a theta-role to their complement, the adjective phrase is not L-marked and therefore a potential L-barrier. The barrierhood of this phrase, however, can be circumvented by adjoining to it. Such an operation is permitted given the

nonargument type category status of this phrase. Via subsequent adjunction to VP, the complement of the preposition can be moved into [Spec,CP].

So, the extraction facts in (19) and (20) can be derived. A question that is raised, however, in connection with these facts is the following: How sure can we be that the R-pronoun has been extracted from a PP which is contained within an adjective phrase? One could propose, for example, that a string like *verbaasd waarover was* (see (19b)) can be assigned two structures: one in which the PP is part of the adjective phrase and functions as an argument of the adjective, another one in which the PP hangs from V' (or at least a position external to the adjective phrase) and functions as an argument of the AP-copula combination, which functions as some sort of a complex predicate which is subcategorized for and assigns a theta-role to the PP (see Koster (1978, 1987)).[10] If those two structures can be assigned to the A-PP sequences in (19) and (20), it is no longer clear whether extraction of the complement of the preposition really takes place from within the adjective phrase.[11] It might very well be, for example, that the extracted R-pronoun in (19b) has the following input structure:

(21) ...[$_{CP}$ [$_{IP}$ Jan [$_{VP}$ [$_{AP}$ verbaasd] [$_{PP}$ waarover] was]]]

(19b) would be derived in the following way: The R-pronoun leaves the PP via the [Spec,PP] and via subsequent adjunction to VP it reaches the [Spec,CP].

The question, of course, arises whether there is any evidence for assuming a structure like (21). A possible argument comes from pronominalization phenomena in adjective phrases. As the following examples show, an adjective phrase can be pronominalized into the pronoun *het* ('it') or *dat* ('that') in Dutch:

(22) a. Sue is *bang voor honden* geweest en Jo is *dat*
Sue has afraid of dogs been and Joe has that

ook geweest
too been

b. Jo is *trots op zijn vader* geweest en Piet is
Joe has proud of his father been and Pete has

dat ook geweest
that too been

Notice also that the entire adjective phrase can be questioned:

(23) *Wat* is Sue geweest? *bang voor honden*!
What has Sue been? afraid of dogs

The following examples show that it is also possible for the pronoun to replace the entire adjective phrase, except for the PP-complement:

(24) a. Jan is *bang* voor honden geweest en Piet is *dat*
John has afraid of dogs been and Pete has that

voor katten geweest
of cats been

b. Jan is *trots* op zijn vader geweest en Piet is *dat* op zijn
John has proud of his father been and Pete has that of his

moeder geweest
mother been

Correspondingly, we can question *bang* and *trots* in (24), obtaining the sentences in (25):

(25) a. *Wat* is Jan voor honden geweest? *Bang*!
What has John of dogs been Afraid

b. *Wat* is Jan op zijn vader geweest? *Trots*!
What has John of his father been Proud

Under the assumption that the pronoun replaces a maximal projection, the PP-complements in the second conjunct of each of the sentences in (24) must be base-generated outside of the PP.

That the pronoun and the PP do not form a constituent is shown by the following facts:

(26) a. [Trots op zijn vader] was Jan geweest!
Proud of his father had John been

b. * [Dat op zijn vader] was Jan geweest!
That of his father had John been

c. * [Wat op zijn vader] was Jan geweest?
What of his father had John been

(27) a. Jan is [zowel [trots op Piet] als [trots op Sue]] geweest
John has both proud of Pete as proud of Sue been

b. * Jan is [zowel [trots op Piet] als [dat op Sue]] geweest
John has both proud of Pete as that of Sue been

Sentence (26a) shows that the string *trots op zijn vader* can form a constituent occupying [Spec,CP]. The sentence (26b and c) illustrate that the pronoun (both in its demonstrative form and in its interrogative form) cannot be moved into [Spec,CP] together with the PP, which suggests that the pronoun and the PP do not form a constituent, as opposed to the string *trots op zijn vader* in (26a). The well-formedness of (27a) shows that the strings *trots op Piet* and *trots op Sue* are constituents, given the requirement that

only constituents can be coordinated. The ungrammatical sentence (27b) may be interpreted as a violation of this requirement: the pronoun *dat* and the PP do not form a constituent and therefore cannot form a conjunct.

Another piece of evidence suggesting the existence of a structure like (21), in which a PP is base-generated outside of the AP it is associated with, comes from the following sentence:

(28) Verliefd was Jan toen op Marie geweest!
In-love has John then of Mary been
'John was in love with Mary at the time'

In this sentence, *verliefd* occupies the [Spec,CP]. Under the assumption that only maximal projections can appear in this position, *verliefd* must be a maximal projection. This suggests that the PP is outside of the adjective phrase.

So, these pronominalization facts seem to provide some evidence for the possibility of generating the PP outside of the adjective phrase, at least in the above-mentioned copula constructions. One could argue now that in the constructions in (19) and (20), the complement of the preposition is extracted from a position external to the adjective phrase. Of course, for sentences like (20) and (29) below, it is hard to decide whether extraction takes place from within a PP contained within the adjective phrase or from within a PP external to the adjective phrase, because the adjective and the PP are adjacent to each other.

(29) Waar$_i$ is Jan waarschijnlijk trots [t_i op] geweest?
Where has John probably proud of been

Sentences in which it is clearer that the an element has been removed from a PP which is not within the adjective phrase are those in which the adjective phrase has been replaced by a pronoun.

(30) Jan is *dat* waarschijnlijk *op Marie* geweest
John has that probably of Mary been

Consider now the following extraction patterns:

(31) a. Waar$_i$ is Jan dat waarschijnlijk ook [t_i op] geweest?
Where has John that probably also of been
'Which girl was John probably proud of as well?'

b. Daar$_i$ is Jan het waarschijnlijk ook [t_i op] geweest!
There has John it probably also of been
'This girl, John was probably proud of as well!'

c. Jan is er$_i$ dat waarschijnlijk ook [t_i op] geweest
John has there that probably also of been
'Probably, John was proud of that girl as well'

It seems to me that these sentences are acceptable. They show that extraction of the R-pronoun from within the PP, which hangs from V', is permitted. So, at least for those A-PP sequences in which the A can be replaced by a pronoun, one might hold the view that extraction of the complement of the preposition does not take place from within the adjective phrase.

It should be noted, however, that there appears to be some vacillation in informant judgement on this matter. With certain adjectives, replacement of the adjectives by a pronoun yields less acceptable results. Compared to the sentences in (32), for example, their "pronominal counterparts" seem to me worse:[12]

(32) a. Waar$_i$ ben jij allemaal bereid [t_i toe] geweest?
Where have you all willing to been
'You have been willing to do what?'

b. Waar$_i$ ben jij onschuldig [t_i aan]?
Where are you innocent of
'You are innocent of what?'

(33) a. ?? Waar ben jij dat [t_i toe]?
Where are you that to
'You are willing to do what?'

b. ?? Waar ben jij dat [t_i] aan?
Where are you that of
'You are innocent of what?'

On the basis of the less acceptable status of the sentences in (33), one might propose that the PP-complement of these adjectives must be base-generated within the adjective phrase. That would mean that in (32), the R-pronoun is extracted from within a PP contained within an adjective phrase.

I will not discuss these complicated facts any further here. Instead I will present some arguments which clearly show that extraction from a PP which is contained within an adjective phrase is permitted. So, even though one might propose for certain extraction patterns that the PP is not contained within the adjective phrase, there are cases which clearly show that extraction of the complement of a preposition takes place from within the adjective phrase.

A first piece of evidence showing that such extraction operations are possible is based on the following coordination facts from Dutch:

(34) a. Waar$_i$ is Jan [zowel [goed t_i tegen bestand] als
What has John both well against proof as

[goed t_i tegen opgewassen]] geweest?
well to equal been

b. Het meisje waar$_i$ Jan [niet alleen [verliefd t_i op] maar
The girl who John not only in-love with but

ook bang t_i voor]] was, heette Susan
also afraid of was, was-called Susan

In these sentences, an R-pronoun has been extracted in an across-the-board fashion from within two adjective phrases that are conjoined by emphatic conjunctions. As is well-known, only constituents can be conjoined. This means, for example, that in (34b) the strings *verliefd op* and *bang voor* must be considered syntactic units (viz. adjective phrases) and cannot be analyzed as consisting of a separate adjective phrase and a separate PP constituent. In short, these across-the-board extractions show that R-pronouns can be reordered out of PP-complements that are contained within adjective phrases.

Similar facts can be found in English:

(35) a. Which girl$_i$ was John [both [proud of t_i] and [fond of t_i]]?
b. The dog which$_i$ John was [both [afraid of t_i] and [fond of t_i]] was called Tarzan

In these sentences, *which girl* and *which* are extracted in an across-the-board fashion from within the PP-complements of two coordinated adjective phrases.

A second fact which shows that extraction is allowed from within an AP-internal PP-complement comes from the following small clause construction in which an anaphor occupies the complement position of the preposition:

(36) I consider [Mary$_i$ [proud of herself$_i$]]

In accordance with principle B of the Binding Theory, the anaphor *herself* is bound by the noun phrase *Mary* within its governing category. Notice that if one assumes that the PP-complement is base-generated outside of the adjective phrase and appears in a position hanging form V', then the anaphor *herself* is no longer bound by the antecedent *Mary*. In that case, one would predict a string like (36) to be out. So, we must assume that the PP-complement *of herself* is contained within the AP in this construction. Notice, now, that it is possible to front the anaphor, which shows that extraction of an AP-internal complement of a preposition is possible:

(37) Herself$_i$ I consider [Mary$_i$ [proud of t_i]]!

A third piece of evidence showing that extraction from within an AP-internal PP-complement should be possible comes from the following facts from Dutch:

(38) a. Waar$_i$ is Jan [nauw [t_i aan] verwant]?
What is John closely to related

b. Waar$_i$ bleek Jan [goed [t_i mee] bekend]?
What appeared John well with acquainted

c. Waar$_i$ denk je dat Jan [goed [t_i mee] bevriend] is geraakt?
What think you that John well with friendly has become
'What do you think that John has become friendly with?'

In these sentences, the PP-complement occupies a position in between the adjectival head and a modifier of the adjective phrase. This shows that the R-pronoun is really moved from within the adjective phrase. Of course, one could argue that the modifier is also outside of the adjective phrase. In that case, the embedded clause in a sentence like (38c) would have the following input-structure:

(39) ...dat Jan [goed] [waarmee] [bevriend] is geraakt

Under this analysis, the PP would still not be contained within the adjective phrase. Notice, however, that if one permits these structures, it is not clear what rules out the generation of the following ill-formed sentence:

(40) * Bevriend$_i$ denk ik dat Jan [goed] [daarmee] [t_i is geraakt
Friendly think I that John well there-with has become
'I think that John has become his friend'

This construction would simply involve fronting of an adjective phrase into the [Spec,CP] of the matrix clause. If one assumes that *goed daarmee bevriend* is always an adjective phrase at D-structure, then the ungrammatical status follows among others from the fact that an adjectival head cannot be moved into [Spec,CP] under the structure preservation requirement on substitution operations.

According to my analysis of the extraction patterns as in (19), the extracted complement of the preposition leaves the adjective phrase via adjunction to this maximal projection. Consider now the following sentences from Dutch which show that the R-pronoun can get adjoined to the adjective phrase (i.e. DegP):[13]

(41) a. [Er$_i$ twee keer zo bang [t_i voor] als Sue] was Jan toen
There two times as afraid of as Sue was John then

b. [Er$_i$ hoeveel cm te klein [t_i voor]] was Jan
There how-many cm too small for was John

volgens Sue
according-to Sue

c. [Daar$_i$ heel wat minder [t_i van] afhankelijk] leek me Jo!
There quite a-lot less on dependent seemed to-me Joe

d. [Er$_i$ net zo trots [t$_i$ op] als Sue] zei Jan dat ie
There just as proud of as Sue said John that he

t$_i$ was geweest
had been

Note that the string between the outermost brackets is really a constituent (viz. DegP), since it occurs in the syntactic position [Spec,CP]. It is followed by the finite verb which has been moved into the COMP-position of the matrix clause via Verb Second. Notice that these examples clearly show that extraction of an R-pronoun from a PP which is contained within an adjective phrase is possible. The R-pronouns are moved to the left periphery of the DegP in the following way: First, the R-pronoun is moved to [Spec,PP]. Then it leaves the PP, which is not an L-barrier since it is L-marked by the adjective, and moves to the next landing site, i.e. a position adjoined to AP. Note that AP is a potential L-barrier, since it is not L-marked by Deg^o. Its barrierhood can be voided, however, via adjunction to it. This is permitted, because it is a nonargument type category. Finally, the R-pronoun moves to a position left adjoined to DegP, which is a nonargument type category as well. None of the movement operations violates the Subjacency Condition or the ECP. The initial trace of the moved R-pronoun is antecedent governed by the intermediate trace in [Spec,PP]. Hence, ECP is satisfied. The Subjacency Condition is not violated either, since no L-barrier is crossed.

All in all, it seems to me that there is sufficient evidence for the existence of complement extractions from PPs that are contained within adjective phrases. So, although for certain cases the extraction of a complement may be from a PP which is external to the adjective phrase, for others an analysis in which the complement leaves the adjective phrase via adjunction to this category is still necessary.

After this discussion of extraction from within an AP-internal PP-complement, let us next consider the extractability of PP-complements of adjectives.[14]

(42) a. Waarvan$_i$ is zij [een stuk minder afhankelijk t$_i$] geworden?
Where-on has she a lot less dependent become

b. Waarmee$_i$ lijkt Jan [minder bekend t$_i$ dan Piet]?
Where-with seems John less acquainted than Pete

(43) a. Of whom$_i$ is she [less proud t$_i$ than Bill]?
b. Of whom$_i$ is she [less afraid t$_i$ than Bill]?

Removal of the PP-complement does not violate the Subjacency Condition and the ECP. Via adjunction to AP, DegP and VP the PP-complement can be moved into [Spec,CP]. ECP is satisfied, since the initial trace of the fronted PP is antecedent governed by the intermediate trace adjoined to AP. The Subjacency condition is not violated either, because no L-barrier is crossed.

The possibility of adjoining PP to DegP is shown by the following examples from Dutch:

(44) a. [Daarvan een stuk minder afhankelijk], dat lijkt me Jo!
There-on a lot less dependent that seems to-me Joe

b. [Daarvan heel wat minder afkerig] was Jo volgens mij!
There-to a lot less averse was Joe according to-me

In the contrastive left dislocation construction (44a), a DegP appears in the left periphery of the clause, possibly a TOP-node. In the topicalization construction (44b), the DegP occupies the [Spec,CP]-position. In these sentences the PP-complement occupies a left peripheral position within the DegP. The fact that the [Spec,DegP] is already filled by the nominal elements *een stuk* and *heel wat*, suggests that the moved PP-complement is adjoined to DegP. The PP-complement is moved to this position via intermediate adjunction to AP, which is the complement of Deg^o.[15]

Here again, the question might arise whether there is any evidence that the PP-complement is really extracted from within the adjective phrase. It could be argued, for example, that the PP is base-generated outside of the adjective phrase and that the sentences in (42) are not derived by subextracting a PP-complement out of a dominating adjective phrase. Instead of rediscussing the question whether a PP which is associated with an adjective can be base-generated external to the adjective phrase, I will simply mention a fact which suggests that a PP can be reordered out of an adjective phrase in principle.

The following small clause facts indicate that PP-complements can be extracted from within APs:

(45) a. Ik maakte [Marie$_i$ boos op zichzelf$_i$]
I made Mary angry with herself

b. [Op zichzelf$_i$] maakte ik Marie$_i$ boos
With herself made I Mary angry

(46) a. I made [her$_i$ mad at herself$_i$]
b. [At herself$_i$], I made her$_i$ mad (not at Bill)

If the PP was base-generated outside of the small clause adjective phrase, then the anaphor *zichzelf/herself* would not be bound within its governing category and therefore would violate principle B of the Binding Theory. So, the PP must originate within the small clause. The possibility of fronting the PP containing the anaphor, shows that it is possible to extract PP-complements from within adjective phrases.

So far, I have given an analysis of two types of extraction operations from adjective phrases: (i) extractions of complements of prepositions that head a PP which the adjective is subcategorized for, (ii) extraction of these PP-complements themselves. It was further shown that these elements can leave

the dominating DegP via adjunction to AP and DegP. These DegP-internal movements result into various word order patterns within the DegP. This is illustrated below:

(47) a. [Veel minder afhankelijk *daarvan*] is Jan!
Much less dependent there-on is John

b. [Veel minder *daarvan* afhankelijk] is Jan!
c. [*Daarvan* veel minder afhankelijk] is Jan!

(48) a. [Veel minder *daar* afhankelijk *van*] is Jan!
b. [*Daar* veel minder afhankelijk *van*] is Jan!
c. [*Daar* veel minder *van* afhankelijk] is Jan!

In (47a,b), the PP *daarvan* occupies the complement position within the AP.[16] In (47c), the PP-complement is moved to a position adjoined to the DegP (with adjunction to AP as an intermediate step). In (48a), the R-pronoun is extracted from within the post-adjectival PP-complement and is adjoined to AP. In (48b), this extracted R-pronoun is moved one step further, namely to a position adjoined to DegP. In (48c), finally, the R-pronoun is extracted from within a pre-adjectival PP-complement an adjoined to DegP (with adjunction to AP as an intermediate step).

Sometimes, it is not possible to remove an R-pronoun from a PP which is selected by an adjective. Consider, for example, the declarative sentences in (49) from Dutch and their interrogative counterparts in (50):

(49) a. Jan leek toendertijd [veel minder afhankelijk daarvan]
John appeared then much less dependent there-on

b. Jan leek toendertijd [veel minder daarvan afhankelijk]
c. Jan leek toendertijd [daarvan veel minder afhankelijk]

(50) a. Waar$_i$ leek Jan toendertijd [veel minder afhankelijk
Where appeared John then much less dependent

t_i van]]?
on

b. Waar$_i$ leek Jan toendertijd [veel minder [t_i van] afhankelijk]?
c. * Waar$_i$ leek Jan toendertijd [[t_i van] veel minder afhankelijk]?

In (50a,b), the R-pronoun has been removed from within a right branch and left branch complement position, respectively. Both PPs are L-marked by the adjective and therefore do not form L-barriers to movement. In (50c), however, the R-pronoun has been reordered out of a PP which originates in a complement position of the adjective *afhankelijk* and has been adjoined to the DegP. Now the contrast between (50a and b) on the one hand and (50c) on the other is presumably due to the fact that in the former sentences R-extraction takes place from a PP which is not an L-barrier, whereas in the

latter the R-pronoun is extracted from a non-L-marked PP which creates an L-barrier.[17]

I will conclude this section with a number of remarks concerning the extractability of constituents from within adjective phrases that have an adjunct status. For some as yet unknown reason, the complementation system of adverbial adjectives is limited (cf. Jackendoff (1977), Travis (1988)). Nevertheless, there are constructions in which those adjectives can appear with a PP-complement. Consider, for example, the following sentences (note that the adjective phrase *differently from verbs* is an obligatory complement of the verb *behave*):

(51) a. She solved the problem [independently from Bill]
b. Nouns behave [differently from verbs]

Notice now that stranding the preposition of the PP-complement is possible:

(52) a. Who$_i$ did she solve the problem [independently from t_i]?
b. Which categories$_i$ do nouns behave [differently from t_i]?

These sentences can be derived as follows: first, the wh-phrase is adjoined to the adjective phrase. This way, the potential L-barrierhood of this adjunct is voided. Via subsequent adjunction to VP, the wh-phrase can reach the [Spec,CP].

Another set of facts which clearly shows that extraction from within adverbial adjective phrases is permitted comes from so-called prepositional comparative phrasals such as *than Bill* and *as Bill*.[18] As Hankamer (1974) has pointed out, it is possible to front the complement of *than* in such phrasals, which can be interpreted as an instance of preposition stranding:

(53) a. Who$_i$ is she [taller [than t_i]]?
b. What$_i$ does it taste [sweeter [than t_i]]?
c. Who$_i$ did she grow [taller [than t_i]]?

Notice now that it is possible to have similar preposition stranding facts with adverbial adjective phrases (or better DegPs):

(54) a. Who$_i$ do you like Bill [better [than t_i]]?
b. Who$_i$ does she drive [more carefully [than t_i]]?
c. Who$_i$ does she drive [faster [than t_i]]?
d. Who$_i$ did she word the letter [more carefully [than t_i]]?
e. Who$_i$ does she go to parties [more often [than t_i]]?

These examples show that constituents can be reordered out of adjective phrases which have an adjunct status.

This concludes my discussion of certain aspects of the extraction possibilities of PP-complements and from PP-complements that are contained within adjective phrases.

8.4 Left branch measure phrase extractions from DegP

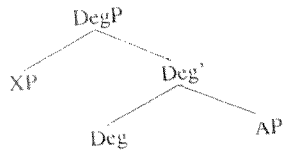
In this section, I will discuss the extractability of left branch measure phrases from within DegPs in sentences such as those in (55):

(55) a. ..dat Jan [2 cm te lang] is
..that John 2 cm too tall is

b. ..dat Jan [3 jaar te oud] is
..that John 3 year too old is

As I have argued in chapter 3, the measure phrases in these sentences occupy the [Spec,DegP].

(56)



The following examples show that left branch extractions from the specifier position of DegP is permitted in Dutch:[19]

(57) a. Hoeveel jaar$_i$ is Jan [t$_i$ te oud]?
How-many year is John too old

b. Hoeveel cm$_i$ is Jan [t$_i$ minder lang dan Piet]?
How-many cm is John less tall than Pete

c. Hoeveel keer$_i$ is Jan [t$_i$ zo lang als Piet]?
How-many times is John as tall as Pete

d. Hoeveel cm$_i$ is Jan [t$_i$ langer dan Piet]?
How-many cm is John taller than Pete

It is also possible to move the entire DegP to [Spec,CP]:[20]

(58) a. [Hoeveel jaar te oud] is Jan?
b. [Hoeveel cm minder lang dan Piet] is Jan?
c. [Hoeveel keer zo lang als Piet] is Jan?
d. [Hoeveel cm langer dan Piet] is Jan?

The extractability of the measure phrase directly follows from the system: I assume that the copula does not L-mark the DegP (cf. Rapoport (1987), Chomsky (1986b)), since it does not assign a theta-role to this category. This means that the DegP is a BC and a potential L-barrier. So, direct removal of the measure phrase from within the DegP is not permitted, since it would yield an ECP-violation. The nonargument type status of DegP, however, makes it possible to move the measure phrase out of the DegP via adjunction to this

category. From that position, the measure phrase can be moved to the specifier of CP via intermediate adjunction to VP without violating the ECP or the Subjacency Condition.

In order to establish that the sentences in (57) really involve subextraction of a left branch measure phrase out of a DegP, it is necessary to address the question what evidence there is that the moved measure phrase originates within the DegP. One could propose, for example, that (59) is the underlying structure of a question construction like (57a) (Note that the finite verb *is* occupies a sentence-final position in (59), given the fact that Dutch is SOV underlyingly).

(59) [$_{CP}$ [$_{IP}$ Jan [$_{VP}$ [hoeveel jaar] [$_{DegP}$ te oud] is]]]

If this is a possible underlying structure of (57a), no subextraction from DegP is involved when the measure phrase is fronted.

Let us attempt to find some arguments against base-generating the measure phrase outside of the DegP. Consider first the following pronominalization facts.

(60) a. Ik geloof dat Jo *2 jaar te oud* was en dat Sue
I believe that Joe 2 year too old was and that Sue

dat ook was
that too was

b. ?* Ik geloof dat Jo 2 jaar *te oud* was en dat Sue
I believe that Joe 2 year too old was and that Sue

dat *3 jaar* was
that 3 year was

c. *Wat* is Jan? *2 jaar te oud*
What is John? 2 year too old

d. ?* *Wat* is Jan 2 jaar? *te oud*
What is John 2 year? too old

For me there is a contrast between the examples (60a,c) on the one hand and (60b,d) on the other hand. In the former, the entire DegP has been replaced by a pronoun. In the latter, the measure phrase is not part of the replacement, yielding an unacceptable sentence. It is not obvious how to account for the unacceptable status of the examples (60b,d) if the measure phrase can be base generated outside of the DegP, since *te oud* would simply be a maximal projection and therefore should be able to be replaced by the pro-form *dat/wat*, which replaces maximal projections. If the measure is base-generated within the [Spec,DegP]-position, then the unacceptable status of the b- and d-examples follows from the fact that Deg' cannot be the input for

pronominalization by *dat/wat* under the assumption that these pronouns only replace maximal projections.

Another argument against base-generating the measure phrase outside of the DegP comes from the following topicalization facts:

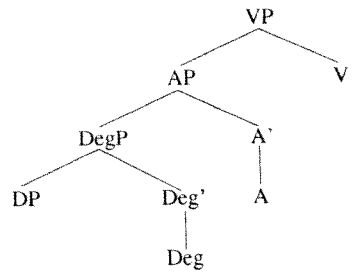
(61) a. * *Te* *oud*$_i$ zei Jan dat Marie 2 *jaar* t_i was geweest!
Too old said John that Mary 2 year had been

b. *Te* *oud*$_i$ zei Jan dat Marie t_i was geweest!
Too old said John that Mary had been

In the ill-formed sentence (61a), the string *te oud* is moved into the [Spec,CP] of the matrix clause and the measure phrase remains behind in the embedded clause. If a measure phrase can be base-generated outside of the DegP it is associated with, then it is not clear what causes the ill-formed status of this sentence, since it would be a normal case of movement of a maximal projection into [Spec,CP]. That the string *te oud* can be moved into this position is shown by (61b), in which *te oud* has the status of a maximal projection. Now, if it is assumed that the relevant measure phrase is always base-generated within the DegP, then the ill-formedness of a sentence like (61a) follows from a number of factors. First, movement of Deg' is not in accordance with the stipulation that only maximal categories and X^0-categories can undergo movement. Second, it would violate the structure preservingness constraint on substitution operations in the topicalization structure (61a), since a Deg' (a non-maximal category) is moved into the [Spec,CP]-position, which can only function as a landing site for maximal projections. Finally, if movement of a Deg' is involved in the derivation of (61a), then the Subjacency Condition and the ECP will be violated within the Barriers system. Deg', a non-maximal category, cannot escape the barrierhood of the dominating maximal projections DegP, VP and IP (the latter is a barrier by inheritance). The barrierhood of these categories cannot be voided via adjunction given the structure preservingness requirement on adjunction operations: A Deg' cannot adjoin to a maximal projection. So, removal of Deg' to the left periphery of the clause crosses three L-barriers. Consequently, the ECP is violated, because the Deg'-trace is not antecedent-governed, and the Subjacency Condition is not satisfied either.[21]

Having established that the measure phrase is base-generated within the DegP, let us turn back to the left branch extractions as given in (57) and address the question whether these extraction patterns can be accounted for under a traditional AP analysis, where a Degree Phrase occupies the specifier position within AP (cf. Bowers (1975)). Starting from a structure like (62), the measure noun phrase can be fronted to the [Spec,CP] by adjoining subsequently to DegP, AP and VP.

(62)



It is not clear, however, what blocks the ill-formed structures in (63) under a traditional AP-analysis. They would simply involve extraction of the entire DegP. Via intermediate adjunctions to AP and VP, the DegP can be moved into [Spec,CP] without violating the ECP or the Subjacency Condition.

(63) a. * *Hoeveel* *cm* *te* is Jan lang?
How-many cm too is John tall

b. * *Hoeveel* *cm* *minder* is Jan lang dan Piet?
How-many cm less is John tall than Pete

c. * *Hoeveel* *keer* *zo* is Jan lang als Piet?
How-many times as is John tall as Pete

Under a DegP-analysis, the ill-formedness of these sentences can be easily accounted for. Extraction of the sequence "measure phrase-degree word" violates the well-known constraint that non-constituents cannot undergo movement operations.

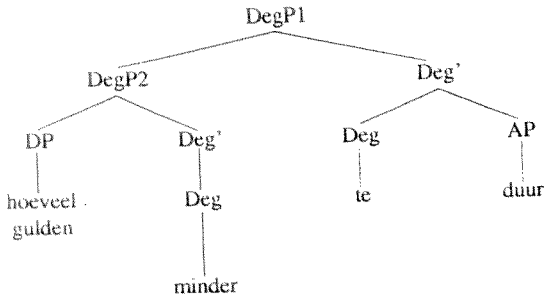
I will now turn to some more complex left branch extractions from DegPs. The internal structure of a DegP can be quite complex, because the specifier position of this category can be occupied by another DegP which contains a measure phrase.

(64) a. Dit boek is [[[2 gulden] minder] te duur]
This book is 2 guilder less too expensive

b. Jan is [[[2 cm] minder] te lang]
John is 2 cm less too tall

Schematically, a string like *hoeveel gulden minder te duur* (how many guilder less too expensive) has the following structure:

(65)



Consider now the following extraction patterns:

(66) a. Hoeveel gulden$_i$ is dit boek [[[t_i] minder] te duur]?
How-many guilder is this book less too expensive

b. Hoeveel gulden minder$_i$ is dit boek [[t_i] te duur]?
How-many guilder less is this book too expensive

c. Hoeveel gulden minder te duur$_i$ is dit boek [t_i]?
How-many guilder less too expensive is this book

(67) a. Hoeveel cm$_i$ is Jan [[[t_i] minder] te lang]?
How-many cm is John less too tall

b. Hoeveel cm$_i$ minder$_i$ is Jan [[t_i] te lang]?
How-many cm less is John too tall

c. Hoeveel cm minder te lang$_i$ is Jan [t_i]?
How-many cm less too tall is John

In (66/67c), the entire DegP has been moved into [Spec,CP], and in (66/67b) the embedded DegP has been removed from within the containing one. This latter extraction is permitted as we have seen above, since the maximal projection occupying the specifier position of a DegP can leave this category via adjunction to it. In (66/67a), finally, the measure phrase has been removed from the DegP occupying the specifier position of the larger DegP. The measure phrase may not move directly out of the lower DegP2, since that would yield an ECP-violation, DegP2 being an L-barrier. However, via adjunction to DegP2, DegP1 and VP, the fronted measure phrase can move into the [Spec,CP]-position without violating the ECP or the Subjacency Condition.

So far, I have discussed left branch extractions from Degree Phrases that are predicates in copula constructions. The same analysis can be applied to constructions in which a left branch constituent is removed from a DegP which is subcategorized for by some verb. Consider, for example, the following sentences in which movement operations apply to a DegP selected by the measure verb *wegen* ('weigh').

(68) a. [Hoeveel kilo]$_i$ weegt Jan [[[t_i] minder] te zwaar dan Jo]?
How-many kilo weighs John less too heavy than Joe

b. [Hoeveel kilo minder dan Jo]$_i$ weegt Jan [[t_i] te zwaar]?
How-many kilo less than Joe weighs John too heavy

c. [Hoeveel kilo minder te zwaar dan Jo]$_i$ weegt Jan [t_i]?
How-many kilo less too heavy than Joe weighs John

In (68a), the measure phrase *hoeveel kilo* can be moved to [Spec,CP] without yielding a subjacency- or ECP-violation, by first adjoining to the DegP headed by *minder*, and subsequently adjoining to the DegP headed by *te*, and finally to the VP. All these maximal projections are non-argument type categories, and as such they permit adjunction to them. Note that adjunction to the DegP headed by *te* is required despite the fact that the DegP is selected by the verb. The stative verb *wegen* ('weigh') does not assign an internal theta-role, so that the DegP is not L-marked. Consequently, the extracted measure phrase must be adjoined to DegP in order to escape its L-barrierhood. Consider next sentence (68b). In this sentence, the Degree Phrase occupying the [Spec,DegP]-position of the degree word *te* has been fronted. In (68c), finally, the entire complex DegP headed by *te* has been moved into [Spec,CP].

Measure phrase extractions are also possible from within small clause degree phrases. For example:

(69) a. Hoeveel graden$_i$ heeft Jo [de verwarming [$_{DegP}$ t_i lager]]
How-many degrees has Joe the heater lower

gezet?
put

b. Hoeveel cm$_i$ vind jij [deze man [$_{DegP}$ t_i te klein]]?
How-many cm consider you this man too small

c. Hoeveel cm$_i$ heeft Jo [de kast [$_{DegP}$ t_i te hoog]] gemaakt?
How-many cm has Joe the cupboard too high made

Suppose the small clause is theta-marked by the verb, and therefore not a BC nor an L-barrier. DegP, on the other hand, is not L-marked by the verb. So, direct removal of the measure phrase to the specifier position of CP is impossible, since it would yield an ECP violation. The measure phrase can reach this landing position, however, via adjunction to DegP and VP.

I will now turn to a discussion of measure phrase extractions from Degree Phrases that are adjuncts of VP, i.e. they are not subcategorized for and are not assigned a theta role by the V. According to Huang's (1982) Condition on Extraction Domains (CED), which states that it is impossible to move an element out of a non-properly governed domain, one would expect that measure phrase extractions from within adjunct-Degree Phrases are out, since these

positions are not properly governed (= theta-governed in Huang's theory) by the verb.

The CED explains, for example, the ill-formedness of the following sentences:

(70) * Who$_i$ did [pictures of t_i] upset her?
(71) * Who$_i$ did she kiss [before leaving t_i]?

The subject noun phrase in (70) is not properly governed, because INFL is not a proper governor. Therefore, the noun phrase constitutes an island from which extraction is not allowed. In (71), the prepositional adjunct is not properly governed either, since it is outside the theta-government domain of the verb. As a consequence, the CED will block any extraction out of this PP-domain.

Chomsky (1986b) argues that the ill-formedness of the sentences in (70) and (71) follows from the Subjacency Condition. The ECP does not mark these sentences as ungrammatical, since the initial trace of the moved argument is properly governed. The Subjacency Condition rules out these sentences in the following way. The subject noun phrase is not L-marked and is therefore a BC and an L-barrier. IP inherits barrierhood from the subject-noun phrase. So, movement from the subject-noun phrase to the specifier position of CP crosses two L-barriers and the sentence is ruled out by the Subjacency Condition. The adjunct PP in (71) is not L-marked either, and therefore is a BC and a barrier too. The barrierhood of this adjunct-PP cannot be voided by adjoining to it, since PP, being an argument type category, does not permit adjunction. So, movement of a constituent to [Spec,CP] crosses the L-barrier PP and weakly violates the Subjacency Condition.

Consider now the following sentences from Dutch which show that Huang's CED is too strong. That is, it is possible in Dutch to extract a measure phrase from within an adjunct Degree Phrase. It turns out, however, that the data fall out from a system as developed in Barriers.

(72) a. Hoeveel octaven$_i$ zong Kiri het lied [t_i te hoog]?
How-many octaves sang Kiri the song too high

b. Hoeveel maten$_i$ hield Kiri de noot [t_i te lang] aan?
How-many bars held Kiri the note too long PRT

c. Hoeveel seconden$_i$ liep Florence [t_i sneller dan Nellie]?
How-many seconds ran Florence faster than Nellie

d. Hoeveel seconden$_i$ hield Ruud de bal [t_i minder lang]
How-many seconds kept Ruud the ball less long
omhoog dan Marco?
up than Marco

e. Hoeveel minuten$_i$ kwam Jo [t_i later] aan dan Piet?
How-many minutes arrived Joe later PRT than Pete

How can these left branch extraction patterns be accounted for?[22] Direct removal of the measure phrase from the DegP would yield an ECP-violation, because the DegP is not L-marked and therefore is an L-barrier for extractions. This barrierhood can be circumvented, however, by adjoining the measure phrase to the DegP, a non-argument type category. From that adjunction site, the measure phrase can reach the [Spec,CP] by first adjoining to VP. No subjacency or ECP violation is involved, since all the traces of the chain are antecedent-governed and 0- or 1-subjacent to each other.[23]

Measure phrase extractions from adjunct-DegPs can also be more complex, as is exemplified by the following paradigms:

(73) a. Hoeveel dagen$_i$ had Jan [[[t_i] minder] te lang] onder
How-many days had John less too long under
de grond gewerkt dan Piet?
the ground worked than Pete

b. Hoeveel dagen minder dan Piet$_i$ had Jan [[t_i] te lang]
How-many days less than Pete had John too long
onder de grond gewerkt?
under the ground worked

c. Hoeveel dagen minder te lang dan Piet$_i$ had Jan [t_i]
How-many days less too long than Pete had John
onder de grond gewerkt?
under the ground worked

(74) a. Hoeveel maten$_i$ hield Kiri de noot [[[t_i] minder]
How-many bars held Kiri the note less
te lang] aan dan José?
too long PRT than José

b. Hoeveel maten minder dan José$_i$ hield Kiri de noot
How-many bars less than José held Kiri the note
[[t_i] te lang] aan?
too long PRT

c. Hoeveel maten minder te lang dan José$_i$ hield Kiri
How-many bars less too long than José held Kiri
de noot [t_i] aan?
the note PRT

In (73/74a), a measure phrase is extracted from inside a DegP which occupies the specifier position of a dominating adjunct DegP. The measure phrase can be fronted by first adjoining to the lower DegP (headed by *minder*), then to the higher DegP (headed by *te*), and finally to the VP. All these adjunction steps are allowed, since the relevant maximal projections are possible adjunction-sites. In (73/74b), the lower DegP is extracted from the higher one. Of course, this is permitted by intermediate adjunction to the higher DegP and VP. In the examples (73/74c), finally, the entire adjunct DegP has been moved to the [Spec,CP]-position via adjunction to VP.

In conclusion, left branch measure phrases occupying the [Spec,DegP]-position turn out to be accessible to movement operations in Dutch. The fact that DegP can function as an adjunction site makes it possible to remove left branch non-arguments from within adjunct-DegPs.

8.5 Extractions from Degree Phrases in other languages

Having established the extraction patterns of left branch measure phrases from DegP in Dutch, the question arises whether the possibility of extracting from DegP is a cross-linguistic phenomenon, or whether it is a special property of Dutch Degree Phrases. Therefore, in this section I will present a short discussion of the possibility of extracting measure phrases from within Degree Phrases in some other languages. I should emphasize that the conclusions reached must be regarded as suggestive at best, given the limited study of the internal syntax of these adjective phrases.

Let us start this brief comparative section with the extraction possibilities in English, which is in fact the least clear case. In this language, measure phrases occurring within DegP can either precede or follow the degree word. If they follow the degree word, the measure phrases are introduced by the preposition *by*. This is shown by the following examples:

(75) a. John is [[2 inches] taller than Mary]
b. * John is [taller than Mary [2 inches]]
c. John is [[much] taller than Mary]
d. * John is [taller than Mary [much]]
e. John is [[2 inches] too tall]
f. * John is [too tall [2 inches]]

(76) a. John is [taller than Mary [by 2 inches]]
b. * John is [[by 2 inches] taller than Mary]
c. John is [taller than Mary [by far]]
d. * John is [[by far] taller than Mary]
e. John is [too tall [by 2 inches]]
f. * John is [[by 2 inches] too tall]

That the measure phrases in (75) and (76) are contained within the DegP is shown by the following facts. First, the entire string including the measure phrases can be moved into [Spec,CP]:

(77) a. [How many inches taller than Mary] is John?
b. [How much taller than Mary] is John?
c. [How many inches too tall] is John?

(78) a. [Taller than Mary by 2 inches] John certainly is!
b. [Taller than Mary by far] John certainly is!
c. [Too tall by 2 inches] John certainly is!

Second, *so*-pronominalization replaces the entire DegP, i.e. the measure phrase is included.

(79) a. John is *2 inches taller than Mary* and *so* is Bill
b. * John is 2 inches *taller than Mary* and *so* is Bill 3 inches

(80) a. John is *taller than Mary by 2 inches* and *so* is Peter
b. *? John is *taller than Mary* by 2 inches and *so* is Peter by 3 inches

Consider now the following extraction patterns:

(81) a. ?? How many inches$_i$ is John [t_i taller than Mary]?
b. * How many inches$_i$ is John [t_i too tall]?

(82) a. By how many inches$_i$ is John [taller than Mary t_i]?
b. By how many inches$_i$ is John [too tall t_i]?

In (81), the left branch measure phrase has been moved into [Spec,CP], and in (82), the right branch PP is fronted. Generally, (81b) is considered ungrammatical. With respect to (81a), however, there appears to be some vacillation and disagreement in informant judgement. Some speakers accept these sentences, others find them fairly odd. For some reason, however, (81a) is often considered to be better than (81b).[24]

How can these extraction facts be accounted for? The extractability of the *by*-phrase can be accounted for in the following way: via adjunction to DegP and VP, the PP can reach the [Spec,CP].[25] The often frozen character of the left branch measure phrase is more problematic. One would expect that it can leave the DegP in the same way as the fronted PP headed by *by*. Of course, one could stipulate that the measure phrase cannot be adjoined to DegP for some reason. That would mean that the measure phrase must move directly out of DegP, yielding an ECP violation given the barrierhood of the non-L-marked DegP. But, of course, that does not solve very much. An alternative approach to the immobility of the left branch measure phrase could be one which relates the distinction of left branch measure phrases on the one hand and right branch PPs on the other to the head government relation. Perhaps a trace must be within the government domain of an appropriate head in addition to being antecedent governed (see Jaeggli (1980), Torrego (1988), Rizzi (1989) a.o.). If it is further assumed that there is a directionality requirement on the head government relation, the above-mentioned distinction could be accounted for as follows: Given the fact that government to the right is the canonical direction in English (cf. Kayne (1984)), the left branch

trace of the fronted nominal measure phrase will not be head government, as opposed to the right branch PP. As we will see later in our discussion of extraction facts in Norwegian, a language which is also analyzed as canonically governing to the right, a directionality account does not work. As will be shown, this language permits removal of left branch measure phrases that occupy the [Spec,DegP].

Unfortunately, the discussion above remains inconclusive and further research is necessary. Let us proceed by looking at some other languages, starting with Norwegian. This language looks more like Dutch: A bare measure noun phrase appears in [Spec,DegP] (see (83)). Furthermore, the movement pattern is the same as in Dutch (see (84)).

(83) Denne bilen er [[to meter] for lang]
This car-the is two meter too long

(84) a. Hvor mange meter$_i$ er denne bilen [t$_i$ langer enn Jons]?
How many meter is this car-the longer than John's

b. Hvor mange meter$_i$ er denne bilen [t$_i$ for lang]?
How many meters is this car-the too long

c. Hvor mange cm$_i$ hoppet Jon [t$_i$ høyere enn Per]?
How many cm jumped John higher than Peter

d. Hvor mange oktaver$_i$ sang sopranen [t$_i$ høyere enn
How many octaves sang soprano-the higher than

baritonen]?
bariton-the

In (84a,b), a measure phrase has been reordered out of a predicate DegP. In (84c and d), the measure phrase has been moved out of an adjunct-DegP. Of course, these sentences are also well-formed when the entire DegP is moved into [Spec,CP].

Consider next a language like German. As in English, the DegP can contain both a nominal measure phrase and a PP containing the measure phrase. It differs from English with regard to the position of the PP: In German, it occurs on a left branch position.

(85) Hans ist [(um) 2 cm grösser als Karl]
Hans is by 2 cm taller than Charles

(86) a. ?? [Grösser als Karl um 2 cm] ist nur Hans!
b. * [Grösser als Karl 2 cm] ist nur Hans!

As opposed to English, German allows both fronting of the nominal measure phrase and fronting of a PP headed by *um* ('by'), which contains the measure noun phrase. This is exemplified in (87):[26]

(87) a. (Um) wieviele cm$_i$ ist Hans [t$_i$ grösser als Karl]?
(By) how-many cm is Hans taller than Charles

b. (Um) wieviele cm$_i$ ist Hans [t$_i$ zu gross]?
(By) how-many cm is Hans too tall

c. (Um) wieviele Minuten kam Hans [t$_i$ später] an als Jo?
(By) how-many minutes arrived Hans earlier PRT than Joe

d. (Um) einen ganzen Tag$_i$ blieb er [t$_i$ zu lang] im Bett
(By) one whole day stayed he too long in Bed

The measure phrase in (87a,b) has been extracted from within a predicative DegP. The sentences (87c,d) show that extraction out of an adjunct-DegP is permitted as well.

Consider, finally, some examples from Polish, a member of the Slavic languages.

(88) a. Ten chłopiec jest [o 2 cm za długi]
This boy is with 2 cm too tall

b. [O ile cm za długie] jest Jan?
With how-many cm too tall is John

c. O ile cm$_i$ jest Jan [t$_i$ za długie]?
With how-many cm is John too small

In (88b), the entire adjective phrase has been fronted, and in (88c) only the measure phrase has been moved into [Spec,CP].

Although this overview is very limited and certain things are still unclear, it has been shown that extraction from Degree Phrases not only occurs in Dutch but also in other languages. Further research is needed in order to find an answer to the unsolved problems.

8.6 Measure phrase extractions from within AP

This section investigates the movement behavior of measure phrases that occur as complements of measure adjectives (cf. Klooster (1972)). An example of such a measure phrase is given in (89) below:

(89) Ik geloof dat Jan [2 meter lang] is
I believe that John 2 meter tall is

Before addressing the question as to whether this type of left branch measure phrase is accessible to movement, I will examine the internal structure of APs headed by measure adjectives.

The constituenthood of the string in brackets is shown by the fact that it can be fronted to [Spec,CP] (as in the a-sentences) and by the fact that it can be replaced by a pronominal (as in the b-sentences):

(90) a. [Twee meter lang]$_i$ geloof ik dat Jan t_i geweest is
Two meter tall believe I that John been has

b. Ik geloof dat Jan *2 meter lang* is en dat Jo *dat* ook is
I believe that John 2 meter tall is and that Joe that too is

What evidence do we have for the assumption that *2 meter* in (89) is a satellite of the adjective which heads an AP? Why not say that *lang* is a postnominal modifier of the measure noun? A first argument supporting the assumption that the measure phrase is not the head of the string in brackets comes from the following facts:

(91) a. Jans [[2 meter] lange] jas
John's 2 meter long coat

b. * Jans 2 meter jas
John's 2 meter coat

If the adjective *lange* was some sort of a modifier attached to the measure noun, then one would expect a string like (91b) to be permitted too, given the optionality of modifiers. However, this string is completely out. As opposed to the measure phrase, the adjective can appear independently as a left branch prenominal modifier.

Second, these phrases can be the complement of verbs that are subcategorized for adjective phrases. Consider, for example, the following sentences:

(92) a. Dit brood ziet er [2 dagen oud] uit
This bread looks there 2 days old PRT
'This bread looks 2 days old'

b. * Dit brood ziet er 2 dagen uit
This bread looks there 2 days PRT

c. Dit brood ziet er oud uit
This bread looks there old PRT
'This bread looks 2 days'

The ill-formedness of the b-sentences suggests that a phrase like *2 dagen oud* should not be analyzed as being headed by the noun. The well-formedness of the c-examples shows that the adjective should be considered the head. So, these strings are really APs.

If the measure phrase is a satellite within AP, what sort of function does it have? Is it a non-selected modifier, or should it be interpreted as a selected

complement of the measure adjective? Given the apparent optionality of the measure phrase one may be tempted to conclude that it is a modifier:

(93) a. Jan is 2 meter lang
b. Jan is lang

But as De Groot (1949) has pointed out, the meaning of the adjective *lang* is different in both constructions. In (93a), it means 'having height X', whereas in (93b) it means 'having a great length'. In a way, the sequence *lang zijn* is on a par with the predicate *meten* ('measure'). They have the same meaning, viz. having height X. Similar contrasts in meaning are found with other adjectives. Consider, for example, the following sentences:

(94) a. Jan is oud
John is old

b. Jan is [precies twee dagen oud]
John is precisely two days old

(95) a. Jan is rijk
John is rich

b. Jan is [2 boeken rijk]
John is 2 books rich
'John owns 2 books'

The adjective in (94a) implies that the person is very old. The measure adjective *oud* in (94b) does not have this meaning. It simply means: X has the age Y. This is shown by the fact that the adjective can take a measure phrase which does not stand for a high age. Consider next the examples in (95). The predicate in (95b) stands for 'to own', whereas in (95a) it means 'to be rich'.

Let us assume then, that these measure adjective are subcategorized for a measure phrase complement. As for measure verbs, I will assume that the measure phrase is an adverbial complement, i.e. it is not assigned an internal thematic role by the verb. It should be noted that the possibility of having a noun phrase complement with an adjective is more widespread in Dutch, as has been pointed out a.o. by Den Besten (1989) (see also Van Riemsdijk (1983) on German). Dutch has adjective phrases of the following type, in which a left branch non-measure phrase complement appears within the adjective phrase:

(96) a. Ik geloof dat Jan [die kritiek beu] is
I believe that John that criticism sick is
'I believe that John is sick of that criticism'

b. Ik geloof dat die theorie [jou bekend] is
I believe that that theory you known is
'I believe that you know that theory'

One might hypothesize that the sequence measure adjective-V (e.g. *lang is* in (89)) is a complex measure verb on a par with a verb like *meten* ('to measure'). Base-generating such a sequence as a complex verb has several disadvantages, however. First of all, one would not be able to account for the possibility of fronting the measure phrase together with the measure adjective to [Spec,CP] (see (90a)). Second, the pronominalization fact in (90b) cannot be explained. Finally, if one argued that *lang zijn* is a compound verb, one would expect that this compound verb could undergo verb raising in Dutch. In fact, there do exist A-V compounds that can undergo this syntactic process (see 97a and b), but as is shown in (98), measure adjectives cannot move along with the verb to a position to the right of the higher verb.

(97) a. ...dat ik het bad t_i liet [*vol*-lopen]$_i$
...that I the bath let full-go

b. ...dat ik de band t_i liet [*leeg*-lopen]$_i$
...that I the tire let empty-go

(98) a. ...dat het zwembad [5 meter *breed*] t_i moet zijn$_i$
...that the swimming-pool 5 meter wide must be

b. * ...dat het zwembad 5 meter moet [*breed* zijn]
...that the swimming-pool 5 meter must wide be

Given these problems for a complex-verb analysis, I will stick to the conclusion that strings like *5 meter breed* and *2 meter lang* should be analyzed as APs in which the measure phrase is a nonargument complement selected by the adjective.[27]

Let us now turn to the extraction possibilities of these left branch measure phrases in Dutch.[28,29] Consider the following sentences:

(99) a. Hoeveel meter$_i$ is ie [t_i lang]?
How-many meter is he tall

b. Hoeveel meter$_i$ is die auto [t_i lang] en hoeveel
How-many meter is that car long and how-many

meter$_j$ is ie [t_j breed]?
meter is it wide

These sentences can be derived as follows. The copular verb does not L-mark the predicative AP, since it does not assign a thematic role to it. So, the AP is a BC and a potential L-barrier. The barrierhood of AP can be circumvented, however, by adjoining to it. After adjunction to AP, the fronted measure phrase can be moved into [Spec,CP] via adjunction to VP. These sentences do not violate the ECP, since all intermediate traces are properly governed. The Subjacency Condition is not violated either because no L-barrier is crossed.[30]

So far, the discussion has focused on Dutch. As is exemplified in (100), English also permits measure phrases within AP:

(100) John is [7 feet tall]

The topicalization fact in (101a) and the pronominalization fact in (101b) show that the measure phrase should be analyzed as being part of the AP:

(101) a. [Seven feet tall] John certainly isn't!
b. John is *seven feet tall* and *so* is Bill

Consider now the following extraction facts ((102a) taken from Abney (1987)):[31]

(102) a. How many miles$_i$ is the course [t_i long]?
b. How many feet$_i$ is she [t_i tall]?
c. How many feet$_i$ is it [t_i long] and how many feet$_j$ is it [t_j wide]?

In these sentences, the measure phrase has been moved into [Spec,CP] via intermediate adjunctions to AP and VP.

It should be noted that one often prefers the pied piped variants of the sentences in (99) and (102). At the same time, however, one agrees that there is a strong contrast between, for example, removal of a degree element (which yields strongly ungrammatical sentences) and removal of a measure phrase:

(103) a. Hoeveel meter$_i$ is hij [t_i lang]?
How-many meter is he tall

b. * Hoe$_i$ is hij [t_i lang]?
How is he tall

(104) a. How many feet$_i$ is he [t_i tall]?
b. * How$_i$ is he [t_i tall]?

The following question should be raised again: How can we be sure that the measure phrase is part of the adjective phrase in (104) and (105)? It could be proposed, for example, that strings like *hoeveel meter lang* and *how many feet tall* should be assigned underlying structures as in (105) (Note that the finite verb (*is*) is verb-final in Dutch at D-structure):

(105) a. Hij [hoeveel meter] [$_{AP}$ lang] is
He how-many meter tall is

b. He is [how many feet] [$_{AP}$ tall]

Starting from such structures, fronting of the measure phrase would not involve subextraction from within an adjective phrase.

If such structures were at the basis of the sentences (103a) and (104a), then one would expect it to be possible to replace the adjective phrase by a pronominal form. Consider now the following facts from Dutch (106) and English (107):

(106) a. Ik geloof dat Jan 2 *meter lang* is en dat Sue
I believe that John 2 meter tall is and that Sue

dat ook is
that too is

b. ?* Ik geloof dat Jan 2 meter *lang* is en dat Sue
I believe that John 2 meter tall is and that Sue

dat 1 meter 50 is
that 1 meter 50 is

c. *Wat* is dat schip? *100 meter lang*!
What is that ship ? 100 meter long

d. * *Wat* is dat schip 100 meter? *lang*!
What is that ship 100 meter? long

(107) a. John is *six feet tall* and *so* am I
b. * John is six feet *tall* and *so* am I 5 feet

The a-sentences show that the entire adjective phrase can be pronominalized. In the b-sentences, the measure phrase has not been replaced, yielding ill-formed sentences. If it is assumed that the measure phrase can be base-generated outside of the adjective phrase, then it is not clear what blocks replacement of the adjective phrase by the pro-form. If, however, it is assumed that the measure phrase is a complement of the measure adjective (and hence is contained within the adjective phrase), then the ill-formed pronominalizations may be accounted for as follows: Under the assumption that the pro-forms can only replace maximal projections, the measure adjective (A^o) cannot be replaced by these pro-forms. This means the measure phrase extractions discussed in this section involve subextraction from within the adjective phrase.

This concludes my discussion of the extractability of left branch measure phrases contained within AP and DegP. In the next section, I will investigate the possibility of moving left branch adjectival modifiers out of APs.

8.7 Left branch adjectival modifier extractions from APs

I will now turn to a discussion of the extractability of left branch adjectival modifiers from within APs in Dutch and English. Considering the following examples, one may be tempted to conclude that these modifiers are inaccessible to movement operations in these languages:

(108) a. * Incredibly$_i$ she is [t_i stupid]!
b. * Terribly$_i$ I am [t_i tired]!
c. * Extremely$_i$ she is [t_i clever]!
d. * Very$_i$ she is [t_i pretty]!

(109) a. * Vreselijk$_i$ smaakt dat [t_i vies]!
Terribly tastes that dirty

b. * Ongelooflijk$_i$ is ze [t_i mooi]!
Incredibly is she beautiful

c. * Belachelijk$_i$ is het hier [t_i duur]!
Ridiculously is it here expensive

d. * Erg$_i$ is ze [t_i mooi]!
Very is she pretty

Note that these facts are problematic for our analysis so far, in the sense that they do not violate the Subjacency Condition or the ECP. If these modifiers are considered APs, they should be able to leave the dominating AP and reach the [Spec,CP] via adjunction to the dominating adjective phrase and VP.

One approach to the ill-formedness of these sentences would be one which adopts Stowell's (1981) interpretation of adjectival modifiers as being adjoined to the adjectival head. In that case, the modifier - adjectival head sequence is a complex word.[32] Given this structure, one could argue that adjectival modifiers cannot be reordered from within adjective phrases because of the lexical integrity hypothesis, which does not permit syntactic rules to operate on parts of words. That parts of words are inaccessible to transformational operations is exemplified in (110) and (111) for Dutch and English, respectively:

(110) a. Jan is [dolgelukkig]
John is deliriously-happy

b. * Dol$_i$ is Jan [t_i gelukkig]!

(111) a. John is [far-sighted]
b. * Far$_i$ is John [t_i sighted]

In the b-sentences, the left member of the adjectival compound has been removed, yielding ill-formed structures.

Analyzing all pre-adjectival modifiers as forming a compound with the adjectival head is problematic, however, given the fact that in many cases extraction *is* possible! Consider, for example, the following list of sentences from Dutch and English. The list is long to show that it is a productive extraction pattern.

(112) a. [Hoe nauw]$_i$ zijn wij [t_i verwant aan de aap]?
How closely are we related to the monkey

b. [Hoe goed]$_i$ is dat dorp [t_i bereikbaar]?
How well is that village attainable

c. [Hoe slecht]$_i$ bleek Jan [t_i verstaanbaar]?
How badly appeared John intelligible

d. [Hoe makkelijk]$_i$ is die stoel [t_i inklapbaar]?
How easily is that chair tip-up

e. [Hoe licht]$_i$ is dat voedsel [t_i verteerbaar]?
How easily is that food digestible

f. [Hoe makkelijk]$_i$ is die stoel [t_i verstelbaar]?
How easily is that chair adjustable

g. [Hoe goed]$_i$ was Jan [t_i gehumeurd]?
How good was John humored

h. [Hoe goed]$_i$ bleken zij [t_i bekend daarmee]?
How well appeared they acquainted there-with

i. [Hoe erg]$_i$ bleek Jan [t_i afhankelijk van zijn pillen]?
How much appeared John dependent on his pills

j. [Hoe lang]$_i$ is die melk [t_i houdbaar]?
How long is that milk 'keepable'

k. [Hoe ernstig]$_i$ is Jan [t_i gewond]?
How severely is John wounded

l. [Hoe goed]$_i$ bleek Jan [t_i bestand daartegen]?
How well appeared John proof there-against

m. [Hoe zeer]$_i$ is Jan [t_i belust op wraak]?
How much is John keen on revenge

n. [Hoe goed]$_i$ is Jan [t_i daartegen opgewassen]?
How well is John there-to equal

o. [Hoe hard]$_i$ is het [t_i nodig om het milieu
How hard is it necessary for the environment

te verbeteren]?
to improve

p. [Hoe ver]$_i$ is Jan [t_i klaar met de voorbereidingen]?
How far is John ready with the preparations

q. [Hoe moeilijk]$_i$ is dat gebied [t_i toegankelijk]?
How difficult is that area accessible

r. [Hoe erg]$_i$ is Jan [t_i verkikkerd daarop]?
How much is John keen there-on

s. [Hoe erg]$_i$ bleek Jan [t_i gesteld op gezelligheid]?
How much appeared John keen on sociability

t. [Hoe ruim]$_i$ zijn zij [t_i behuisd]?
How spaciously are they housed

u. [Hoe erg]$_i$ is opa verknocht aan zijn hoed?
How much is grandpa attached to his hat

v. [Hoe goed]$_i$ raakte zij [t_i bevriend met de koningin]?
How well got she friendly with the queen

(113) a. How badly$_i$ was John [t_i short of funds]?
b. How easily$_i$ are these things [t_i obtainable]?
c. ? How easily$_i$ are these problems [t_i solvable]?
e. ? How easily are these things [t_i available]?
f. How clearly$_i$ is it [t_i audible]?
g. How much$_i$ are they [t_i alike]?

Similar extractions can be found with adjectival passives (cf also Chomsky (1986b)):

(114) a. [Hoe diep]$_i$ is deze zin [t_i ingebed]?
How deep is this sentence embedded

b. [Hoe slecht]$_i$ was de zaal [t_i verlicht]?
How badly was the room illuminated

c. [Hoe nauw]$_i$ was Jan [t_i betrokken bij de aanslag]?
How much was John involved in the assault

d. [Hoe goed]$_i$ bleek Jan [t_i voorbereid]?
How well appeared John prepared

(115) a. How seriously$_i$ does John seem to be [t_i injured]?
b. How closely$_i$ is John [t_i related to Fred]?
c. How widely$_i$ is he [t_i known]?
d. How well$_i$ is this bank [t_i insured]?

The well-formedness of these sentences suggests that neither a subjacency violation nor an ECP-violation is involved. Recall that I assume that AP-predicates in copula constructions are not L-marked by the verb. Therefore, AP is a BC and a potential L-barrier. The left branch modifier can be moved into [Spec,CP] in the following way: First, the barrierhood of AP is voided by

adjoining the left branch modifier to this category. Next, the modifier is moved to [Spec,CP] via intermediate adjunction to VP. None of these steps crosses an L-barrier. So, the Subjacency Condition is satisfied. The ECP is not violated either, because all traces of the fronted modifier are properly governed by a local antecedent.

The extractability of the adjectival modifiers in (112)-(115) shows that an all-over interpretation of pre-adjectival modifiers as forming compounds with the adjectival head they modify is certainly wrong. If these modifiers were the same type of elements as the left branch adjectives in (110a) and (111a), one would expect the same movement behavior. As we have seen, however, the left branch adjectives in adjectival compounds cannot undergo movement.

Interesting minimal pairs from Dutch, on the basis of which the difference in extractability between left branch modifiers within compound words on the one hand and left branch modifiers within adjectival phrases on the other hand can be illustrated, are the following:[33]

(116) a. [Hoe hard nodig] zijn deze maatregelen?
How highly necessary are these measures

b. [Hoe hoognodig] zijn deze maatregelen?
How highly-necessary are these measures

(117) a. [Hoe zwaar behaard] is Jan?
How heavily hairy is John

b. [Hoe zwaargebaard] is Jan?
How heavily-bearded is John

Consider now the different movement behavior of the left branch elements:

(118) a. [Hoe hard]$_i$ zijn deze maatregelen [t_i nodig]?
How highly are these measures necessary

b. * [Hoe hoog]$_i$ zijn deze maatregelen [t_i nodig]?
How highly are these measures necessary

(119) a. Hoe zwaar$_i$ is Jan [t_i behaard]?
How heavily is John hairy

b. * Hoe zwaar$_i$ is Jan [t_i gebaard]?
How heavily is John bearded

In the a-examples, a left branch DegP-adjunct has been reordered out an AP, yielding a well-formed sentence. Via adjunction to AP and VP, the DegP-adjunct can be moved into [Spec,CP]. What causes the ill-formedness of the b-sentences? The ill-formed status of these sentences is caused by a violation of (i) the lexical integrity hypothesis, since part of a word has been extracted, and (ii) the requirement that only constituents can undergo movement. To see

why this latter condition is violated, consider the internal structure of the string *hoe hoognodig*: *Hoe* is a degree word heading a DegP and it takes an AP complement which is headed by the compound adjective *hoognodig*, of which *hoog* is the left member. So, the string *hoe hoog* does not form a constituent and therefore it cannot undergo any movement operation.

Similar pairs are found in English:

(120) a. This habit is [deep-rooted]
b. This habit is [deeply rooted]

(121) a. * How deep$_i$ is this habit [t_i rooted]?
b. How deeply$_i$ is this habit [t_i rooted]?

Before further discussing the nonextractability of adjectival modifiers such as *vreselijk*, *terribly* etc (as in (108) and (109)), I will address the following question: How do we know that the modifier is reordered out of the adjective phrase in the sentences given in (112) and (113)? To put it differently, do these sentences really involve subextraction of a left branch modifier out of a larger adjective phrase? One might hypothesize, for example, that the modifier is syntactically outside of the adjective phrase, but semantically still functions as a modifier of this phrase?

A problem for base-generating these left branch modifiers outside of the maximal projection they modify, comes from the following pronominalization facts:

(122) a. ..dat Jo mij *goed gehumeurd* leek en dat Sue
..that Joe me good humored seemed and that Sue

mij *dat* ook leek
me that too seemed

b. * ..dat Jo mij goed *gehumeurd* leek en dat Sue
..that Joe me good humored seemed and that Sue

mij dat slecht leek
me that ill seemed

(123) a. ..dat Jan *goed bevriend met Sue* raakte en dat
..that John well friendly with Sue got and that

Jo *dat* ook raakte
Joe that too got

b. * ..dat Jan goed *bevriend met Sue* raakte en dat
..that John well friendly with Sue got and that

Jo *dat* slecht raakte
Joe that badly got

(124) a. ..dat Jan *licht* *gewond* is en dat Sue *dat* ook is
..that John slightly wounded is and that Sue that too is

b. * ..dat Jan licht *gewond* is en dat Sue *dat* zwaar is
..that John slightly wounded is and that Sue that heavily is

In the a-sentences, the entire adjective phrase has been replaced by the pronoun *dat* in the second conjunct. In the ill-formed b-sentences, the adjectival modifier of the adjective phrase is not part of the replacement.

Correspondingly, the interrogative pronoun *wat* ('what') cannot replace just the adjective, but must also replace the modifier:

(125) a. *Wat* is Jan? *nauw* *verwant* *aan* *de* *aap*
What is John? closely related to the monkey

b. * *Wat* is Jan nauw? **verwant aan de aap*

(126) a. *Wat* is die stoel? *makkelijk* *verstelbaar*
What is this chair? easily adjustable

b. * *Wat* is die stoel makkelijk? **verstelbaar*

If the adjectival modifiers at issue could be base-generated outside of the adjective phrase they modify, then one would expect that the predicative adjective phrases could be pronominalized in the b-sentences as well. Given their status as maximal projections, which follows from the X-bar theory requirement that all satellites be maximal categories, one would expect the adjective phrases to be replaceable by the pro-forms *dat* and *wat*.

If it is assumed that the adjectival modifiers are part of the adjective phrase and are sisters of A', then the ill-formedness of the b-sentences follows from the assumption that the pro-forms *dat* and *wat* can only replace maximal projections, and not, for example, A'-constituents.

Consider also the following extraction facts:

(127) a. * *Gewond* denk ik dat ie *zwaar* was!
Wounded think I that he heavily was

b. * *Verwant* *aan* *de* *aap* leek hij mij *nauw*!
Related to the monkey seemed he to-me closely

If an analysis is adopted in which the adjectival modifiers *zwaar* and *nauw* are base-generated outside of the adjective phrase they modify, then it is not clear why the strings *gewond* and *verwant aan de aap* cannot be moved into [Spec,CP]. The ill-formed sentences in (127) would simply be derived by movement of a maximal projection (AP) into [Spec,CP]. That these strings can be fronted is shown by the following examples, in which the modifier is absent:

(128) a. Gewond$_i$ denk ik dat ie t$_i$ was!
b. Verwant aan de aap$_i$ leek hij mij t$_i$!

So, base-generating the modifiers outside of the APs does not seem very plausible. Notice now that the ungrammaticality of the sentences in (127) follows from an analysis in which the modifiers are base-generated within the AP and are attached to A'. In that case, a non-maximal projection (A') has been moved into [Spec,CP]. This is not in accordance with the stipulation that only X-zero categories and maximal projections can undergo movement (see Chomsky (1986b)). It also violates the structure preservingness requirement: only maximal projections can be substituted for [Spec,CP]. Finally, if the sentences in (127) involve removal of the constituent A', the Subjacency Condition and the ECP will be violated within the Barriers system: A', a non-maximal category, cannot circumvent the barrierhood of the dominating maximal projections AP, VP and IP via adjunction, since the structure preservingness requirement on adjunction operations prohibits adjunction of X'-level categories to these maximal projections. So, extraction of A' to the left periphery of the clause crosses three L-barriers, yielding an ECP- and Subjacency Condition violation.

An argument which clearly shows that extraction of these modifiers can take place from within the adjective phrase comes from the following example:

(129) Jan was [zowel [[geestelijk] [goed] [daartegen opgewassen]
John had both mentally well there-to equal

als [[fysiek] [goed] [daartegen bestand]]] geweest
as physically well there-against proof been

In this sentence, two adjective phrases are coordinated by the emphatic conjunctions *zowel ... als*. The two adjective phrases each contain two adjectival modifiers and a PP-complement. Whatever the explanation, the order of the adjectival modifiers within the two conjuncts must be as given above. So, the following sentence in which the order is reversed is much worse:

(130) * Jan was [zowel goed geestelijk daartegen opgewassen als goed fysiek daartegen bestand] geweest

Notice further that the adjectival modifier *goed* cannot be base-generated outside of the complex adjective phrase, as in (131):

(131) * Jan was [goed] [zowel geestelijk daartegen opgewassen als fysiek daartegen bestand] geweest

So, the adjectival modifier *goed* must be contained within the coordinated adjective phrase. Knowing this, consider the following extraction fact:

(132) Hoe goed$_i$ was Jan [zowel [geestelijk t_i daartegen opgewassen]
How well had John both mentally there-to equal

als [lichamelijk t_i daartegen bestand]] geweest?
as physically there-against proof been

In this complex sentence, the left branch adjectival modifier *hoe goed* has been moved in an across-the-board fashion from within the coordinated AP-conjuncts. Notice that it is also possible to extract the R-pronoun contained within the PP-complements in addition:

(133) Hoe goed$_i$ was Jan er$_j$ toen [zowel [[geestelijk t_i [t_j tegen]
How well had John there then both mentally to

opgewassen] als [lichamelijk t_i [t_j tegen] bestand]] geweest?
equal as physically against proof been

Given the considerations above, it can be concluded that left branch adjectival modifiers can be reordered out of larger adjective phrases. We have further seen that left branch adjectives within adjectival compounds are not accessible for extraction operations, which follows from the lexical integrity hypothesis. We still have the examples in (108) and (109), which gave us first the impression that left branch adjectival elements could not be reordered from within adjective phrases. What causes the ill-formedness of these sentences? I do not think they form compounds with the adjectival head, as Stowell (1981) proposes. First of all, it seems that generally left branch members of adjectival compounds in English never bear the adverbial marking-*ly*. If the left branch adjectives in sentences such as (108) would be analyzed as forming a compound with the adjective to its right, then it is not clear why certain adjectives receive an affix *-ly*, whereas others do not.

A second argument against a compound analysis comes from the following coordination fact from Dutch:

(134) Jo is [ongelooflijk [trots op haar] en [verliefd op haar]]
Joe is incredibly proud of her and in-love with her

In this sentence, the adjectival modifier *ongelooflijk* has scope over the two coordinated adjectives and their complements. This interpretation follows from an analysis in which the modifier hangs from the A'-level and has the coordinated A'-constituents within its scope (i.e. c-command domain). If the modifier was analyzed as forming a compound with an adjective immediately to its right, then one would incorrectly predict that the only interpretation this sentence can get is one where the modifier has only scope over *trots*.

The non-compound status of the modifiers in (109) is suggested by the fact that left branch adjectives in true compounds exhibit a different behavior in coordinated structures:

(135) ?* Jan was [dol [blij met haar] en [gelukkig met hem]]
John was over joyed with her and happy with him

(136) Jan was [dolblij met haar] en [dolgelukkig met hem]]
John was overjoyed with her and over-happy with him

Dol in (135) cannot nave scope over the two coordinated adjectives. The sentence can only mean: 'John was overjoyed with her and he was happy with her'. For *dol* to modify both adjectives, it must be part of the compound in both conjuncts (as in (136)). This means that the attributive adjectives in (109) behave differently from left branch adjectives in true compounds, which suggests that they should not be treated in the same way.

Another clear argument against a compound analysis is the fact that PP-complements in Dutch can appear in between the left branch modifier and the adjective:

(137) a. [Vreselijk van elkaar afhankelijk] zijn zij!
Extremely on each other dependent are they

b. [Ongelooflijk op haar gesteld] zei Jan dat ie was!
Incredibly of her fond said John that he was

c. [Helemaal daarmee klaar] ben ik nog niet!
Fully there-with ready am I yet not

d. [Er$_i$ vreselijk [t_i op] verliefd] was Jan!
There extremely with in-love was John

e. [Vreselijk daarover verbaasd] was Jan!
Extremely there-about astonished was John

The possibility of placing the PP-complement, which hangs from A', in between the adjectival elements shows that these cannot form a compound adjective. Notice further that it is impossible for PP-complements to occur in between the two members of true adjectival compounds. This asymmetric behavior clearly shows that modifiers like *vreselijk* ('extremely') should not be analyzed as left branch members of a compound adjective.

(138) a. * Jan was [*dol* met dat resultaat *blij*]
John was over with that result joyed
'John was overjoyed with that result'

b. * Jan was [*stom* daarover *verbaasd*]
John was stupidly there-about astonished
'John was very astonished about that'

Of course, the following sentences in which the PP-complement occurs as a right branch constituent are permitted:

(139) a. Jan was [dolblij met dat resultaat]
b. Jan was [stomverbaasd daarover]

In conclusion, the nonextractability of the left branch adjectival modifiers in (108) and (109) cannot be accounted for by the lexical integrity hypothesis, under the assumption that these adjectives form compounds with the adjectival heads to their right. Of course, one could stipulate that these constituents are X-zero categories (or at least non-maximal) which are attached to A'. In that case, one could explain their immobility by saying that these categories cannot adjoin to the adjective phrase (which is not L-marked by the copular verb), and therefore cannot circumvent the L-barrierhood of this maximal projection via adjunction. Since I would like to stick to the idea that satellites within a phrase are maximal projections, I will not proceed along this line.

Upon closer examination of the extractable and nonextractable adjectival modifiers, the following pattern emerges: Those which can be extracted can have a comparative/superlative form and can be modified by a degree word (see (140)); those which cannot be fronted do not have these properties (see (141)).

(140) a. Dit dorp is [*beter* bereikbaar dan dat andere dorp]
This village is better attainable than that other village

b. Boter is [*langer* houdbaar dan melk]
Butter is longer keepable than milk

(141) a. * Deze soep smaakt [*vreselijker* vies dan die soep]
This soup tastes more-terribly dirty than that soup

b. * Marie is [*ongelooflijker* mooi dan Susan]
Mary is more-incredibly pretty than Susan

So, one might hypothesize that only those adjectives can be fronted which are gradable. However, just saying that APs which are headed by gradable adjectives can be fronted is not enough. It turns out that extraction of the adjectival modifier is always worse in topicalization constructions, even with adjectival modifiers that are gradable:[34,35,36]

(142) a. ?* Goed is Jan bekend daarmee!
Well is John acquainted there-with

b. ?* Goed is Jan gehumeurd!
Good is John humored

c. ?* Slecht is Jan verstaanbaar!
Badly is John intelligible

Notice that these topicalizations get better when a degree word is present:[37]

(143) a. [Iets minder goed] is Jan bekend daarmee!
Somewhat less well is John acquainted there-with

b. [Zo goed] was Jo gehumeurd dat ie spontaan begon
So good was Joe humored that he spontaneously began

te zingen
too sing

c. [Zo slecht] was Jan verstaanbaar dat Marie maar
So badly was John intelligible that Mary therefore

naast hem ging zitten
next-to him went to-sit

So, it may very well be that the ill-formed sentences in (108) and (109), some of which are repeated in (144), are out for the same as yet unknown reason as the examples in (142).

(144) a. * Vreselijk$_i$ smaakt dat [t$_i$ vies]!
Terribly tastes that dirty

b. * Erg$_i$ is ze [t$_i$ mooi]!
Very is she pretty

For the sake of illustration, notice that an adjective like *erg*, which is non-gradable in (144b) (you cannot have a comparative form *erg-er mooi* (verier pretty), for example), cannot be topicalized either if it is gradable in principle (see (145a)). Topicalization gets much better if the phrase is made somewhat heavier by adding a degree word, for example (see (145b,c)).

(145) a. *? Erg$_i$ is Piet [t$_i$ verkocht aan zijn hoed]!
Very is Pete attached to his hat

b. [Nog erger (dan opa)] is Piet [t$_i$ verknocht aan
Even more than grandpa is Pete attached to

zijn hoed!
his hat

c. [Zo erg] is ie verkocht aan die hoed dat ie
So very is he attached to that hat that he

hem altijd ophoudt
it always keeps-on

Unfortunately, I do not know what the deeper principle is accounting for this. Hopefully, future research will give an answer to it.

I will now turn to a set of facts which is hard to account for under a standard AP analysis, but can be explained in a straightforward way under a DegP-structure as assumed in this study. The relevant examples are the following:[38]

(146) a. Hoe zwaar behaard$_i$ bleek Jan t$_i$?
How heavily hairy appeared John
'How hairy did John turn out be?'

b. Hoe zwaar$_i$ bleek Jan [t$_i$ behaard]?
How heavily appeared John hairy

c. Hoe behaard$_i$ bleek Jan t$_i$?
How hairy appeared John

d.* Hoe$_i$ bleek Jan [t$_i$ behaard]?
How appeared John hairy

(147) a. Hoe erg verslaafd aan slaappillen$_i$ is Jan t$_i$?
How much addicted to sleeping-pills is John

b. Hoe erg$_i$ is Jan [t$_i$ verslaafd aan slaappillen]?
How much is John addicted to sleeping-pills

c. Hoe verslaafd aan slaappillen$_i$ is Jan t$_i$?
How addicted to sleeping-pills is John

d.* Hoe$_i$ is Jan [t$_i$ verslaafd aan slaappillen]?
How is John addicted to sleeping-pills

In (146a), the entire adjective phrase *hoe zwaar behaard* has been moved into [Spec,CP], whereas in (146b) only the modifier *hoe zwaar* has been fronted to this position. In sentence (146c), an adjective phrase containing the interrogative degree word *how* has been moved to [Spec,CP]. Finally, (146d) shows that the degree word cannot be extracted out of the dominating adjective phrase. The examples in (147) show the same facts for the modifier *hoe erg* and the degree word *hoe*.

The interesting contrast in this set of examples is the one between (146b/147b) on the one hand and (146d/147d) on the other hand. The question is: Why is it possible to remove the left branch modifier *hoe zwaar/hoe erg* from within an adjective phrase, but not the degree element *hoe*.

Within a traditional AP-analysis, both the degree element *hoe* and the adjectival modifiers *hoe erg* and *hoe zwaar* are left branch satellites within the AP. Under the X-bar theory-assumption that all satellites are maximal projections, it is not clear why the two types of left branch elements exhibit this asymmetric movement behavior.

Under a DegP-analysis, this asymmetric behavior between degree words like *hoe* on the one hand and adjectival modifiers such as *hoe zwaar* en *hoe erg* on the other hand can be accounted for in the following way. As I have argued in chapter 7, the interrogative degree word *hoe* occupies the Deg^0-position. So, the string *hoe behaard* is analyzed as follows: the degree word *hoe* is the head of the DegP and takes the AP *behaard* as its complement. The non-extractability of the degree word *hoe* is caused by the fact that this zero-level category cannot escape the L-barrierhood of the dominating maximal projections (e.g. DegP, VP and IP) via adjunction given the structure preservingness requirement on adjunction operations. So, the trace of the fronted degree word will not be antecedent-governed by the left peripheral degree word because of the intervening L-barriers which exclude the fronted degree word. Furthermore, it cannot be moved into [Spec,CP] under the structure preservingness hypothesis: This landing position only permits maximal projections. The adjectival modifiers *hoe zwaar* and *hoe erg* can be removed because they are maximal projections contained within AP, and as such can reach the [Spec,CP] via adjunction to the adjective phrase and VP. They can also substitute for [Spec,CP] given their status of maximal projection.

Notice that similar contrasts are found in English:[39]

(148) a. How organized$_i$ is John t$_i$?
b. * How$_i$ is John [t$_i$ organized]?

(149) a. How well organized$_i$ is John t$_i$?
b. How well$_i$ is John [t$_i$ organized]?

The string *how organized* in (148a) is a DegP which is headed by the degree word *how*, which takes *organized* as its complement. Subextraction of the degree word *how* is not permitted for the reasons already mentioned above in our discussion of the Dutch facts. The string *how well organized* is an AP in which *how well* is a left branch modifying DegP. This maximal projection can be moved into [Spec,CP] via intermediate adjunctions to AP and VP.

Up until this point, my analysis has focused on the extractability of left branch modifiers from within adjective phrases that are sisters of a copular verb. The question, of course, arises whether left branch reorderings are also possible out of APs occurring in different syntactic positions within the clause. The sentences in (150) show that left branch adjectival modifiers can be removed from small clause APs in Dutch. In the sentences (151), an adjectival passive heads the small clause.

(150) a. Hoe nauw$_i$ acht je [deze diersoort [$_{AP}$ t$_i$ verwant
How closely consider you this animal related

aan de aap?
to the monkey

b. Hoe goed$_i$ vond jij [Jan [t_i verstaanbaar]]?
How well found you John audible

c. Hoe erg$_i$ acht jij [Jan [t_i afhankelijk daarvan]]?
How much consider you John dependent there-on

(151) a. Hoe mooi$_i$ vind je [het beeldje [t_i bewerkt]]?
How beautifully consider you the statue manufactured

b. Hoe goed$_i$ vond Jan [die aanslag [t_i voorbereid]]?
How well considered John that assault prepared

c. Hoe goed$_i$ acht jij [die bank [t_i beveiligd]]?
How well consider you that bank protected

The lower AP is not L-marked and therefore a potential L-barrier. Since AP is a non-argument type category, adjunction to it is permitted. After adjunction to AP, the moved left branch modifier can reach the [Spec,CP] via adjunction to VP. Note that the small clause AP' is L-marked by the verb and hence is not an L-barrier.[40] Of course, these sentences are also well-formed when the rest of the AP is pied piped.[41]

8.8 Complex cases

The previous section investigated several aspects of the extractability of left branch adjectival modifiers that are contained within AP. This brief section examines the possibility of moving elements out of these adjectival modifiers. Consider the following sentences:[42]

(152) a. Deze melk is [[[2 dagen] langer] houdbaar dan die yoghurt]
This milk is 2 days longer keepable than that yogurt

b. Hoeveel dagen langer houdbaar dan die yoghurt$_i$ is
How-manydays longer keepable than that yogurt is

deze melk t_i?
this milk

c. Hoeveel dagen langer dan die yoghurt$_i$ is deze melk
How-many days longer than that yogurt is this milk

[t_i houdbaar]?
keepable

d. Hoeveel dagen$_i$ is deze melk [[t_i langer] houdbaar
How-many days is this milk longer keepable

dan die yoghurt]?
than that yogurt

The adjective phrase in (152a) has the following structure:

(153) [$_{AP}$ [$_{DegP}$ 2 dagen [$_{Deg'}$ [$_{Deg}$ -er] lang] (dan die yoghurt)] houdbaar]

The adjective *houdbaar* is the head of the complex AP. It is modified by the left branch adjunct-DegP *2 dagen langer (dan die yoghurt)*. The comparative form *langer* is formed by raising the adjective to the Deg-position. The [Spec,DegP] is filled by the measure phrase *2 dagen*. The constituenthood of the entire string is shown by the possibility of fronting the entire adjective phrase in (152b). In (152c), the less deeply embedded left branch modifier has been extracted. This removal is allowed via adjunction to AP and VP. Sentence (152d), finally, illustrates the possibility of reordering a left branch measure phrase out of a dominating modifier which is itself contained within an AP. The well-formedness of the example shows that neither the ECP nor the Subjacency Condition is violated. The movement path is the following: The measure phrase originating in [Spec,DegP] is first adjoined to DegP. It is subsequently moved to [Spec,CP] via the adjunction hosts AP and VP. All these steps are local, so that all traces of the extracted non-argument are properly governed.

In (154), some additional examples of the left branch extraction pattern illustrated in (152d) are given.

(154) a. Hoeveel keer$_i$ is Jo [[t_i zo slecht] verstaanbaar als Sue]?
How-many times is Joe as badly understandable as Sue

b. Hoeveel punten$_i$ achtte Jan zich [[t_i minder ver]
How-many points considered John himself less far

verwijderd van de titel dan Marie]
separated from the championship than Mary

c. Hoeveel cm$_i$ staat zijn bek [[t_i minder ver] open
How-many cm stands his mouth less far open

dan die van de hond]
than that of the dog

So, what these examples show is that extraction from within left branch adjuncts is possible as long as these adjuncts permit adjunction.

8.9 Some minimality effects

In this section, I will examine the possibility of extracting constituents from within clausal complements of adjectives in English. The data which will be discussed suggest that the concept of minimality plays a role in an account of certain extraction patterns from within clauses contained within adjective phrases.

English permits extraction of arguments from within clauses (CPs) that are complements of an adjective.

(155) What$_i$ is John [afraid [PRO to fix t_i]]?

These sentences can be generated without violating either the Subjacency Condition or the ECP. The direct object-noun phrase is first adjoined to VP. The VP-adjoined trace antecedent-governs the initial trace so that the ECP is satisfied. From the VP-adjoined position, the fronted noun phrase moves up to the [Spec,CP] of the embedded clause. This movement crosses no L-barrier and hence does not cause a subjacency violation. From [Spec,CP], the noun phrase can move further and adjoin to AP, a non-argument type category. Finally, the direct object-NP reaches the [Spec,CP]-position of the matrix clause via intermediate adjunction to the VP of this clause.

Consider, next, adjunct extractions form within a similar syntactic configuration:

(156) a. How$_i$ is John [certain [PRO to fix the car t_i]]?
b. When$_i$ is John [willing [PRO to fix the sink t_i]]?

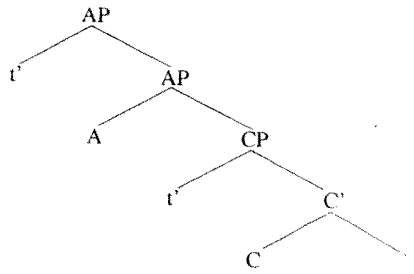
As expected, these sentences are all well-formed. None of the traces of the fronted nonarguments violates the Subjacency Condition or the ECP.

In the examples above, the adjective phrase simply consists of an adjectival head and a CP-complement. Consider now the following examples in which the adjective phrase also contains a modifier.

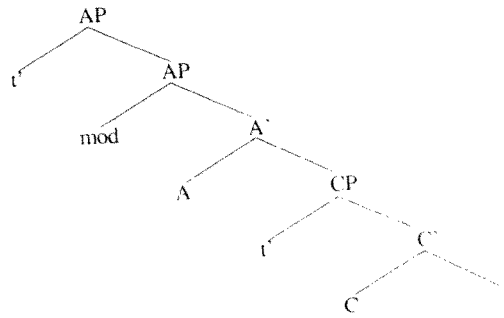
(157) a. John is [*very* afraid [that Mary will fix the car this way]]
b. Which car$_i$ is John [*very* afraid [that Mary will fix t_i this way]]?
c. * How$_i$ is John [*very* afraid [that Mary will fix the car t_i]]?

The presence of the modifier has no influence on the extractability of the arguments. There is a clear contrast, however, between the modifier-extractions in (156) and the one in (157c). This contrast is not due to the Subjacency Condition, since presence of the modifier does not change anything with respect to L-barrierhood. The contrast can be interpreted as presence versus absence of a minimality barrier if we adopt Chomsky's (1986b) assumption that intermediate projections (X') may be absent, if there are no satellites (viz. modifiers) present. That is to say, if the adjectival head is only accompanied by a complement-CP, then it is immediately dominated by AP, and not by A'.[43] The difference in extractability can now be illustrated by comparing the two relevant syntactic configurations:

(158) a.



b.



Movement from [Spec,CP] to the adjunction site of AP crosses a M-barrier in (158b), but not in (158a). A' is a M-barrier in (158b), since it contains the trace, a head c-commanding the trace (A^0) and A' includes a maximal projection that dominates the trace. In (158a), on the other hand, there is no projection of A excluding a proper governor for the trace in [Spec,CP]. Although the lower segment of AP contains a trace, a c-commanding head and a maximal projection, it does not exclude the antecedent governor adjoined to AP.[44]

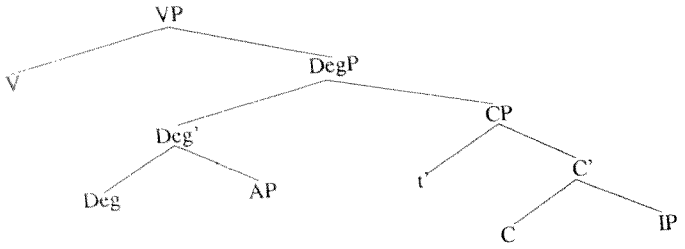
Consider now the following removals from within degree-clauses in English:

(159) a. How is John [afraid [PRO to fix the car]]?
b. * How$_i$ is John [too afraid [PRO to fix the car t_i]]?
c. Which car$_i$ is John [too afraid [PRO to fix t_i]]?

(160) a. John is [too stupid [PRO to fix my car this way]]
b. * How$_i$ is John [too stupid [PRO to fix my car t_i]]?
c. Which car$_i$ is John [too stupid [PRO to fix t_i this way]]?

How can this adjunct-argument asymmetry be accounted for? Consider the following structure of the adjective phrase containing a degree clause.

(161)



CP is a BC and an L-barrier, since it is not L-marked by the functional category Deg. Adjunction to CP is not permitted because it is an argument type category. So, the next landing site for a moved phrase is an adjunction site to VP. The VP-adjoined trace, however, does not antecedent govern the trace in [Spec,CP], because CP is an intervening L-barrier. For nonarguments this means that extraction from a degree clause always yields an ECP-violation, since all traces of a non-argument chain have to be properly governed. Argument-extractions are allowed, however, since only the initial trace of the moved argument needs to be properly governed. In the examples above, the trace of the removed argument is antecedent governed by the intermediate trace adjoined to the VP of the degree clause.[45]

8.10 Concluding remarks

In this chapter, I have discussed the extraction possibilities of constituents from within adjective phrases (DegP and AP), with emphasis on the extractability of left branch measure phrases and adjectival modifiers. It was shown that adjective phrases generally permit removal of left branch constituents, since it is allowed to adjoin constituents to AP and DegP. The fact that it can function as a host for adjunction operations also accounts for the fact that it is possible to move elements out of adjunct phrases. What has further become clear on the basis of the empirical facts discussed in this section is that Ross's Left Branch Condition is incorrect. According to this condition, no left branch extractions are possible from within adjective phrases (which he analyzes as NPs). Unfortunately, certain aspects of the movement behavior of elements contained within adjective phrases remain unclear. Further research is necessary to solve these obscurities.

Notes to chapter 8

1. Notice also that measure phrases can appear within noun phrases.

(i) a. [How many guilders a month] does he pay?
b. I like [Bill's three mile driveway]

In this study, I will not deal with the movement behavior of these elements.

2. Similar contrasts are found with other nonarguments that are subcategorized for. Consider, for example, the following pair:

(i) a. ?? Which soup do you wonder whether John tasted?
b. * How good do you wonder whether the soup will taste?

In (ia), the argument noun phrase *which soup* is extracted from a wh-clause, yielding a weak subjacency violation. In (ib), the DegP *how good*, which subcategorizes the verb *to taste*, is removed from within a wh-island. Being a nonargument expression, extraction out of a wh-island violates both the Subjacency Condition and the ECP.

3. Notice that the question word *what/wat* (Dutch) can function as an interrogative measure phrase:

(i) a. What did he weigh?

b. Wat woog Jan?
What weighed John

Given its nonargument status, it is impossible to reorder this question word out of a wh-island (This has also been observed in Rizzi (1989)). Extraction yields both a subjacency and an ECP violation. Consider, for example, the following sentence from English:

(ii) * What do you wonder when he weighed?

Notice that this sentence is far more acceptable if *what* is interpreted as an argument of the non-stative verb *to weigh*. In that case, *wat* refers, for example, to a pig. Extraction of the argument *what* only yields a weak subjacency violation.

4. A property of certain measure noun phrases in Dutch is that they occur in the singular even though the integers preceding them indicate plurality. Compare, for example, the measure phrases in (i) with those in (ii). See Klooster (1972) for a discussion of this property of certain measure phrases.

(i) a. Dit boek kost 5 gulden/* 5 guldens
This book costs 5 guilder/* guilders

b. De opleiding duurt 2 jaar/?* 2 jaren
The education lasts 2 year/?* 2 years

(ii) a. Dit boek kost *30 kwartje/ 30 kwartjes
This book costs *30 quarter/ 30 quarters

b De opleiding duurt *2 maand/ 2 maanden
The education lasts *2 month/*2 months

5. There are PPs, however, which permit removal of a measure phrase complement, as the following example pointed out by Van Riemsdijk (1978) shows:

(i) How many hours were you gone for t_i?

What explanation can be given for the contrast between (9d) and (i) is not entirely clear at the moment. Possibly, it is related to the type of adjunct-PP the measure phrase is extracted from, i.e. whether P indicates location in time, duration, etc. See also Van Riemsdijk (1978) and Hornstein & Weinberg (1981) for discussion of the relation between adjunct-type and extractability.

6. See also Belletti & Rizzi (1981) for similar facts from Italian.

7. The non-assignment of an agent theta-role to the external argument by a measure verb is related to the stative character of this type of verb. The two verbs differ from each other as far as stativity is concerned. The verb *weigh* in (18a) is stative, the verb *weigh* in (18b) is not. The two verbs can be distinguished on the basis of the following diagnostic criteria indicating (non)stativity (cf. Dowty (1979)):

(i) a. Only nonstatives occur in the progressive and the imperative (ii)
b. Only nonstatives cooccur with class I adverbs (iii)
c. Only nonstatives appear in pseudoclefts (iv)

(ii) a. John is weighing the chicken/ *200 pounds
b. Weigh the chicken/ *200 pounds!

(iii) a. John carefully weighed the chicken
b.* John intentionally weighed 200 pounds

(iv) a. What John did was weigh the chicken
b.* What John did was weigh 200 pounds

8. Corresponding to their different argument structure, the transitive non-measure verb *weigh/wegen* and the intransitive measure verb *weigh/wegen* (which has unergative properties) behave differently with respect to various syntactic phenomena.

(i) The non-measure verb permits passivization, the measure verb does not (see (iv)) (cf. Klooster (1972)); Related to that, the participle form of a non-measure verb can be used as an attributive element predicating over a nominal which corresponds to the argument-complement; the participle form of a measure verb cannot (see (v)).
(ii) The non-measure verb can be nominalized, the measure verb can not (see (vi)).
(iii) Middles can be formed from a non-measure verb, but not from a measure verb (see (vii)).

(iv) a. Het varken werd gewogen (door de boer)
The pig was weighed (by the farmer)

b. * 200 pond werd gewogen (door die man)
200 pounds were weighed (by that man)

(v) a. Het gewogen varken
The weighed pig

b. * De gewogen 30 kilo
The weighed 30 kilo

(vi) a. Het wegen van het varken
The weighing of the pig

b. * Het wegen van 60 kilo
The weighing of 60 kilo

(vii) a. Pigs weigh easily
b. * 100 pounds weigh easily

I will not discuss properties of the argument structure of measure verbs any further here, since it is beyond the scope of this study.

9. For an apparent difference between a measure phrase complement and a non-measure phrase complement of a verb like *wegen* ('to weigh'), consider the following sentences:

(i) a. ..dat Jan het $varken_i$ toen t_i woog
..that John the pig then weighed

b. *? ..dat Jan 100 $pond_i$ toen t_i woog
..that John 100 pounds then weighed

In (ia), the direct object has been scrambled to the left periphery of the VP and is adjoined to this maximal projection. (ib) shows that the measure phrase *100 pond* cannot be scrambled. "Non-scramblebility" is not an inherent property of measure phrases. The reason why *100 pond* cannot be moved to the left periphery of the VP presumably is its indefinite character. As De Haan (1979) has pointed out, indefinite nominals as opposed to definite ones cannot undergo scrambling. So, (ia) gets much worse when *het varken* is replaced by the indefinite *een varken*:

(ii) *? ..dat Jan een varken toen woog

Notice further that a nominal measure phrase can be scrambled if it has a definite character.

(iii) Speaker A: Mijn vader woog toendertijd 200 pond
My father weighed at-the-time 200 pounds

Speaker B: Ik geloof dat mijn vader dat_i toendertijd ook t_i woog
I believe that my father that at-the-time also weighed

In this construction, the demonstrative pronoun *dat* has been moved to a position left adjoined to VP.

10. In Hendrick (1978), it is assumed that in English all potential complements of adjectives are base-generated outside of the adjective phrase. To put it differently, adjectives do not have complements in his analysis. He gives a number of arguments for his proposal, not all of which are equally convincing: (i) the impossibility of having a PP-complement in left branch attributive adjective phrases (as in **a proud of Mary man*); (ii) the absence of complement-PPs with adverbial adjectives. I will not discuss his proposal in any detail. With respect to (i) it should be noted that these facts also follow from Williams' (1982) Head Final Filter. Furthermore, (ii) is not entirely correct. As we will see, there do exist adverbial adjectives taking PP-complements, as in *John solved the problem independently from Bill*. An important problem for an analysis which base-generates all potential PP-complements outside of the adjective is the fact that one needs a rule which adjoins a PP to an adjective in order to derive constructions in which an A-PP sequence is moved into [Spec,CP]: *[How proud of Mary] was he?* As Thiersch (1982) has pointed out, it is not clear how to prevent joining of non-

subcategorized satellites to the adjective: **How upset because there was wide-scale corruption were they?*

11. An alternative analysis would be to say that the PP is first extraposed and that the complement of the preposition is subsequently extracted. Normally, however, PPs become islands after extraposition. Consider, for example, the following sentence from English:

(i) a. Who was John proud of yesterday?
b. * Who was John proud yesterday of?

In (ib), the PP has been extraposed and is adjoined to VP. After extraposition the PP is no longer L-marked by the adjective or by any other category and therefore creates an L-barrier for movement. So, the extraposition approach does not seem very plausible, at least for English.

Consider also the following Dutch extraction:

(ii) Waar$_i$ is Jan verliefd [t_i op] geweest?
Where has John in-love with been

Normally, extraposition moves a PP to a postverbal position (note: Dutch is SOV). From that position extraction is impossible, as is shown by the ill-formedness of the following example:

(iii) Waar$_i$ is Jan verliefd - geweest [t_i op]?
Where has John in-love been with

Of course, it could be stipulated that the PP is moved rightwards to a base-generated PP-slot to the left of the final verb. Schematically:

(iv) Jan is [verliefd t_i] [waarop]$_i$ geweest

After rightward PP-shift, the PP is no longer within the adjective phrase. In that case R-extraction would remove the R-pronoun out of the PP, but not out of the adjective phrase. I will not discuss this analysis any further here, since there is evidence in Dutch that the R-pronoun can get adjoined to the adjective phrase containing the PP, and escape the potential barrierhood of this maximal projection via this adjunction step. This makes a PP-shift rule superfluous.

12. Consider also the following sentences:

(i) a. Jan is [bereid tot samenwerking] geweest
John has ready for cooperation been
'John was willing to cooperate'

b. ?? Jan is het tot samenwerking geweest
John has it for cooperation been

c. ?? Wat is Jan tot samenwerking geweest? bereid
What has John for cooperation been ready

d. ?* Bereid is Jan tot samenwerking geweest
Ready has John for cooperation been

In (i) b and c, the adjective phrase has been replaced by the pronouns *het* and *wat*,

respectively. In (id), *bereid* has been topicalized. To my ear, these sentences sound a bit odd too.

13. Notice that these facts are problematic for those path-theory approaches to the distribution of empty categories which say that a gap is permitted if a path can be built from the gap to the antecedent in such a way, that all intervening maximal projections are canonically governed (see a.o. Kayne (1984), Koster (1987), Bennis & Hoekstra (1984)). Consider, for example, the following question-answer pair in (i) and the contrastive left dislocation construction in (ii):

(i) Speaker A: WAT is Jan?
What is John?

Speaker B: [er$_i$ heel erg goed bevriend [t_i mee]]

there very much well friendly with
'very intimate with him'

(ii) [Daar$_i$ een stuk minder geschikt [t_i voor]] dat lijkt me jullie Joe!

There a lot less capable of that seems to-me your Joe
'Much less capable of that is Joe'

The independent utterance of speaker B in (i) is an adjective phrase. The same holds for the string *daar een stuk minder geschikt voor* in (ii), which appears in a left dislocated position. Within those adjective phrases, the R-pronoun has been extracted from within the right branch PP to a position left adjoined to the adjective phrase. This antecedent-gap relation is unexpected, since the adjective does not canonically govern the PP.

14. Fronting of the entire PP from within an AP often sounds odd in English. However, these sentences are certainly not ungrammatical. The odd status is also found with fronting of PP-complements of the verb:

(i) To whom did she talk?

So, it seems that the question-mark status of PP-frontings is due to the fact that people generally prefer stranding of the preposition.

15. These DegP-internal movement operations are also found in attributive DegPs. Consider, for example, the following sentences from Dutch:

(i) a. [Een [iets minder daarvan afkerige] man] is Piet!
A somewhat less there-to averse man is Pete

b. [Een [daarvan$_i$ iets minder t_i afkerige] man] is Piet!
A there-to somewhat less averse man is Pete

In (ib), the PP *daarvan* has been moved to a position left adjoined to the DegP.

16. Recall that it is assumed that adjectives in Dutch can assign a theta-role to their PP-complement in both directions (see chapter 3).

17. Another interesting issue which falls beyond the scope of this study is the possibility of scrambling PP-complements of adjectives in Dutch. Consider, the following paradigm:

(i) a. dat hij toendertijd *goed bevriend daarmee* was
that he at-the-time well friendly there-with was
'that John was friendly with it/him'

b. dat hij toendertijd *goed daarmee bevriend* was
c. dat hij toendertijd *daarmee goed bevriend* was
d. dat hij *daarmee* toendertijd *goed bevriend* was

In (ia and b), the PP-complement occurs in a right branch and left branch position respectively within the adjective phrase. In (ic), the PP has been left adjoined to the adjective phrase. In (id), finally, the PP has been moved to a position left adjoined to VP.

Notice, that, in those strings in which the PP has been moved to the left periphery of the adjective or verb phrase, subextraction of the R-pronoun from within the PP is worse. This is exemplified in (ii):

(ii) Waar$_i$ denk je ..
Where think you

a. dat hij toendertijd goed bevriend [t_i mee] was?
that he at-the-time well friendly with was

b. dat hij toendertijd goed [t_i mee] bevriend was?
c. * dat hij toendertijd [t_i mee] goed bevriend was?
d. * dat hij [t_i mee] toendertijd goed bevriend was?

Presumably, this is related to the fact that after movement of the PP-complement, this maximal projection is no longer L-marked by the adjective and therefore creates an L-barrier for subextraction.

18. See also Emonds (1985) for arguments for considering the phrases introduced by *as* and *than* as PPs.

19. Left branch extractions from the specifier position of DegP is not only allowed in Wh-question constructions, but also in other constructions which have the wh-movement operation underlying. Consider, for example, the following sentences:

(i) a. Jan is evenveel cm kleiner dan Karel als Piet [- groter] is dan Ben
John is as-many cm smaller than Charles as Pete taller is than Ben

b. De 30 cm die Jan [- langer] was dan Piet maakten hem een betere
The 30 cm that John taller was than Pete made him a better

basketballer
basketball-player

(ia) is a comparative construction in which a zero measure phrase has been fronted to the [Spec,CP] of the comparative clause. In (ib), the measure phrase has been relativized.

20. Although, pied piping is allowed in wh-question constructions, it is not in relative constructions:

(i) Marie droeg altijd schoenen met hoge hakken vanwege....
Mary wore always shoes with high heels because-of

a. de 3 cm die$_i$ Jan [t_i langer] was dan zij
the 3 cm that John taller was than she

b. * de 3 cm [die langer] Jan was dan zij
the 3 cm that taller John was than she

(ii) a. De drie kilo die$_i$ Jan [t_i te zwaar] was gingen er niet af
The three kilo that John too heavy was came there not off

b. * De drie kilo [die te zwaar] Jan was t_i gingen er niet af

At the moment I have no explanation for this contrast.

21. Another potential argument against base-generating the measure phrase outside of the DegP as some sort of a VP-adjunct which specifies the degree phrase from a DegP-external position comes from the impossibility of placing elements in between the measure phrase and the degree phrase. Consider, for example, the following sentence:

(i) * ..dat Jan 5 *minuten* iedere ochtend *te laat* op zijn werk was
..that John 5 minutes every morning too late at his work was
'every morning John arrived 5 minutes late at the office'

In (i), 5 *minuten* cannot be interpreted as specifying *te laat*. If 5 *minuten* may be base-generated within VP, it is not entirely clear why it cannot specify the adjective phrase from that VP-internal position. The following sentence further shows that the ungrammaticality of (i) cannot be due to the fact that measure phrases are not permitted in the left periphery of the VP:

(ii) ..dat Jan 5 dagen ieder ochtend te laat op zijn werk was
..that John 5 days every morning too late at his work was
'for 5 days John arrived too late at the office every morning'

22. Evidence that the measure phrase is part of the DegP comes from the ill-formedness of the following sentence:

(i) a. * *Te lang* hield Kiri de noot *2 seconden* aan
Too long held Kiri the bar 2 seconds PRT

b. * *Later dan Els* kwam Jan *2 minuten* bij de finish aan
Later than Els arrived John 2 minutes at the finish PRT

If the measure phrases are base-generated outside of the adjunct-DegPs, it is not clear what causes the ungrammaticality of these examples. It should be noted that strings *te lang* and *later dan Els* can appear in a left peripheral position if the measure phrases are left out (and if the fronted string is pronounced with stress on the adjective). If the measure phrase is generated within the DegP, then the ill-formedness of these structures may be accounted for as follows: the fronted strings in (i) are Deg' (i.e. non-maximal projections) and therefore cannot be moved into [Spec,CP] under the structure preservation requirement that only maximal projections can be moved into this landing position.

23. Notice that the mobility of these measure phrases from within adjunct-DegPs cannot be accounted for by saying that the measure phrases are theta-governed by Deg^0. In that case one

would expect that these measure phrase could be moved across a wh-island, just yielding a weak subjacency violation. It turns out, however, that such extractions are strongly out:

(i) * Hoeveel octaven$_i$ vraag jij je af wanneer Kiri [t_i te hoog]
How-many octaves wonder you REFL PRT when Kiri too high

heeft gezongen
has sung

24. In Abney (1987), the following examples are given (judgments are his):

(i) a. ? How many inches$_i$ is the door [t_i wider than before]?
b. * How many inches$_i$ is he [t_i too tall to serve on a sub]?

25. Notice, that it is much better to front only the PP headed by *by* than moving the entire DegP:

(i) a. *? [Taller than Bill by how many cm's] is John?
b. *? [Too tall by how many cm's] is John?

Presumably, this is related to the general preference of having the wh-word leftmost within the interrogative phrase:

(ii) a.??? [Proud of whom] is Mary?
b. Who is Mary proud of?

26. These sentences are also well-formed if the rest of the material within the DegP is pied piped.

27. Certain adjectives in Dutch can head an AP containing a left branch measure phrase modifier: *zuidelijk van* ('south of'), *noordelijk van* ('north of'). Consider, for example, the following sentence:

(i) Goirle ligt [2 km zuidelijk van Tilburg]
Goirle lies 2 km south of Tilburg

Sentence (iia) shows that the left branch modifier can be reordered out of the containing AP. In (iib), the entire AP is moved into [Spec,CP].

(ii) a. Hoeveel km$_i$ ligt Goirle [t_i zuidelijk van Tilburg]?
How-many km lies Goirle south of Tilburg

b. Hoeveel km zuidelijk van Tilburg$_i$ ligt Goirle t_i?
How-many km south of Tilburg lies Goirle

28. Notice that topicalization of the measure phrase is also permitted (examples taken from Van Es & Van Caspel (1971-1975)):

(i) a. 3 meter$_i$ was die gracht [t_i diep]!
3 meter was that moat deep

b. Vijftig jaar$_i$ is dat huis wel [t_i oud]!
Fifty years is that house certainly old

29. In French, measure adjectives do not take left branch nominal complements (see also Emonds (1985)):

(i) * Le fleuve est [cent mètres large]
The river is hundred meters wide

Instead, the measure phrase is contained within a right branch PP contained within the adjective phrase:

(ii) a. Le fleuve est [large de cent mètres]
The river is wide of hundred meters
'The river is 100 meters wide'

b. une tour haute de cent mètres
a tower high of hundred meters
'a tower which is 100 meters tall'

Notice that it is possible to remove the PP from within the adjective phrase in (iia):

(iii) De combien de mètres$_i$ est-ce que le fleuve est [large t_i]?
Of how-many of meters the river is wide
'How many meters wide is the river?'

Via adjunction to AP and VP, the right branch PP can be moved into [Spec,CP].

Italian, also, does not take a left branch measure phrase. In this language, however, the measure adjective takes a noun phrase complement (See also Rizzi (1989) and Giorgi & Longobardi (forthcoming)):

(iv) a. * Gianni è [[due metri] alto]
John is two meters tall

b. Gianni è [alto [due metri]]

That the measure phrase is part of the adjective phrase is shown by the possibility of putting the entire string *alto due metri* in a left dislocated position (example taken from Rizzi (1989)):

(v) Alto due metri, non lo è di certo!
'Tall two meters, he is not for sure'

Notice now that in Italian extraction of the right branch measure noun phrase selected by the adjective is permitted as well:

(vi) Quanti metri$_i$ è [alto t_i]?
How-many meters (he) is tall

Via adjunction to AP, the measure phrase complement can leave this maximal projection and be moved into [Spec,CP].

30. These measure phrase extractions are also permitted from small clause environments:

(i) Hoeveel meter$_i$ maak je de kast [t_i hoog] en hoeveel meter$_i$
How-many meter make you the closet high and how-many meter

maak je hem [t_i breed]?
make you him wide

31. What is puzzling, of course, is why the measure phrase can be extracted from within the AP, but not from within a DegP as in *[2 miles too long]*. If head government plays a role in the licensing of empty categories, one might hypothesize that Deg^{o} is not a proper head governor for the trace in English, as opposed to an adjectival head (A^{o}). The intermediate status of (i) might be accounted for by the fact that the degree element *-er* has become lexical after the adjective has been adjoined to this morpheme:

(i) How many feet$_i$ is John [t_i taller than Bill]?

32. See also Hudson (1984; 88-90).

33. The different status of these elements is also shown by the following comparative formation facts (see also Hoeksema (1984)).

(i) a. hoognodig/*hoger*nodig/hoognodig*er*
high-necessary/*higher-necessary/high-necessary-er

b. hard nodig/hard*er* nodig/*hardnodig*er*
high necessary/higher necessary/*high necessary-er

(ii) a. zwaargebaard/*zwaar*der*gebaard/zwaargebaard*er*
heavy-bearded/heavier-bearded/heavy-bearded-er

b. zwaar behaard/zwaar*der* behaard/*zwaarbehaard*er*
heavy-hairy/ heavier hairy/ heavy-hairy-er

So, in the true compounds (the a-examples), the comparative morpheme *-er* must be realized on the right branch element of the adjectival element, which is the head of the compound. In the b-examples, the comparative morpheme must be realized on the left branch element which is the head of adjectival phrase (i.e. DegP) which modifies the adjective to its right.

34. Note that comparative formation is permitted:

(i) Deze stoel is makkelijker inklapbaar [dan O_i ie [t_i uitklapbaar] is]
This chair is more-easily "in-foldable" than it "out-foldable" is

35. Similar contrasts can be found in English:

(i) a. How well$_i$ is he [t_i organized]?
b. * Well$_i$ he is [t_i organized]!

36. The contrast noted in (142) also shows up in another type of construction:

(i) a. [Goed gehumeurd]$_i$ dat ie t_i was!
Good humoured that he was
'He is in such a good temper!'

b. [Slecht verstaanbaar] dat ie t_i was!
Badly intelligible that he was
'It was so hard to understand him!'

(ii) a. ?* Goed$_i$ dat ie [t_i gehumeurd] was!
b. ?* Slecht$_i$ dat ie [t_i verstaanbaar] was!

This type of exclamatory construction in which the COMP of the matrix clause is filled by the complementizer *dat* and the [Spec,CP] by a topicalized phrase, was discussed in chapter 5. As

the examples in (i) and (ii) show, there is a contrast between the exclamatory sentences in (i), where the entire AP has been moved into [Spec,CP], and the ones in (ii), where only the adjectival modifier is fronted.

37. Consider also the following minimal pairs:

(i) a. Jan is [$_{AP}$ erg/zwaar/flink verkouden]
John is very/heavily/well having-a-cold
'John is having a bad cold'

b. Jan is [erger/zwaarder/*flinker verkouden]
John is verier/more-heavily/more-well having-a-cold

c. * Erg/zwaar/flink$_i$ is Jan [t_i verkouden]!

d. Hoe erg/hoe zwaar$_i$ is Jan [t_i verkouden]?
How very/how heavily is John having a cold
'How bad a cold does he have?'

The sentences in (ia) shows three types of modifiers which can modify the adjective *verkouden*. (ib) illustrates that *erg* and *zwaar* can have a comparative form, but that *flink* cannot. (ic) shows that none of these adjectival modifiers can be topicalized. (id), finally, exemplifies the possibility of fronting *erg* en *zwaar* when they are contained within a DegP headed by *how*.

38. Sentence (146d) is well-formed with the following interpretation: In what way is he hairy? e.g. on his chest.

39. Notice that (148b) is correct under a different reading: in what way is he organized.

40. Of course, arguments can also be removed from these small clause APs:

(i) a. Waar$_i$ acht jij de mens [nauw verwant [t_i aan]]?
Where consider you the man closely related to

b. Waar$_i$ maakte jij Jan [erg afhankelijk [t_i van]]?
Where made you John very dependent on

41. It should be noted that extraction is not permitted from adjunct small clauses. The sentences in (i), which contain a subject-oriented predicate, and those in (ii), which contain an object-oriented predicate, show that left branch modifier extractions are impossible from these syntactic environments.

(i) a. * [Hoe ernstig]$_i$ lieten ze Jan [t_i gewond] achter?
How severely let they John wounded behind

b. * [Hoe goed]$_i$ verliet Jan [t_i gehumeurd] de zaal?
How well left John humored the room

c. * [Hoe goed]$_i$ ging Jan [t_i verzekerd] naar het buitenland?
How well went John insured to the foreign country

(ii) a. * [Hoe zwaar]$_i$ verliet Jan [t_i geblesseerd] het veld?
How heavily left John injured the field

b. * [Hoe goed]$_i$ stuurde jij Jan [t_i verzekerd] naar Frankrijk
How well sent you John insured to France

c. * [Hoe sterk]$_i$ eet Jan zijn bieflap [t_i gekruid]?
How strongly eats John his rumpsteak spiced

What might account for the impossibility of extracting a left branch modifier out of an adjunct small clause? One might hypothesize that it is not possible to adjoin to the predicative AP in these constructions, so that the extracted non-argument crosses an L-barrier, yielding an ECP-violation. The following examples, however, show that nothing blocks adjunction to the predicative adjectival adjunct:

(iii) [Daartegen goed verzekerd] ging Jan naar Frankrijk
There-against well insured went John to France

In these examples, the predicative adjunct stands in [Spec,CP]. The complement-PP occupies a position to the left of a modifier, suggesting that it has been adjoined to the adjectival adjunct. So, extraction from within predicative adjunct cannot be ruled out by assuming that adjunction is not permitted to these adjectival phrases.

A potential approach to this problem would be to say that predicative adjuncts are dominated by a CP-node (see, for example, Chung & McCloskey (1987)) or by an IP-node (see a.o. Hornstein & Lightfoot (1987)). Under the assumption that adjunction is not possible to these categories, extraction of an adjunct would always violate the ECP, since one L-barrier (viz. the adjunct-CP, or the adjunct-IP) would always include the trace of the extracted adjunct, but exclude its potential antecedent.

Notice that also in these constructions there is an argument non-argument asymmetry with respect to extraction operations. As we have seen, modifier extractions from within predicative adjuncts are strongly out. Notice now that the following complement extractions are somewhat better, presumably because the ECP is not violated: the initial trace of the fronted R-pronoun is antecedent governed by the intermediate trace in [Spec,PP]:

(iv) a. ?* Waar$_i$ ging Jan [goed [t_i tegen] verzekerd] op reis?
Where went John well for insured on journey

b. ?* Waar$_i$ verliet Jan [[t_i aan] geblesseerd] het veld?
Where left John on injured the field

Similar contrasts are found in the following constructions in which an element is removed from within a predicative adjunct headed by a present participle:

(v) a. Jan liep [fluitend op een rietje] door de gang
John walked whistling on a straw through the corridor

b. ?? Waar$_i$ liep Jan [[t_i op] fluitend] door de gang?
Where walked John on whistling through the corridor

(vi) a. Jan liep [schel fluitend] door de gang?
John walked shrilly whistling through the corridor

b. * Hoe schel$_i$ liep Jan [t_i fluitend] door de gang?
How shrilly walked John whistling through the corridor

Interestingly, the islandhood of predicative adjuncts also holds for extraposition of PPs, which tends to be a rather free process in Dutch. Compare, for example, the following extraposition facts:

(vii) a. * Jan trok [goed gewaarschuwd t_i] de bergen in [daarvoor]$_i$
John went well warned the mountains up there-for

b. * ...dat Jan [goed verzekerd t_i] wegging [daartegen]$_i$
...that John well insured away-went there-against

c. * ...dat ik Jo_k [dronken t_i]$_k$ naar huis bracht [van het bier]$_i$
...that I Joe drunk to home brought by the beer

Notice that it is possible to extrapose an element from within a non-adjunct small clause:

(viii) ...dat ik [de mens [verwant t_i]] acht [aan de aap]$_i$
...that I the man related consider to the monkey

In fact, a similar contrast can be found in English:

(ix) a. *? I met Bill [angry t_i] yesterday [at Mary]$_i$
b. They found [him [guilty t_i]] yesterday [of that crime]$_i$

One might interpret this in the following way: the adjunct-small clauses are adjunct-CPs or IPs, whereas the complement-small clauses are APs. The different behavior might with respect to rightward movement might be caused by the fact that adjunction is permitted to AP, but not to CP or IP. Of course, these facts reminds us of Ross's (1967) Upward Boundedness Constraint, which informally states that no element can be moved rightward by a transformational rule out of the first dominating S.

I will leave it at these speculative remarks. Further research is certainly needed here.

42. The *dan*-phrase originates within the adjunct-DegP. It can be moved rightwards.

43. Henk van Riemsdijk has pointed out to me that the nonextractability of the modifier in (157c) might also be interpreted as some sort of a specificity effect. Then, of course, the question arises why complements are not sensitive to this specificity effect.

44. As expected, the argument-non-argument asymmetries are also found in sentences in which the adjectival head selects an interrogative clause:

(i) a. ?? Who was John uncertain how to kill?
b. * How was John uncertain who to kill?

45. The minimality effects which have been discussed for English also hold for Dutch:

(i) a. Wie$_i$ is Jan bang [om PRO t_i te zoenen]?
Who is John afraid for to kiss

b. Hoe$_i$ is Jan bang [PRO t_i te zullen worden vermoord]?
How is John afraid to will get killed

c. Wie$_i$ is Jan erg bang [om PRO t_i te zoenen]?
Who is John very afraid for to kiss

d. *? Hoe$_i$ is Jan erg bang [PRO t_i te zullen worden vermoord]?
How is John very afraid to will get killed

e. Welke auto$_i$ was Jan te stom [om PRO t_i te repareren]?
Which car was John too stupid for to fix

f. *? Hoe$_i$ was Jan te stom [om PRO t_i die auto te repareren]?
How was John too stupid for that car to fix

As Henk van Riemsdijk has pointed out to me, it is not entirely clear whether extraction takes place from within a sentential complement that is contained within the AP/DegP (as in English). In Dutch, the sentential complement of an adjective/degree word is normally placed in postverbal (= extraposed) position:

(ii) Wie$_i$ is Jan [bang t_j] geweest [om PRO t_i zoenen]?
Who has John afraid been for to-kiss
'Who was John afraid to kiss?'

In the examples in (i), it is not visible that the clausal complement occurs in extraposed position, since the finite verb has been moved into COMP.

The minimality account may be sustained if there is evidence that extraction takes place before extraposition. But even if extraposition operates before extraction of an element from the sentential complement, one might assume that the minimality condition works in such a way as if the extraposed clause is still in its original nonextraposed position. Possibly, at LF (i.e. the level where the traces of the fronted adjuncts in (ib,d,f) are licensed) the CP is moved back (reconstructed) in its original preverbal position before the ECP licenses the adjunct-traces. In that case, we have again the relevant configurations which trigger the minimality effects.

9 LEFT BRANCH EXTRACTION FROM PP

9.1 Introduction

In this chapter, I will investigate the possibility of extracting left branch constituents from within PP. It will be shown that various types of left branch elements that are contained within this maximal projection are accessible to movement. The structure of this chapter will be the following. Section 9.2 discusses the extractability of left branch measure phrases and adjectival modifiers from within PP in Dutch and English. Section 9.3 briefly examines whether similar extraction patterns can be found in other languages. It will be shown among others that languages which do not permit P-stranding allow left branch modifier extractions. Section 9.4 investigates the possibility of extracting material from within left branch DegP-adjuncts that are contained within PP. Section 9.5 discusses the possibility of moving left branch prepositional modifying elements from PPs in Dutch. Section 9.6 presents a discussion of the extraction possibilities of left branch elements from within PPs which are complements of other prepositions. In section 9.7, finally, a number of left branch extractions from postpositional phrases will be discussed.

9.2 The extractability of left branch modifiers out of PP

PPs are often considered to be islands for movement operations (cf. Van Riemsdijk (1978), Baltin (1985)). This is based on the movement behavior of complements from within PPs. In many languages, it is impossible to strand a preposition, as is illustrated by the following examples (example (1c) is taken from Horn (1983)):

(1) a. * Qui$_i$ as-tu compté [sur t_i]? (French)
Who have you counted on

b. * Chi$_i$ hai parlato [con t_i]? (Italian)
Who (you) have spoken to

c. * Jaki stół$_i$ Jan wskoczyl [na t_i]? (Polish)
Which table John jumped onto

Languages such as English and Norwegian, on the other hand, allow P-stranding freely (as in (2a,b)), whereas a language like Dutch exhibits only a limited form of P-stranding: it is impossible to remove a noun phrase complement (DP) from a prepositional phrase (as in (3a)), but it is permitted to extract (left branch) R-pronouns out of these maximal projections (as in (3b)).

(2) a. Who$_i$ did you talk [to t_i]?

b. Hvem$_i$ snakket Jon [med t_i]?
Who talked John with

(3) a. * Wie$_i$ heb je [op t_i] gerekend?
Who have you on counted

b. Waar$_i$ heb je [t_i op] gerekend?
Where have you on counted
'What did you count on?'

Following Van Riemsdijk (1978), I will assume that P-stranding languages, as opposed to non-P-stranding languages, have a specifier position which can function as an escape hatch for complement extractions. So, the complement can escape the PP by moving through the specifier of this maximal projection in wh-movement constructions. This implies that the specifier-position of PPs in Dutch is only accessible to a limited class of elements, viz. the R-pronouns. Sentence (3a) is ruled out because [Spec,PP] does not function as a landing site for the fronted (non-R-pronominal) noun phrase. As a consequence, the right branch complement of the preposition is moved in one swoop to the next adjunction site, viz. VP. Under the assumption that argument traces have to be antecedent-governed, just like non-arguments, these sentences are ruled out, since the antecedent adjoined to VP does not govern the argument trace because of minimality. PP is a M-barrier, since it contains a trace, a zero-level category c-commanding the trace, namely P^0, and a maximal projection containing the trace, namely PP itself. Notice further that the complement-PP is not an L-barrier, since the verb L-marks it.

I will now investigate the islandhood of PP with regard to left branch modifier extractions in languages such as Dutch and English. The following examples show that such extractions are permitted in Dutch (cf. also Zwarts (1978), De Haan (1979)):[1]

(4) a. Hoeveel meter$_i$ stond Jan [t_i achter Marie]?
How-many meter stood John behind Mary

b. Hoeveel meter$_i$ stak het monster zijn kop [t_i boven ons] uit?
How-manymeter stuck the monster his head above us PRT

c. Hoeveel punten$_i$ zit Ajax [t_i van de titel af]?
How-manypoints is Ajax from the title PRT

d. Hoeveel km$_i$ woont Jan [t_i ten Noorden van Tilburg]?
How-many km lives John to the-North of Tilburg

(5) a. Hoe ver$_i$ trad de rivier [t_i buiten haar oevers]?
How far flowed the river over its banks

b. Hoe diep$_i$ lag het lijk [t_i onder de grond]?
How deep lay the body under the ground

c. Hoe dicht$_i$ stond Jan [t_i bij het ongeluk]?
How near stood John by the accident

d. Hoe ver$_i$ zat Jan er$_j$ toen [t_i t_j vanaf]?
How far sat John there then away-from
'How far was John away from it at that moment?'

In (4), a nominal measure phrase (DP) has been moved to the specifier of CP, and in (5) an adjective phrase (DegP). Furthermore, sentence (5d) shows that it is possible to extract both a left branch modifier and an R-pronoun from within the PP.

Notice also, that extractions of measure phrases from PPs occur in various types of wh-movement constructions ((6b) taken from (Van Riemsdijk (1978)):[2]

(6) a. Wel 3 cm$_i$ stak Jo zijn vinger [t_i in zijn mond]
Certainly 3 cm stuck Joe his finger into his mouth

b. De 3 cm die$_i$ ik door de luchtdruk [t_i naar links]
The 3 cm that I by the air pressure to left

werd geduwd hebben mijn leven gered
was pushed have my life saved

c. Jan zit evenveel punten boven het gemiddelde als O_i
John is as-many points above the average as

Marie [t_i beneden het gemiddelde] zit
Mary below the average is

In (6a), the DegP *wel 3 cm* has been topicalized. (6b) is an example of relativization of a measure DP. In (6c), wh-movement has applied to the empty compared constituent in the comparative clause.

How are the left branch modifier extractions in (4)-(6) derived? In all these sentences, the left branch element has been reordered out of a PP-complement of the verb. These PP-complements are L-marked by the verb, and therefore are not BC's, nor L-barriers. As a consequence, the modifiers can be moved out of the PP, without crossing an L-barrier. Via adjunction to VP, they reach the specifier of CP.

Notice that movement through [Spec,PP] is not necessary and even not allowed given the stipulation that only R-pronouns can move through [Spec,PP] in Dutch. It is not necessary, since the adjunct-position is already accessible to antecedent government by the element adjoined to VP. It should not be allowed, since if we would permit movement of DP through the [Spec,PP], it is unclear why other DPs, such as *wie* in (3a), cannot move through it and escape an ECP-violation. Furthermore, the following examples from Dutch, in which the specifier position is filled by an R-pronoun, show that extraction of a measure phrase is nevertheless possible.[3]

(7) a. Jan heeft daar toen zijn duim [er$_i$ [2 cm te diep]
John has there then his thumb there 2 cm too deep

in t_i] gestoken
in stuck
'Then John stuck his thumb 2 cms too deep into his mouth there'

b. Hoeveel cm$_j$ heeft Jan daar toen zijn duim
How-many cm has John there then his thumb

[er$_i$ [t_j te diep] in t_i] gestoken?
there too deep in stuck
'How many cms too deep into his mouth did John stick his finger there at that time?'

In (7a), the R-pronoun occupies the [Spec,PP] after PP-internal movement. In (7b), a measure phrase has been fronted, which originates as a modifier within the DegP *hoeveel cm te diep*. Notice, that the extracted measure phrase cannot use [Spec,PP] as an escape hatch for leaving the PP, since that position is already filled by the R-pronoun *er*, which has been moved PP-internally. I will come back to the precise derivation of this left branch measure phrase extraction in a later section.

In English, as in Dutch, it is allowed to remove measure phrases from complement-PPs. This is exemplified in (8). They are derived in the same way as their Dutch equivalents: The modifier reaches the [Spec,CP] via an intermediate adjunction to VP.

(8) a. How many meters$_i$ did John stand [t_i behind the crowd]?
b. How many meters$_i$ did he raise his head [t_i above the water]?
c. How many feet$_i$ does this district lie [t_i below sea-level]?
d. How many meters$_i$ did John put the body [t_i under the ground]?

(9) a. How far$_i$ did he park his car [t_i behind the gate]?
b. How far$_i$ did he go [t_i into the woods]?
c. How far$_i$ did he stick his tongue [t_i out of his mouth]?
d. How far$_i$ was the drug injected [t_i under the skin]?

In (8), a nominal measure phrase has been extracted from a PP, in (9) an adjectival modifier (DegP).

The sentences in (5) and (9) involve extraction of a left branch adjectival modifier from a PP. It turns out, however, that certain left branch adjectival elements cannot be reordered out of a PP. Consider, for example, the following constructions from Dutch and English:

(10) a. * Vlak$_i$ lag het lijk [t_i onder de grond]!
Directly lay the body under the ground

b. * Onmiddellijk$_i$ zat Marie [t_i naast Piet]!
Immediately sat Mary next-to Pete

c. * Dwars$_i$ liep Jan [t_i door het bos]!
Right walked John across the woods

d. * Recht$_i$ zit Jan [t_i achter Marie]!
Straight sits John behind Mary

(11) a. * Right$_i$ she stood [t_i behind Bill]!
b. * Straight$_i$ she went [t_i into the house]!
c. * Immediately$_i$ the body lies [t_i under the ground]!

One approach to the nonextractability of these elements would be to say that they form compounds with the preposition and that their frozen character can be explained in terms of the lexical integrity hypothesis, i.e. parts of words are inaccessible to syntactic movement operations. Such a compound-analysis is unlikely, however, given the possibility of placing R-pronouns -which hang from P' and which are extractable - in between the modifier and the preposition.[4]

(12) a. Het lijk lag [vlak daar onder]
The body lay directly there under

b. Marie zat [onmiddellijk er naast]
Mary sat immediately there next-to

c. Jan liep [dwars er door]
John walked right there across

d. [Recht daar achter] zit Jan!
Straight there behind sits John

Another possibility would be to say that these elements are X^o-satellites that are sisters of P' (cf. Emonds (1985)). Then one could account for the frozen character of these elements in terms of ECP: an A^o can never adjoin to VP and therefore cannot circumvent the barrierhood of this category. Furthermore, if only maximal projections can substitute for [Spec,CP], then A^o cannot be moved into that position.

The following coordination facts, however, suggest that these adjectival modifiers are maximal projections, just like those adjectival modifiers which can be extracted.[5]

(13) a. [Zowel dwars als schuin over het papier] lopen die lijnen
Both right and diagonally across the paper go those lines

b. [Er$_i$ zowel recht als schuin [t_i achter]] zaten
There both straight and diagonally behind sat

van die vervelende mannen
of those annoying men
'A couple of annoying men sat right behind her and nearly behind her'

If Neijt's (1979) generalization is correct that only maximal projections can be coordinated by emphatic conjunctions, then these data suggest that the adjectival modifiers at issue are maximal projections. And if that is true, then the above-mentioned explanation of the nonextractability of these elements no longer holds.

Comparing the nonextractable adjectival modifiers with those which can be moved, we find the following contrast: The former class cannot have comparative and superlative forms, whereas the latter can.

(14) a. * Dit lijk lag vlakker onder de grond dan dat lijk
This body lay more-directly under the ground than that body

b. * Marie zat onmiddellijker naast Piet dan Sue
Mary sat more-immediately next-to Pete than Sue

(15) a. Dit lijk lag dieper onder de grond dan dat lijk
This body lay deeper under the ground than that body

b. Jan zat verder achter Marie dan Piet
John sat further behind Mary than Pete

This also holds for the English constructions:

(16) a. John parked his car further behind the gate than Bill did
b. * John parked his car more immediately behind the gate than Bill did

Now one might formulate the descriptive statement that gradable adjectives are extractable, whereas non-gradable adjectives are not. Recall that in the previous section a similar contrast was found with adjectival modifiers contained within adjective phrases. There it was argued, however, that it is not entirely correct to state that gradable adjectives are always extractable. It turned out that in certain constructions, viz. topicalization constructions, extraction of a gradable adjective could result in less acceptable sentences. Now the following topicalization constructions show that this also holds for adjectival modifier extractions from PPs.

(17) a. ?* Ver$_i$ trad de rivier [t_i buiten haar oevers]!
Far flowed the river over its banks

b. ?* Diep$_i$ lag het lijk [t_i onder de grond]!
Deep lay the body under the ground

c. ?* Dicht$_i$ stond Jan [t_i bij het ongeluk]!
Near stood John by the accident

d. ?* Ver$_i$ zat Jan [er t_i vanaf]!
Far sat John there away-from

Compared to the interrogative constructions in (5), these sentences seem to be worse. As with adjectival modifiers contained within APs, these topicalization sentences get better when a degree word is added (note that we have a DegP-adjunct in that case):

(18) a. Zo ver$_i$ trad de rivier [t_i buiten haar oevers] dat
So far flowed the river over its banks that

de koeien weer op stal werden gezet
the cows again in cow-house were stalled

b. Even dicht als Marie$_i$ stond Jan [t_i bij het ongeluk]!
As near as Mary stood John by the accident

c. Zo ver$_j$ zat ie er$_i$ nou ook weer niet [t_i t_j vanaf]!
So far sat he there yet not away-from
'He wasn't really that far away from it'

d. Heel wat minder diep$_i$ lag Jan [t_i onder de grond]!
A lot less deep lay John under the ground

It is not entirely clear at the moment what causes this contrast between topicalization and wh-interrogative constructions. What these data suggest, however, is that the nonextractability of the nongradable adjectives in (10-11) should be interpreted as being governed by the same as yet unknown constraint which also rules out topicalization of such gradable adjectives as in (17). Since I have no suggestion to make as to what might be the condition underlying this contrast at the moment, I will leave it for future research.

I will now address the question whether left branch elements can be removed from within adjunct-PPs. As is well-known, it is not possible to extract modifiers from within adjunct clauses introduced by prepositions. Extraction of an argument from within the same configuration yields a much better result. This is illustrated by the following sentences (cf. also Chomsky (1986b)):

(19) a. ?? Which girl did John faint [after he had kissed t_i]?
b. * How passionately$_i$ did John faint [after he had kissed the girl t_i]?

In the a-sentence, a direct object-noun phrase is extracted from within an adjunct-PP, yielding a weak subjacency violation because of the L-barrierhood of this adjunct-PP. The ECP is not violated since the initial trace of the moved direct object is antecedent governed by the intermediate trace which is adjoined to VP. The b-sentence, however, is strongly out since, besides weakly violating the Subjacency Condition, it also violates the ECP.

Following Lasnik & Saito's (1984, (forthcoming)) theory of proper government, I assume that all traces of a moved adjunct must be properly (i.e. antecedent) governed. It is obvious now that the adjunct-PP, which is an L-barrier, blocks antecedent government of the intermediate adjunct-trace which occupies the [Spec,CP] by the next highest potential antecedent governor, i.e. the intermediate trace that is adjoined to the VP of the matrix clause.[6]

Consider now the following sentences in which a left branch modifier is reordered out of an adjunct-PP:

(20) a. * Hoeveel meter$_i$ ontplofte het vliegtuig [t_i boven de stad]?
How-many meter exploded the airplane above the city

b. * Hoeveel meter$_i$ ontmoette Jan Sue [t_i onder de grond]]?
How-many meter met John Sue under the ground

c. * Hoeveel meter$_i$ werken deze mijnwerkers gewoonlijk
How-many meter work these miners usually

[t_i onder de grond]?
under the ground

(21) a. * How many kilometers$_i$ did the plane lose a wing [t_i above the city]?
b. * How many meters$_i$ does this animal feed its young [t_i under the ground]?
c. * How many minutes$_i$ did he take these pills [t_i after lunch]?

These sentences are strongly out. They violate both the Subjacency Condition and the ECP. The measure phrase cannot adjoin to the PP, since this maximal projection is an argument type category. Therefore, direct removal of the measure phrase from inside the adjunct-PP to the next landing site takes place. Suppose the PP is embedded inside the VP, then the first adjunction site for the measure phrase is the VP. The PP creates an L-barrier, and therefore triggers an ECP-violation.

The following pairs of examples from Dutch clearly show that there is a contrast between argument- and adjunct-extractions from within adjunct PPs:

(22) a. ? Dit is het afdakje waar$_i$ Jan gewoonlijk z'n boterhammen
This is the shelter where John usually his sandwiches

[t_i onder] opeet
under eats

b. * De drie meter die$_i$ Jan zijn boterhammen [t_i onder de
The three meter that John his sandwiches under the

de grond] moet opeten, ontnemen hem zijn eetlust niet
the ground must eat, deprive him his appetite not

(23) a. ? De stad waar$_i$ het vliegtuig een vleugel [t_i boven]
The city where the airplane a wing above

verloren had, was Washington
lost had was Washington

b. * De 3 kilometer die$_i$ het vliegtuig een vleugel [t_i boven
The 3 kilometer that the airplane a wing above

de stad] verloor, waren voldoende om de mensen te evacueren
the city lost, were enough for the people to evacuate

A similar contrast is found in English:[7]

(24) a. ? Which city did the airplane lose a wing [above t_i]?
b. * How many kilometers$_i$ did the plane lose a wing [t_i above that city]?

(25) a. ? Which tree$_i$ does this animal feed its young [under t_i]?
b. * How many meters$_i$ does this animal feed its young [t_i under the ground]?

The a-sentences in (22)-(25) are much better than the b-sentences, since they only involve a weak subjacency violation, i.e. only one L-barrier (the adjunct-PP) is crossed.[8] ECP is not violated, since the initial trace in complement position is properly governed by the intermediate trace which occupies the [Spec,PP]-position, which functions as an escape hatch. The b-sentences, on the other hand, are strongly out because of an overriding ECP-violation. As we have argued at the beginning of this section, only R-pronouns can move through the [Spec,PP]-position in Dutch. So, the measure phrase moves directly out of the adjunct-PP. The trace left behind is not antecedent governed by the intermediate trace adjoined to VP, because the PP, not being L-marked, is an L-barrier. As far as the English examples are concerned, notice that even if one leaves the adjunct-PP via the [Spec,PP], which does allow noun phrases (DP) to go through, the ECP will always be violated, since the non-L-marked adjunct-PP will always dominate one of the traces of the nonargument chain. So, the intermediate adjunct-trace adjoined to VP will never be able to antecedent govern the PP-internal trace of the fronted measure phrase.

9.3 Left branch extractions from PP in some other languages

In the previous section it was shown that left branch modifiers contained within PP-complements are accessible to movement operations in Dutch and English. The question, of course, arises whether this is a special property of these two languages or whether it is a cross-linguistically more general phenomenon. Therefore, in this section I will give a brief overview of the left branch extraction possibilities out of PPs in a number of other languages.

Let us first consider Norwegian, a language which allows P-stranding. As the following sentences show, left branch modifiers can be reordered out of PPs as well in this language:

(26) a. [Hvor mange km inn i landet] gar de lengste fjorden?
How many km into country-the goes the longest fjord-the

b. Hvor mange km$_i$ gar den lengste fjorden [t_i inn i landet]?

(27) a. [Hvor langt inn i munnen til Jon] stakk tannlegen fingeren?
How deep into mouth-the of John stuck dentist-the finger-the
'How deep into John's mouth did the dentist stuck his finger?'

b. Hvor langt$_i$ stakk tannlegen fingeren [t_i inn i munnen til Jon]?

In the a-sentences, the entire PP has been moved into [Spec,CP]. In the b-sentences, the left branch modifier has been extracted out of the containing PP.

The languages discussed so far (Dutch, English and Norwegian) allow both P-stranding and left branch modifier extraction. So, one might hypothesize that there is a correlation between the possibility of P-stranding in a language and the possibility of extracting left branch modifiers. It turns out, however, that even in languages that do not allow P-stranding, left branch modifiers are accessible to movement operations.

Consider, first of all, the following sentences from another Germanic language, namely German:[9,10]

(28) a. Wie tief$_i$ lag die Leiche [t_i unter der Erde]?
How deep lay that body under the ground

b. Wieviel Meter$_i$ hing das Bild [t_i über dem Schrank]?
How-many meter hang the picture above the cupboard

Of course, these sentences are also well-formed if the rest of the PP is moved along with the fronted modifier:

(29) a. [Wie tief unter der Erde] lag die Leiche?
b. [Wieviel Meter über dem Schrank] hing das Bild?

Interestingly, it turns out that also in Romance languages such as French, Italian and Rumanian left branch PP-internal modifiers can be extracted reasonably well. Although in general speakers of these languages prefer the pied piped variants, they consider the left branch extractions at issue fairly acceptable. They all agree that sentences involving left branch modifier extractions are much better than those in which a complement of a preposition is fronted.

Consider first French:

(30) a.(?) [A combien de km's]$_i$ est-ce que Jean habite
At how-many of km's John lives

[t_i au Nord de Paris]?
to the-North of Paris

b.(?) [A combien de cm's]$_i$ est-ce que la sonnette est placée
At how-many of cm the bell is put

[t_i au dessus de la plaque]?
above the door-plate

(31) a. [A combien de km's au Nord de Paris] est-ce que Jean habite?
b. [A combien de cm's au dessus de la plaque] est-ce que la sonnette est placée?

(32) a. * Quel ville$_i$ est-ce que Jean habite [au Nord de t_i]?
Which city John lives to the-North of

b. * Quelle plaque est-ce que la sonnette est placée [au dessus de t_i]?
Which door-plate the bell is put above

In (30), a left branch prepositional modifier is removed from within a complement-PP. In (31), the larger PP containing the modifier has been fronted. The sentences in (32), finally, show that P-stranding yields highly ungrammatical sentences in French.[11]

In Italian, we find the same pattern as in French:

(33) a. [A quanti metri]$_i$ atterrò [t_i dietro il ponte]?
By how-many meters (it) landed behind the bridge
'It (e.g. the plane) landed how many meters behind the bridge?'

b. [A quanti metri]$_i$ Gianni gettò la palla [t_i sopra il cesto]?
By how-many meters John threw the ball above the basket

(34) a. [A quanti metri dietro il ponte] atterrò l'aereo?
At how-many meters behind the bridge landed the plane

b. [A quanti metri sopra il cesto] Gianni gettò la palla?
At how-many meters above the basket John threw the ball

(35) a. * Che cosa$_i$ atterrò [dietro t_i]?
What (it) landed behind
'What did it land behind?'

b. * Che cosa$_i$ gettò$_i$ la palla [sopra t_i]?
What (he) threw the ball above

In (33), a left branch modifier has been extracted from within a complement-PP, yielding a fairly acceptable sentence. In (34), the entire PP has been moved into [Spec,CP]. The sentences in (35), finally, illustrate the impossibility of P-stranding in Italian.

Consider next the following sentences from Rumanian:

(36) a. Ion a îngropat cadavrul [la 2 metri sub pămînt]
John has buried corpse-the at 2 meters under ground

b. [La cîţi metri sub pămînt] a îngropat cadavrul?
At how-many meters under ground (he) has buried corpse-the

c. ? La cîţi metri$_i$ a îngropat cadavrul [t_i sub pămînt]?
At how-many meters (he) has buried corpse-the under ground

In (36b), the entire PP dominating the left branch modifier has been moved into [Spec,CP]. Sentence (36c) shows that movement of the left branch modifier into [Spec,CP] yields a fairly acceptable sentence.

Consider, finally, the following examples from Polish, a member of the class of Slavic languages:

(37) a. Schował złoto [głęboko pod ziemia]
(He) hid gold deep under ground

b. [Jak głęboko pod ziemia] schował złoto?
How deep under ground (he) hid gold

c. Jak głęboko$_i$ schował złoto [t_i pod ziemia]?
How deep (he) hid gold under ground

In (37b), the whole PP has been fronted, and in (37c) only the left branch modifier has been moved into [Spec,CP].

The above-mentioned comparative considerations shed a new light on the island behavior of PPs. It turns out that PPs are not totally opaque with respect to the functioning of move alpha. Left branch measure phrases are extractable in a variety of languages. Most striking is the fact that languages which do not permit preposition stranding, allow removal of left branch modifiers from PP. This suggests that PP is not an absolute island for movement operations. Following Van Riemsdijk (1978), I will assume that those languages that permit P-stranding can make use of an escape hatch through which the complement of the preposition can move. It is the presence of this escape hatch which makes it possible that the initial trace of the moved argument is always properly (i.e. antecedent) governed. In languages lacking P-stranding, there is no such escape hatch available inside the PP. As a consequence, extraction of the complement of the preposition directly moves the complement out of the containing PP. Adjunction to PP is not allowed, since PP is an argument type category. The first adjunction site is VP. The

category adjoined to VP does not antecedent-govern the trace inside PP, since PP is a M-barrier. The left branch modifiers in the above-mentioned examples hang from P' and are not within the c-command domain of the head. Extraction of these left branch constituents out of the PP to the next landing site (i.e. adjunction to VP) does not cross an L-barrier, since PP is L-marked, nor is there an intervening M-barrier. PP is not an M-barrier, since it does not contain an X-zero category c-commanding the trace.

9.4 Complex extractions

In the previous chapter, I dealt with left branch modifier extractions from the specifier of a Degree Phrase (DegP). In section 9.3, I have further shown that DegPs can occur as left branch modifiers inside a PP. In this section, I will discuss the possibility of reordering a left branch modifier out of a DegP that is contained within a PP.

Consider the following complex left branch extractions:

(38) a. Hoeveel cm$_i$ had Jan zijn vinger [[[t$_i$] te diep]
How-many cm had John his finger too deep

in zijn keel gestoken?
in his throat stuck

b. Hoeveel cm$_i$ stond Jan [[[t$_i$] te dicht] bij Marie]?
How-many cm stood John too close near Mary

c. Hoeveel cm$_i$ staan haar ogen [[[t$_i$] te ver] uit elkaar]?
How-many cm stand her eyes too far from each other

d. Hoeveel meter$_i$ lag dit lijk [[[t$_i$] minder diep]
How-many meter lay this body less deep

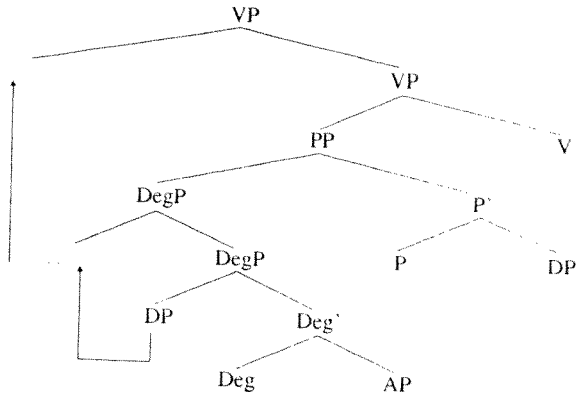
onder de grond] dan dat lijk?
under the ground than that body

In these sentences, a measure phrase has been removed from within an adjunct-DegP which is contained within a PP-complement. Schematically, the extraction operation is represented in (39) below.

In the examples in (38), the measure phrase occupying the [Spec,DegP]-position is fronted. The well-formedness of these sentences suggests that neither a subjacency-violation nor an ECP-violation is involved. The DegP dominating the measure phrase is not L-marked and hence a BC and an L-barrier. The L-barrierhood of this category can be circumvented, however, by adjunction to it. When it is adjoined to DegP, the next possible landing site is VP. Adjunction to the dominating PP is not allowed, since this maximal projection is an argument type category. Movement from a position adjoined to DegP to a position adjoined to VP does not violate the Subjacency Condition,

since PP is not an L-barrier given the fact that it is L-marked by V. Is there an intervening M-barrier, which could cause an ECP-violation? There are two potential candidates: the PP and the VP. PP does not count as a M-barrier, because, although it contains a maximal projection dominating the trace (viz. PP itself), it does not contain a head c-commanding the trace. The lower VP segment does not block antecedent government of the trace adjoined to DegP either, since it does not exclude the antecedent-trace which is adjoined it.

(39)



As one would expect, removal of the DegP and the PP is permitted as well. This is illustrated below for sentence (38b):

(40) a. [Hoeveel cm te dicht]$_i$ stond Jan [t$_i$ bij Marie]?
b. [Hoeveel cm te dicht bij Marie]$_i$ stond Jan t$_i$?

Similar complex extractions as the ones discussed above for Dutch are possible in other languages. Consider, for example, the following sentences taken from Norwegian, German, Rumanian and Polish, respectively:

(41) a. [Hvor mange cm]$_i$ stakk tannlegen fingeren [t$_i$ for
How many cm stuck dentist-the finger-the too

langt inn i munnen til Jon]?
far into mouth-the of John

b. [Hvor mange cm for langt]$_i$ stakk tannlegen fingeren [t$_i$ inn i munnen til Jon]?
c. [Hvor mange cm for langt inn i munnen til Jon]$_i$ stakk tannlegen fingeren t$_i$?

(42) a. [Wieviel Meter]$_i$ lag die Leiche [t$_i$ zu tief unter der Erde]?
How-many meter lay that body too deep under the ground

b. [Wieviel Meter zu tief]$_i$ lag die Leiche [t_i unter der Erde]?
c. [Wieviel Meter zu tief unter der Erde]$_i$ lag die Leiche t_i?

(43) a. [Cu cîţi metri]$_i$ a îngropat cadavrul
With how-many meters (he) has buried corpse-the

[t_i préa adînc sub pămînt]?
too deep under ground
'How many meters too deep under the ground did he put the body?'

b. [Cu cîţi metri préa adînc]$_i$ a îngropat cadavrul [t_i sub pămînt]?
c. [Cu cîţi metri]$_i$ préa adînc sub pămînt a îngropat cadavrul t_i?

(44) a. [O ile metrow]$_i$ Jan schowal złoto [t_i za
By how-many meter John hid gold too

głęboko pod ziemia]?
deep under ground

b. [O ile metrow za głęboko]$_i$ Jan schowal złoto [t_i pod ziemia]?
c. [O ile metrow za głęboko pod ziemia]$_i$ Jan schowal złoto t_i?

In the a-examples, the left branch measure phrase (or the PP containing it) has been moved into [Spec,CP]. In the b-examples, the adjective phrase containing the measure phrase has been moved into that landing position. Finally, the entire complex PP has been fronted in the c-examples.

Consider also the following examples from English:

(45) a. * How many km's did he go further into the woods (than Bill)?
b. How many km's further did he go into the woods?
c. How many km's further into the woods did he go?
d. *? By how many km's did he go further into the woods?

The ill-formedness of (45a) is expected. As we have seen in the previous chapter, it is not permitted to extract the left branch measure phrase from within a DegP in English. In (45b), the DegP has been fronted and in (45c), the entire PP containing the left branch modifier has been moved into [Spec,CP]. In (45d), the PP *by how many km's* has been moved out of the DegP to the [Spec,CP]. As we have seen in the previous chapter, *by*-phrases can moved out of DegP in certain environments. So, the question arises what causes its nonextractability in this example. The only possibility I can think of at the moment is that it might be related to the fact that the structure which should be the input for the sentence (45d) cannot be generated because of Emonds's (1976, 1985) recursion restriction on left branch modifiers in head-initial languages. According to this restriction, any left branch modifier phrase to the left of the head of the dominating phrase must terminate in its head. Possibly, this restriction rules out base-generation of structures like *further by 2 kilometers into the woods*, if its interpreted as a condition which works at D-structure.[12] In that case, a sentence like (45d) is ill-formed since at D-

structure it violates Emonds's recursion restriction. Since I do not know of any better solution right now, I will leave it at this suggestion.

Turning back to Dutch, it should be noted that the left branch measure phrase can occupy a position which is even more deeply embedded within the left branch adjunct. Consider, for example, the following sentences:

(46) a. Ze zit 2 kilo minder te ver van haar streefgewicht
She is 2 kilo less too far from her target-weight

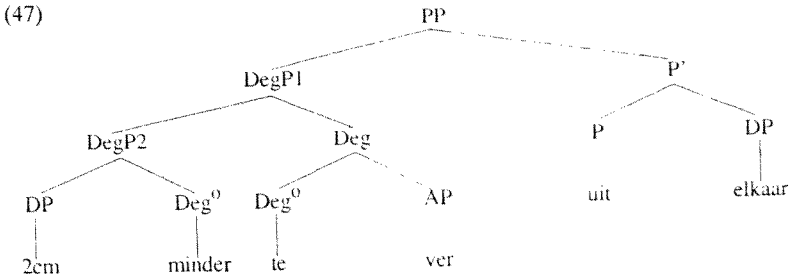
af dan Sue
PRT than Sue

b. Jans ogen staan [2 cm minder te ver uit elkaar
John's eyes stand 2 cm less too far from each other

(dan die van Piet)
(than those of Pete

The complex PPs have the following hierarchical structure:

(47)



Notice now that it is even possible to extract these left branch measure phrases from within this deeply embedded position.

(48) a. Hoeveel kilo$_i$ zit hij [t_i minder te ver van zijn
How-many kilo is he less too far from his

streefgewicht af (dan Sue)]?
target-weight PRT (than Sue)

b. Hoeveel cm$_i$ staan Jans ogen [t_i minder te ver uit
How-many cm stand John's eyes less too far from

elkaar (dan die van Piet)]?
each other (than those of Pete)

In these sentences the measure phrase is extracted from the most deeply embedded DegP in (47). The sentences are well-formed, and hence one should

be able to derive these sentences without violating either the Subjacency Condition or the ECP. Of course, direct removal of the measure phrase out of the dominating PP-complement is not permitted, since one would cross the L-barriers DegP1, DegP2 (both inherently) and PP (inherited). Notice, however, that the measure phrase can leave the containing phrases by adjoining to them. DegP is a non-argument type category, and hence permits adjunction. So, the measure phrases first adjoin to DegP2, and subsequently to DegP1. This way, the L-barrierhood of the two DegPs is voided. The next dominating category is PP. This phrase is not an L-barrier, however, since it is L-marked by the verb. Via adjunction to VP, the measure phrase can reach the [Spec,CP]. So, there are no L-barriers that intervene between the members of the chain of the fronted measure phrase. The well-formedness of these sentences also suggests that minimality is not violated either. In fact, this is true. The lowest trace is antecedent governed by the intermediate trace which is adjoined to the lowest DegP, since this maximal projection is not a M-barrier excluding the antecedent governor. The intermediate trace adjoined to DegP2 is not separated by a M-barrier from the next highest intermediate trace, i.e. the one adjoined to DegP1. Furthermore, there is no M-barrier including the intermediate trace adjoined to DegP2 but excluding its antecedent governor, which occupies a position adjoined to VP. The only potential M-barrier is the intervening PP-complement. The head (P^o) of this maximal projection, however, does not c-command the trace adjoined to DegP2, and therefore PP does not count as a M-barrier which blocks antecedent government.

As expected, it is also possible to move DegP1, DegP2 and the entire PP into [Spec,CP]. This is illustrated below for sentence (48a):

(49) a. [Hoeveel kilo minder (dan Sue)]$_i$ zit ze [t_i te ver
How-many kilo less (than Sue) is she too far

van haar streefgewicht af]
from her target-weight PRT

b. [Hoeveel kilo minder te ver (dan Sue)]$_i$ zit ze
How-many kilo less too far (than Sue) is she

[t_i van haar streefgewicht af]?
from her target-weight PRT

c. [Hoeveel kilo minder te ver van haar streefgewicht af
How-many kilo less too far from her target-weight PRT

(dan Sue)]$_i$ zit zij t_i?
(than Sue is she

The complex left branch extractions discussed so far all involve reordering out of a complement-PP. The question arises whether similar extractions are possible from adjunct-PPs. Consider the following pairs of sentences:

(50) a. Hoeveel meter$_i$ ligt het station Boylston [t_i dieper
How-many meter lies the station Boylston deeper

onder de grond dan Prudential]?
under the ground than Prudential

b. * Hoeveel meter$_i$ rijdt de metro in Boston [t_i dieper
How-many meter drives the subway in Boston deeper

onder de grond dan in Parijs]?
under the ground than in Paris

(51) a. Hoeveel meter$_i$ stopte Jan het lijk [t_i dieper onder
How-many meter put John the body deeper under

de grond dan Karel]?
the ground than Charles

b. * Hoeveel meter$_i$ ontmoette jij de eerste mijnwerker
How-many meter met you the first miner

[t_i dieper onder de grond dan Marie]?
deeper under the ground than Mary

In the a-sentences, a left branch measure phrase has been reordered out of a complement-PP, yielding a grammatical sentence. In the ill-formed b-sentences, a measure phrase has been removed from an adjunct-PP. The ill-formedness is due to a violation of the ECP. Since the measure phrase is a non-argument, every trace of its chain must be antecedent-governed. Although the initial trace in [Spec,DegP] is properly governed by the intermediate trace adjoined to DegP, the latter trace is not properly governed by the next highest intermediate trace, i.e. the one adjoined to VP. The dominating adjunct-PP is not L-marked, hence it is an L-barrier, blocking antecedent government.

Thus, the data in this section show again that extractions from within adjunct-categories is possible if the barrierhood of these categories can be circumvented via adjunction.

9.5 Other left branch modifier extractions out of PP in Dutch

In the previous sections, I have dealt with extractions of left branch adjectival and nominal modifiers from within PPs. In this section I will discuss the accessibility of certain types of left branch prepositional elements to movement operations in Dutch.

9.5.1 Extraction from "bij Sue in de nek"

This section investigates the left branch extraction possibilities out of the following type of PP-configuration in Dutch: [$_{PP}$ [bij DP] [$_{P'}$ P DP]].[13] Examples of this type of PP are given below:[14]

(52) a. De spin is bij ons thuis [[bij Sue] in de nek] gekropen
The spider has at our home with Sue into the neck crawled
'The spider climbed up Sue's neck at hour home'

b. De hond dook bij ons thuis [[bij Marie] onder het bed]
The dog dived at our home with Mary under the bed
'The dog jumped under Mary's bed at our home'

Consider now the following movement patterns:

(53) a. [Bij wie in de nek] is de spin bij ons thuis gekropen?
With whom into the neck has the spider at our home crawled
'Into whose neck did the spider crawl at our home?'

b. [Bij wie]$_i$ is de spin bij ons thuis [t$_i$ in de nek] gekropen?
'Whose neck has the spider crawled into at our home?'

c. [Het meisje [waar$_i$ de spin [bij ons thuis] [[t$_i$ bij] in
The girl where the spider at our home with into

in de nek] was gekropen]], heette Sue
into the neck had crawled was-called Sue
'The girl into whose neck the spider crawled was called Sue'

In (53a), the entire PP-complement of the verb is fronted, and in (53b) only the PP headed by *bij* is moved into [Spec,CP]. In (53c), finally, the R-pronoun has been removed from within the PP headed by *bij* and is moved into the [Spec,CP] of the relative clause.

Let us first examine the subextraction pattern in (53b), i.e the extraction pattern in which the left branch PP has been extracted out of the dominating PP-complement. Extraction of this modifying PP does not violate the ECP or the Subjacency Condition. The latter condition is not violated, since no L-barrier is crossed. The dominating PP is L-marked and therefore not an L-barrier and the barrierhood of VP can be circumvented by adjunction to it. The ECP is not violated via minimality. The dominating PP is not a M-barrier, since it does not contain an X-zero category c-commanding the trace. Thus, the extractability of this left branch element follows from the Barriers system.

A question which should be raised, however, is the following: How do we know that the prepositional modifier headed by *bij* is extracted from a dominating PP? One could propose that the fronted PP in (53b) is base-generated in a VP-adjunct position (i.e. a position external to the PP) but nevertheless modifies

(i.e. specifies the location of) the complement PP. In that case, *bij wie* would be extracted from the following configuration in a sentence like (53b):

(54) [$_{VP}$ [$_{PP}$ bij wie] [$_{PP}$ in de nek]]

In fact, PPs headed by *bij* can occur as PP-adjuncts within a VP. This is shown by the following example:

(55) ..dat de spin [bij Sue] [in de nek van haar
..that the spider at Sue('s) into the neck of her

zusje] is gekropen
sister has crawled
'..that the spider crawled into (Sue's) sister's neck at Sue's home'

In this construction, the PP *bij Sue* cannot be interpreted as a modifier of *in de nek*. The PP is interpreted as 'at Sue's home'. That *bij Sue* is not part of the PP in this sentence is shown by the fact that you cannot move the string *bij Sue in de nek van haar zusje* into the [Spec,CP]-position:

(56) * *Bij Sue in de nek van haar zusje* kroop de spin
With Sue into the neck of her sister crawled the spider

Of course, it is possible to front the adjunct-PP *bij Sue* and the complement-PP *in de nek van haar zusje*:

(57) a. *Bij Sue* kroop de spin in de nek van haar zusje
'At Sue's home, the spider crawled into her sister's neck'

b. *In de nek van haar zusje* kroop de spin bij Sue
'Into her sister's neck, the spider crawled at Sue's home'

As (57a) shows, it is possible to front a PP headed by *bij* which is base-generated as a VP-adjunct. So, now the question arises whether a sentence like (53b) could also be analyzed as movement of a prepositional adjunct, which in a certain way modifies the PP to its right from a VP-adjunct position. The relevant thing to show is whether the construction *"bij DP P DP"* can be assigned a structure as in (54). That is, is there any evidence for base-generating the PP headed by *bij* outside of the complement-PP? I will now provide some facts which suggest that the PP headed by *bij* in sentences like (53b) originates within the PP-complement.

A first argument comes from pronominalization. In Dutch, it is possible to replace parts of the VP by *doen + dat* (i.e. do + that: 'do so'). If replacement applies to a verbal constituent, then the elements subcategorized for by the verb must always be part of the replacement. Adjunct-PPs that are contained within VP need not be replaced. This is exemplified below:

(58) a. De spin kroop in de nek van mijn zusje en hij
The spider crawled in the neck of my sister and he

deed dat bij Sue
did that at Sue
'The spider crawled in my sister's neck and he did so at Sue's home'

b. * De spin kroop bij Sue en hij deed dat in de nek van mijn zusje

In sentence (58a), the VP-adjunct *bij Sue* has not been replaced. This does not yield an ungrammatical sentence, however. (58b), on the other hand, is ill-formed, since the complement-PP *in de nek van mijn zusje*, which is subcategorized for by the verb, is not part of the replacement.

On the basis of this pronominalization phenomenon we can find out whether the PP *bij DP* in a sentence like (53b) is part of the complement-PP which is selected by the verb, or whether it is base-generated in an adjunct position external to the PP it is associated with. Consider the following facts:

(59) a. De spin kroop [bij ons thuis] [bij Sue in de nek]
The spider crawled at our home with Sue in the neck

b. De spin kroop bij Sue in de nek en hij deed
The spider crawled with Sue in the neck and he did

dat bij ons thuis
that at our home

c. ?* De spin kroop bij ons thuis in de nek en hij
The spider crawled at our home in the neck and he

deed dat bij Sue
did that with Sue

(60) a. Dracula zette zijn tanden [bij ons thuis] [bij Sue in de nek]
Dracula put his teeth at our home with Sue in the neck

b. Dracula zette zijn tanden bij Sue in de nek en hij
Dracula put his teeth with Sue in the neck and he

deed dat bij ons thuis
did that at our home

c. ?* Dracula zette zijn tanden bij ons thuis in de nek
Dracula put his teeth at our home in the neck

en hij deed dat bij Sue
and he did that with Sue

The a-sentences are the "input" for the pronominalization. They contain a VP-adjunct (viz. *bij ons thuis*) and a PP-complement. The question now is whether *bij Sue* must be part of the replaced constituent or not. If the answer is yes, then this suggests that the PP headed by *bij* is part of the complement-PP. If it need not be part of the replaced phrase, then it behaves like a true VP-adjunct. Consider first the b-sentences: they show that the VP-adjunct *bij ons thuis* need not be part of the replaced constituent, which is in accordance with its VP-adjunct status. Consider next the c-sentences, in which the PP *bij Sue* is not part of the replacement: these sentences are extremely odd. They definitely are much worse than the b-sentences, in which a true VP-adjunct has not been replaced. The unacceptable status of the c-sentences suggests that the PP headed by *bij* is part of the complement-PP.

Another potential argument suggesting that the PP headed by *bij* is not a VP-adjunct in the construction at issue comes from extraposition facts. Consider the following examples:

(61) a. Ik geloof dat Jan de spin *bij Marie in de nek* zag zitten
I believe that John the spider with Mary in the neck saw to-sit
'I believe that John saw that the spider was on Mary's neck'

b.??? Ik geloof dat Jan de spin *bij Marie* zag zitten *in de nek*
c. Ik geloof dat Jan de spin zag zitten *bij Marie in de nek*

The relevant sentence is (61b). In this sentence the string *in de nek* has been extraposed (i.e. has been moved from a preverbal to a postverbal position). Under an analysis in which *bij Marie* is base-generated as a VP-adjunct, it is not clear why the PP-complement *in de nek* cannot be extraposed. If it is assumed, however, that the PP *bij Marie* is part of the complement-PP and as such is attached to the P' of the dominating PP in a sentence like (61a), then the ungrammaticality of structure (61b) could be interpreted as a violation of the requirement that only maximal projections and zero-level categories can undergo movement (see Chomsky (1986b)). As is shown in (61c), the entire PP containing the PP-adjunct headed by *bij* can be extraposed, since it is a maximal projection.

Notice also the following movement facts:

(62) a.??? *In de nek* heeft Dracula bij ons thuis zijn tanden
In the neck has Dracula at our home his teeth

bij Sue gezet
with Sue put
'Dracula put his teeth in Mary's neck at our home'

b. *Bij Sue in de nek* heeft Dracula bij ons thuis zijn tanden gezet

If it assumed that *bij Sue* in (62a) is base-generated outside of the PP *in de nek*, then it is not clear what blocks fronting of *in de nek*, since it is a maximal projection and therefore should be able to land in [Spec,CP].

However, if *bij Sue* is base-generated as an adjunct hanging from P' within the PP headed by *in*, then the impossibility of fronting *in de nek* could be explained in terms of the requirement that P'-categories (i.e. a non-maximal projection) cannot be moved into [Spec,CP] and cannot undergo movement.

Given the considerations above, let us assume that the PP headed by *bij* can be part of the PP-complement. So, it can be a left branch prepositional modifier within the PP. Consequently, the following sentences would involve extraction of a left branch PP from within a PP-complement.

(63) a. [Bij wie]$_i$ heeft Dracula zijn tanden [t_i in de nek] gezet?
With who has Dracula his teeth in the neck put

b. [Bij welk meisje]$_i$ is die spin [t_i in de nek] gekropen?
With which girl has that spider in the neck crawled

Extraction out of the PP-complement is permitted, since it is L-marked and therefore not a barrier.

Let us now turn to the derivation of a construction like (53c), repeated here as (64):

(64) Het meisje waar$_i$ de spin [bij ons thuis] [[t_i bij]
The girl where the spider at our home with

in de nek] was gekropen, heette Sue
in the neck had crawled was-called Sue
'The girl into whose neck the spider had crawled was called Sue'

In this type of sentence, an R-pronoun has been removed from within the left branch adjunct-PP which is contained within the complement-PP. Before discussing this extraction pattern, I will present some facts showing that the R-pronoun is really extracted out of a left branch modifying PP which is contained within a larger PP.

Consider the following sentence:

(65) Jan stak zijn duim [zo ver mogelijk bij Marie in de keel]
John stuck his thumb so far possible with Mary into the throat
'John stuck his finger as far as possible into Mary's throat'

The constituenthood of the string in brackets is shown by the possibility of fronting the entire string to the [Spec,CP]-position. The finite verb stands in second position (= COMP) after verb second has applied.

(66) [Zo ver mogelijk bij Marie in de keel] stak Jan zijn duim

What is the internal structure of this complex constituent? To put it differently, which elements constitute sub-units within this large PP, which is headed by the preposition *in*? Of course, the DP *de keel* is the complement of

the preposition. What remains is the string *zo ver mogelijk bij Marie*. This sequence does not seem to form a constituent, since it is neither possible to interpret the DegP *zo ver mogelijk* as a modifier within the locative PP *bij Marie*, nor plausible to analyze the PP *bij Marie* as a post-modifier within the DegP *zo ver mogelijk*. A clear argument against the constituency of the sequence in question is the fact that it cannot be moved into the [Spec,CP]-position:

(67) * *Zo ver mogelijk bij Marie* stak Jan zijn duim in de keel

The following examples show that the DegP *zo ver mogelijk* and the PP *bij Marie* can be moved into the [Spec,CP]-position.

(68) a. [Zo ver mogelijk]$_i$ stak Jan zijn duim [t_i bij Marie in de keel]
b. [Bij Marie]$_i$ stak Jan zijn duim [zo ver mogelijk t_i in de keel]

(68a) involves removal of an adjectival modifier (DegP) from within the PP-complement. The derivation of such a sentence has been discussed in previous sections. In (68b), a prepositional modifier has been reordered out of PP. Such a movement operation does not violate subjacency or ECP. The PP-complement is L-marked and therefore is not a L-barrier. Via adjunction to VP, the prepositional modifier can move up to [Spec,CP]. The trace adjoined to VP antecedent governs the PP-internal trace. PP is not a M-barrier, because it does not contain a head c-commanding the trace.

Consider now the following sentences that illustrate the movement behavior of the R-pronoun *er* within the complex PP at issue. I use sentences in which the PP appears in [Spec,CP], so that it is clear that the R-pronoun really occurs inside the complex PP.

(69) a. [Zo ver mogelijk bij Marie *er*in] stak Jan zijn duim
So far possible with Marythere-in stuck John his thumb

b. [*Er* zo ver mogelijk bij Marie in] stak Jan zijn duim

These well-formed sentences illustrate which positions the r-pronoun, which is a complement of the preposition *in*, can occupy within the complex PP. In (69a), the R-pronoun is immediately to the left of the preposition *in*, of which it is a complement. In (69b), it occupies the left peripheral [Spec,PP]-position.

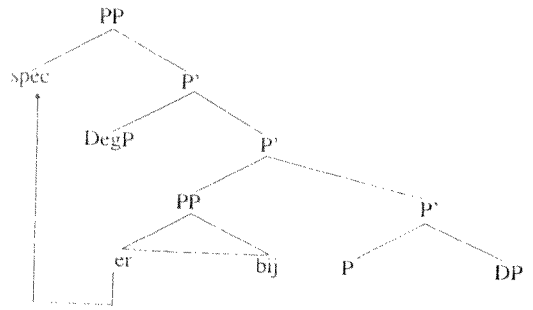
Consider next the R-movement possibilities of the complement of the preposition *bij*, which heads a left branch adjunct-PP inside the complex PP.

(70) a. [Zo ver mogelijk *er*bij in de keel] stak Jan zijn duim
So far possible there-with into the throat stuck John his thumb

b. [*Er*$_i$ zo ver mogelijk [t_i bij] in de keel] stak Jan zijn duim

In (70a), the R-pronoun is still within the adjunct PP headed by *bij*. The interesting example is (70b). The R-pronoun has been extracted from the adjunct-PP headed by *bij* and has been moved to a left peripheral position within the complex PP. That the R-pronoun has left the adjunct-PP is shown by the fact that the DegP *zo ver mogelijk*, which is a modifier of the higher PP, intervenes between the moved R-pronoun and the preposition *bij*, of which it is a complement. The question now arises to what position the R-pronoun is moved. The only available position within the complex PP is the specifier position of the higher PP. Adjunction to the higher PP is not permitted, given the fact that PP is an argument type category. The relevant movement operation is schematized in (71):

(71)



Movement of the R-pronoun to the specifier position of the highest PP does not yield an ECP-violation, since the initial trace of the moved R-pronoun (which occupies the complement position of the left branch adjunct-PP) is properly governed (i.e. antecedent government) by the intermediate trace occupying the [Spec,PP]-position of the left branch adjunct-PP. The Subjacency Condition is not strongly violated either, since movement of the R-pronoun from within the adjunct-PP to the [Spec,PP]-position of the dominating PP only crosses one L-barrier, viz. the PP headed by *bij*.

As expected, the R-pronoun can also leave the complex complement PP and be moved into a position adjoined to VP (as in (72a)) or into [Spec,CP] (as in (72b)).

(72) a. Jan heeft *er* toen zijn duim [zo ver mogelijk
John has there then his thumb so far possible

[[- bij] in de keel]] gestoken
with in the throat stuck

b. Dit is het meisje *waar*$_i$ Jan zijn duim toen [zo ver
This is the girls where John his thumb then so far

mogelijk [t_i bij] in de keel]] had gestoken
possible with in the throat had stuck

Notice that direct removal from within the adjunct-PP to a position outside of the dominating complement-PP is not permitted. The higher PP would inherit barrierhood from the lower adjunct-PP. This would yield a subjacency violation. So, the R-pronoun must move through the [Spec,PP]-position of the dominating complement-PP in order to circumvent a strong subjacency violation.

Consider now again a sentence like (53c), repeated here as (73):

(73) Het meisje waar$_i$ de spin [bij ons thuis] [[t_i bij]
The girl where the spider at our home with

in de nek] was gekropen, heette Sue
in the neck had crawled was-called Sue
'The girl into whose neck the spider crawled was called Sue'

This sentence can now be derived as follows: The R-pronoun *waar* leaves the left branch PP headed by *bij* via [Spec,PP]. The initial trace in the complement position of the adjunct-PP is properly governed by the intermediate trace in [Spec,PP] and therefore ECP is satisfied. If the next movement step would move the R-pronoun directly from within the [Spec,PP] position of the adjunct-PP to an intermediate position adjoined to VP, then we would expect a strong subjacency violation. Two L-barriers would be crossed: the non-L-marked adjunct-PP is an L-barrier and the dominating PP would inherit L-barrierhood from the lower adjunct-PP. The acceptable status of this sentence would not be in accordance with a strong subjacency violation. However, as we have just seen, the R-pronoun need not move directly to a VP-adjoined position, but can use the [Spec,PP] of the dominating complement-PP as an intermediate escape hatch. This way, only one L-barrier (viz. the adjunct-PP) is crossed by the R-pronoun on its way up. Hence, the Subjacency Condition is not strongly violated.

This concludes my discussion of left branch extractions out of PPs involving the prepositional adjunct-PP headed by *bij*.

9.5.2 Extraction from "boven in de kast"

This section investigates the frozen character of the left branch prepositional elements in italics in the following type of sentences:

(74) a. Het geld ligt [*boven* in de kast]
The money lies up in the closet
'The money is at the top of the closet'

b. Jan zat [*achter* in de auto]
John sat back in the car
'He sat in the back of the car'

The constituenthood of the string in brackets is shown by the possibility of moving it into [Spec,CP] (as in (75)) and of replacing it by the pro-form *daar* (as in (76)):

(75) a. [Boven in de kast]$_i$ ligt het geld t$_i$
b. [Achter in de auto]$_i$ zat Jan t$_i$

(76) a. Het geld ligt *boven in de kast* en mijn horloge
The money lies up in the closet and my watch

ligt daar ook
lies there too

b. Jan zit *achter in de auto* en Piet zit *daar* ook
John sits back in the car and Pete sits there too

The nonextractability of these prepositional elements is illustrated by the following examples:

(77) a. * Boven$_i$ ligt het geld [t$_i$ in de kast]!
b. * Achter$_i$ zat Jan [t$_i$ in de auto]!

The question arises why these left branch prepositional elements are not accessible to movement. In order to answer this question, a closer investigation of the internal structure of this type of PP is needed. Before doing that, I should point out that the strings in (77) are well-formed under a different interpretation. (77a) is grammatical if *boven* does not specify a location within the closet, but rather refers to a location like, for example, the attic. So, (77a) would roughly mean: 'the money is upstairs in the closet'. Similarly, (77b) is acceptable if *achter* does not specify a location within the car, but rather is interpreted as 'at the back of the house'. So, (77b) can have the following interpretation: 'at the back of the house John sits in the car'. Under such an interpretation of the sentences in (77), the PPs headed by the intransitive prepositions *boven* and *achter* occupy a different structural position within the clause: they occupy a position external to the PP, but within the VP.

The possibility of fronting the VP-internal adjunct-PP is clearly shown by the following sentence:

(78) [Boven]$_j$ ligt het geld [t]$_j$ [boven in de kast], en
Upstairs lies the money up in the closet, and

[beneden]$_j$ ligt het [t]$_j$ [onder in de la]
downstairs lies it down in the drawer

This sentence contains two coordinated CPs. In both CPs, a prepositional VP-adjunct (*boven* and *beneden*) has been moved into [Spec,CP]. Notice that the fronted PPs cannot be interpreted as modifiers of *in de kast* and *in de la*, since these are already specified by the prepositions *boven* and *onder*.

Given the ill-formedness of the sentences in (77) under an interpretation in which *boven* and *achter* have a specifying function with respect to the other prepositional element, it is unlikely that in these sentences *boven* and *achter* are moved from a VP-adjunct position from which they have scope over (i.e. specify) the strings *in de kast* and *in de auto*. It would be unclear why these PPs could not move, since as we have seen in (78) other adjunct-PPs which are headed by intransitive prepositions can be fronted from that position.

It should be noted, however, that such modification relations between two PPs which are not in any domination relation with respect to each other do exist. Consider, for example, the following sentence:

(79) Ik heb haar [in Tilburg] toen [in de Tuinstraat] ontmoet
I have her in Tilburg then in the Tuinstraat met
'I met her in Tilburg in the Tuinstraat'

In this sentence the second adjunct-PP specifies as it were the location expressed by the other adjunct PP *in Tilburg*. Now one could propose that the same happens with a string like *Het geld ligt boven in de kast*. The PP *boven* would be interpreted as specifying a location of the PP *in de kast* although being external to it. Of course, then the problem is: how do we account for the fact that it cannot be preposed. Let us try to find out whether there is any evidence for such an analysis in which the specifying PP is base-generated outside of the other PP of which the location is specified.

In constructions in which the two elements are adjacent, it is hard to see whether the *boven* is inside the PP or outside of it. But consider the following sentences in which material intervenes between *boven* and the PP-complement:

(80) a. Ik geloof dat hij *boven* de kleren *in de kast* aan het leggen is
I believe that he upstairs the clothes in the closet putting is
'I believe that he is putting the clothes in the closet upstairs'
* 'I believe that he is putting the clothes up in the closet'

b. Ik geloof dat ik er *boven* één *in de kast* heb gevonden
I believe that I there upstairs one in the closet have found
'I believe that I have found only one in the closet upstairs'
* 'I believe that I have found only one up in the closet'

In these sentences, *boven* cannot be interpreted as specifying a location within the closet. *Boven* can only be interpreted as 'upstairs'. This suggests that *boven* can only have the specifying function when it is internal to the PP. Notice that the intervening material in principle need not block the specifying relation. In (79), for example, the adjunct *toen* also intervenes but

does not block the specifying relation. So, it seems that the string *boven in de kast* in which *boven* specifies the location within the closet is part of the PP.

Another argument against interpreting the PP *boven* as a VP-adjunct which can specify the location of another locative PP comes from the following coordination fact:

(81) Ik geloof dat ze boven [en [in de kast]
I believe that they upstairs both in the closet

en [in de la]] liggen
and in the drawer lie

In this construction the emphatic conjunctions *en...en* conjoin the maximal projections *in de kast* and *in de la*. The modifier *boven* occupies a position external to the PP and somewhere within the VP. What is important is that the PP *boven* cannot be interpreted as specifying the location expressed by the two coordinated PPs. *Boven* can only mean 'upstairs'. This suggests that in the strings *P-P-DP* in which the first P has a specifying function, this preposition must be contained within the PP.

Another piece of evidence which shows that the specifying preposition in a string like *boven in de kast* is part of the PP comes from pronominalization. As we have seen in (76), the pro-form *daar* can replace a PP. Now, if a prepositional element like *boven* as in *boven in de kast* were base-generated outside of the PP *in de kast*, then one would expect the maximal projection *in de kast* to be replaceable by the pro-from *daar*. However, it is not:

(82) a. Mijn trui ligt [*boven in de kast*] en mijn jas ligt *daar* ook
My sweater lies up in the closet and my coat lies there too

b. * Mijn trui ligt [boven *in de kast*] en mijn jas ligt *daar* onder
My sweater lies up in the closet and my coat lies there down
'My sweater lies up in the closet and my coat lies down in the closet'

(82b) shows that *in de kast* cannot be pronominalized into *daar*. If left branch prepositions such as *boven* in *boven in de kast* and *onder* in *onder in de kast* ('down in the closet') are analyzed as being contained within the PP, then the ill-formed pronominalization construction in (82b) can be accounted for as follows: *daar* can only replace maximal projections and not lower projections such as P or P'. In (82b), it is not a maximal projection (PP) which is replaced, but a lower level category.

We may take it as established then, that in a string like *het geld ligt boven in de kast*, where *boven* specifies the location expressed by *in de kast*, the preposition *boven* must be analyzed as being part of the PP.

Now that we have established that the preposition must be contained within the PP when it has a specifying function, let us try to find out what causes

the nonextractability of this specifying left branch element which is contained within the PP. In order to find an answer to this question, we must examine the internal structure of this PP. How does this phrase (i.e. the string P - P - DP) break down into smaller constituents? Let us consider a number of potential structures and see whether the frozen character of the prepositional element can be accounted for.

(83) a. [PP [P' [P boven] [PP in de kast]]]
b. [PP [PP boven] [P' in de kast]]
c. [PP [P bovenin] de kast]

In structure (83), the specifying preposition *boven* is the head of a complex PP and takes a PP-complement. Van Riemsdijk (1978) has shown in detail that a PP-configuration as in (83a) should be assumed for the italicized string in a sentence like (84):

(84) Deze wijn dateert [*van* [*voor de oorlog*]]
This wine dates from before the war

Now, if a string like *boven in de kast* had the same internal structure as these PPs, we would expect them to behave similarly with respect to various syntactic processes. It turns out, however, that the strings at issue exhibit a different syntactic behavior. The R-pronoun, for example, can occur in between the prepositions *van* and *voor*, but not in between *boven* and *in*:

(85) a. Deze wijn dateert [van er voor]]
This wine dates from there before
'This wine dates from before that period'

b. * Mijn trui ligt [boven er in]
My sweater lies up there in
'My sweater lies at the top of the closet'

The same contrast can be found with adjectival modifiers:

(86) a. Deze wijn dateert [van [ver voor de oorlog]]
This wine dates from far before the war

b. * Mijn trui ligt *[boven hoog in de kast]/[hoog boven in de kast]
My sweater lies *up high in the closet/high up in the closet

Since there is much evidence for considering (83a) the correct structure for PPs like *van voor de oorlog* (see Van Riemsdijk (1978) for arguments), this structure does not seem to be the correct one for PPs like *boven in de kast*.

Van Riemsdijk (1978) also notes that if in a string like (87) the specifying preposition *onder* is analyzed as the head of a complex PP as in (83a), then one would expect the sentence to mean that the socks are beneath the drawer. However, this is not the meaning that it has.

(87) Je sokken liggen [onder in de la]
Your socks are down in the drawer

All in all, there are enough reasons for not assuming a structure like (83a), when the preposition *boven* has a specifying function within the PP.

Consider next structure (83b). In this structure, *boven* occupies a left branch adjunct-position within the PP headed by *in*. One of the things which remains unclear under this analysis is the fact already mentioned in (85b): i.e. the impossibility of having an R-pronoun in between the PP-adjunct and the preposition it modifies. The point is that other modifiers do permit an intervening R-pronoun. Consider, for example, (88):

(88) [[Zo heel erg diep] erin] zat zijn vinger niet
So very much deep there-in was his finger not
'He hadn't stuck his finger that far into it'

Notice further that it is not clear under this analysis why the left branch PP *boven* cannot be fronted: As we have seen in the previous sections, other types of left branch modifying maximal projections can be moved out of the PP from that position (i.e. from a position attached to P').

This leaves us with structure (83c). In this structure, *boven* and *in* form a compound preposition which takes a nominal complement. Before showing how the nonextractability of the left branch prepositional element in a string like *boven-in* can be accounted for, I will present some evidence for analyzing a string like *boven-in* as a compound.[15]

A first argument comes from the following facts:

(89) a. Jan zat *achter-op*/**op*
John sat back-on/*on
'John sat on the back of the bike'

b. Het geld lag *boven-in*/**in*
The money lay up in/*in
'The money lay at the top of the closet'

If these strings in italics were analyzed as PPs in which the left branch prepositional element is a PP-adjunct and the right branch prepositional element the head of the PP, then one would expect it to be possible to drop the adjunct given the optional status of these elements. As shown by these examples, however, the prepositions *op* and *in* cannot appear as locative intransitive prepositions. The obligatory presence of the left branch prepositional element in these examples suggests that the two prepositions simply form a compound-preposition which can head an intransitive PP. They can optionally take a noun phrase complement:

(90) a. Jan zat [[$_P$ achterop] de fiets]
John sat back-on the bike
'John sat at the back of the bike'

b. Het geld ligt [[$_P$ bovenin] de kast
The money lies up-in the closet
'The money is at the top of the closet'

A second argument supporting the compound analysis comes from the impossibility of placing the R-pronoun in between the two prepositions.

(91) a. * Jan klom [boven er op]
John climbed above there on
'John climbed on top of the roof'

b. Jan klom [er boven op]
John climbed there above on

The fact that the R-pronoun *er* cannot intervene between *boven* and *op* follows if it is assumed that these two elements form a word and that the pronoun which undergoes the syntactic operation of R-movement (see van Riemsdijk (1978)) cannot be infixed in between the two prepositions that form a word.

A final piece of evidence showing the compound status of the prepositional sequences under discussion comes from incorporation phenomena in Dutch. Dutch has a rule of particle incorporation (cf. Van Riemsdijk (1978)), that adjoins a particle head (i.e. a P^o) to a verb, yielding the following structure: [$_V$ P-V]. This complex verb can undergo the process of verb raising (see Evers (1975)), which Chomsky-adjoins the verb of the complement clause on the right hand side of the first higher verb. Consider, for example, the following sentences:

(92) a. Ik geloof dat Jan beter *uit kijken* moet
I believe that John better out-watch must
'I believe that John must be more careful'

b. Ik geloof dat Jan beter *uit* t_i moet *kijken*$_i$
c. Ik geloof dat Jan beter t_i moet *uitkijken*$_i$

In (92b), the verb *kijken* has undergone verb raising, and in (92c) the particle *uit* has been incorporated into the verb *kijken* and this complex verb [P-V] has undergone verb raising.

Crucially, only zero-level categories can incorporate into the verb. Now we have a test for the compound status of prepositional sequences like *achteruit* (back-out; 'backwards'), *voorop* (before-on; 'in front') etc. If these sequences can undergo verb raising together with the verb, then they clearly are compound heads. Consider now the following examples:

(93) a. Ik geloof dat Jan *achteruit* moest *rijden*
I believe that John backwards had-to drive

b. Ik geloof dat Jan moest *achteruitrijden*
I believe that John had-to backwards-drive

(94) a. Ik geloof dat Jan Marie *voorop* liet *lopen*
I believe that John Mary in-front let walk

b. Ik geloof dat Jan Marie liet *vooroplopen*
I believe that John Mary let in-front-walk

In the a-sentences, the compound preposition has not been incorporated into the verb and therefore has not undergone verb raising together with the verb. In the b-sentences, the compound-preposition is incorporated into the verb and has moved along with the verb under raising. So, this shows that the P-P sequences under discussion can have a compound character (i.e. $[_{P^o}\ P^o\ P^o]$).

Now that we have established the existence of such compound prepositions in Dutch, consider the following extraction facts:

(95) a. Jouw trui ligt [bovenin de kast]
Your sweater lies up in the closet
'Your sweater lies high in the closet'

b. [Bovenin de kast]$_i$ ligt jouw trui t_i!
Up in the closet lies your sweater

c. * Boven$_i$ ligt jouw trui [t_i in de kast]!
Up lies your sweater in the closet

(96) a. Jouw trui ligt [bovenin]
Your sweater lies up in
'Your sweater lies on top'

b. [Bovenin]$_i$ ligt jouw trui?
Up in lies your sweater

c. * Boven$_i$ ligt jouw sweater [t_i in]!
Up lies your sweater in

In (95), the compound preposition *bovenin* takes a noun phrase complement, in (96) *bovenin* is used intransitively. The b-sentences show that movement of the entire PP is permitted, and the c-sentences show that the left branch prepositional element cannot be fronted. How can we account for the ill-formedness of the c-sentences? The frozen character of the left branch preposition *boven* can be accounted for in terms of the lexical integrity hypothesis: The preposition, being part of a word, is not accessible to movement operations. Notice, furthermore, that movement of the preposition

(P^o) into [Spec,CP] would violate the structure preservingness hypothesis: the [Spec,CP] only permits maximal projections.

9.6 Extraction from complex PPs

This section investigates the extractability of left branch constituents from PPs that are complements of another preposition. The prepositions that can select a PP-complement in Dutch are *van* (from), *tot* (till), *voor* (for (purpose)), *sinds* (since) (cf. a.o. Van Riemsdijk (1978), (1989)):

(97) a. [PP van [PP voor de oorlog]]
from before the war

b. [PP tot [PP achter dat huis]]
till behind that house

c. [PP voor [PP in de koffie]]
for in the coffee

d. [PP sinds [PP na zijn geboorte]]
since after his birth

The following sentences show complex complement-PPs in which the lower PP contains a left branch measure phrase.

(98) a. Deze vaas dateert [PP van [PP [enkele jaren] voor de oorlog]]
This vase dates from several years before the war

b. Het strekt zich uit [PP tot [PP [30 meter] achter
It stretches REFL PRT till 30 meter behind

dit paaltje]]
this peg

c. De pijl drong [PP tot [PP [diep] in zijn maag]] door
The arrow penetrated till deep in his stomach PRT

The question arises whether this left branch measure phrase is accessible to movement. The following sentences show that measure phrases cannot be extracted from within the embedded PPs (see also Zwarts (1978) and De Haan (1979)):[16]

(99) a. * Hoeveel jaar$_i$ dateert deze vaas [van [t_i voor de oorlog]]?
How-many year dates this vase from before the war

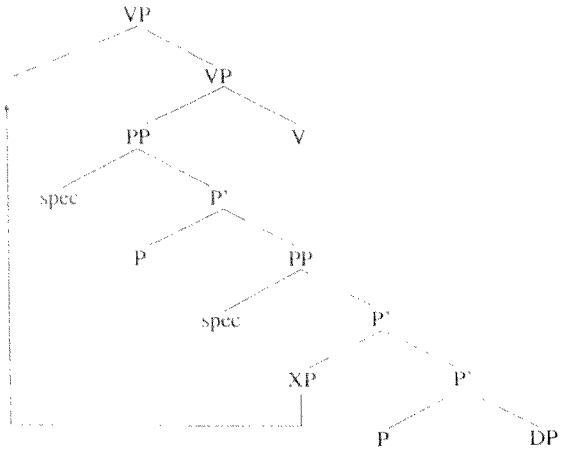
b. * Hoeveel meter$_i$ strekt het weiland zich [tot
How-many meter stretches the grassland REFL till

[t_i achter dit paaltje]] uit?
behind this peg PRT

c. * Hoe diep$_i$ drong de pijl [tot [t_i in zijn maag]] door
How deep penetrated the arrow till in his stomach PRT

Schematically, the extraction pattern at issue can be represented as follows:

(100)



Extraction of the measure phrase (XP) crosses two PPs before reaching the first adjunction site, i.e. VP. Adjunction to the two PPs is not allowed, because of the argument type status of these categories. Notice furthermore that it is not permitted to front the measure phrase to [Spec,CP] by using the [Spec,PP] as an escape hatch, given the assumption that only R-pronouns can move through the [Spec,PP] in Dutch. So, the measure phrase in the sentences in (99) is moved directly to VP, the nearest adjunction site.

Crossing the two PPs directly does not yield a subjacency violation, because the two PPs are L-marked, the lower one by P and the higher one by V. Of course, these maximal projections do not form L-barriers either for the ECP. Can the ill-formedness of the left branch extractions in (99) be explained in terms of the ECP via minimality? So, is there a M-barrier intervening between a trace of the fronted modifier and its antecedent? In fact, the constituent P' of the higher PP blocks an antecedent government relation between the antecedent trace adjoined to VP and the original trace contained within the lower PP. This P' is a M-barrier, since it contains (i) a head c-commanding the trace, (ii) a maximal projection containing the trace, and (iii) the trace itself.

Notice also that it is impossible to remove a measure phrase from within an adjunct-DegP which is contained within the lower PP.

(101) a. Deze vaas dateert [van [[twee jaar eerder] voor de oorlog]]
This vase dates from two year earlier before the war

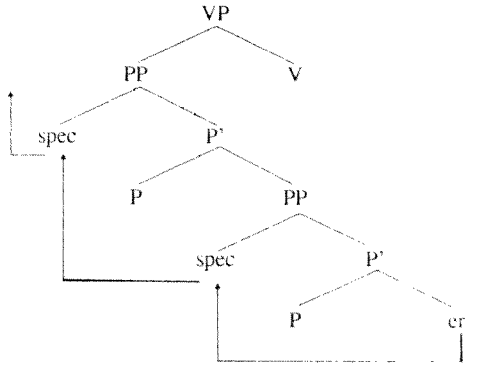
b. * Hoeveel jaar dateert deze vaas [van [[t_i eerder]
How-many year dates this vase from earlier

voor de oorlog]]?
before the war

The b-sentence violates the ECP. The derivation goes as follows. First the measure phrase is adjoined to the adjunct-DegP containing the measure phrase. The trace adjoined to DegP functions as an antecedent governor of the initial trace in [Spec,DegP]. The next possible landing site of the moved measure phrase is a position adjoined to VP, however, since adjunction to PP is not permitted. The trace adjoined to DegP is not antecedent governed by the intermediate trace adjoined to VP, since the higher PP is a M-barrier: it contains the trace, a maximal projection containing the trace (i.e.the lower PP) and a head c-commanding the trace, namely the P^0 *van*. Consequently, the ECP is violated.

The examples considered above all involve removal of a left branch measure phrase, i.e. an adjunct. The question arises whether there is any argument-adjunct asymmetry visible in extractions from these complex PP-configurations. In Dutch, the relevant cases to look at are extractions of R-pronouns. As we have already seen, these elements can use the [Spec,PP] as a landing site and as an escape hatch (cf. Van Riemsdijk (1978)). So, schematically, the following movement path can be traversed by an R-pronoun:

(102)



In (102), the initial trace of the R-pronoun is properly governed. Following Lasnik & Saito (1984), I assume that only the initial trace of a moved argument needs to be properly governed. In (102), the trace t_i is antecedent governed by the R-pronoun. So, the ECP is satisfied. Notice now that

movement to the specifier position of the higher PP is not blocked by the Subjacency Condition, since no L-barrier intervenes, because the lower PP is L-marked by the prepositional head of the dominating PP.

Under this analysis it is expected that it is possible to extract an R-pronoun from within a complex PP. Or more precisely, neither the Subjacency Condition nor the ECP predicts these sentences to be out. So, the following example taken from Van Riemsdijk (1978) appears to be problematic for an analysis in which the R-pronoun can move out of a complex PP via successive cyclic movement through the [Spec,PP] of the two PPs:

(103) * Waar$_i$ dateert deze cognac [van [t_i voor]]?
Where dates this cognac from before

In this sentence, the R-pronoun *waar* is moved form within the PP-complement of the preposition *van*. So, the ungrammaticality of this example appears to be problematic for an escape hatch analysis. It turns out, however, that after consideration of more examples, we get a different picture. The following sentences, for example, are considered well-formed or reasonably acceptable by myself and speakers of Dutch that I consulted.[17]

(104) a.(?) De koffie waar$_i$ deze room [[voor [t_i in]] bedoeld]
The coffee where this cream for in meant

is komt uit Chili
is comes from Chili

b.(?) Het huis waar$_i$ het weiland zich [tot [t_i achter]]
The house where the grassland REFL till behind

uitstrekt is gebouwd door Jan
extends is built by John

c.(?) De divisie waar$_i$ het team [tot [t_i in]] doorgedrongen
The division where the team till into penetrated

was, was de allerhoogste
had, was the highest (one)

d.(?) Het weefsel waar$_i$ het vuil [tot [t_i in]] doorgedrongen
The tissue where the dirt till into penetrated

was, moest verwijderd worden
had had-to removed be

e.(?) De pasta waar$_i$ deze saus [voor [t_i over heen]] is,
The paste where this sauce for over PRT is

komt uit Italië
comes from Italy

f.(?) De boom waar$_i$ Jan [[[van [t_i achter] vandaan] kwam
The tree where John from behind from came

is door mij geplant
has-been by me planted

Notice also that there is a clear contrast in acceptability between on the one hand sentences in which an R-pronoun is removed from within a complex PP and on the other hand sentences in which a non-R-pronoun has been extracted from the same configuration:

(105) a. Waar$_i$ is het vuil [tot [t_i in]] doorgedrongen?
Where is the dirt till in penetrated

b. * Welk orgaan is het vuil [tot [in t_i]] doorgedrongen?
Which organ is the dirt till in penetrated

(106) a. Waar$_i$ is deze melk [voor [t_i in]] bedoeld?
Where is this milk for in meant

b. * Wiens koffie$_i$ is deze melk [voor [in t_i]] bedoeld?
Whose coffee is this milk for in meant

This contrast follows from the fact that non-R-pronouns cannot escape the PP via movement through [Spec,PP], since the specifier position only permits R-pronouns in Dutch.

On the basis of these facts, it seems fair to conclude that the claim that R-pronouns can never be extracted from complex PPs in Dutch is incorrect. Van Riemsdijk's escape hatch analysis for R-pronouns seems to make the right predictions. The question, of course, remains why a sentence like (103) is out. In that sentence, an R-pronoun has been removed from within a complex temporal PP:

(107) * Waar$_i$ dateert deze wijn [van [t_i voor]]?
Where dates this wine from before

The temporal PP headed by *van* is selected by the verb. The preposition *van* itself also selects a temporal PP. Why is this sentence out? As Van Riemsdijk (1978) has noted, temporal PPs are often strongly resistant to subextraction of an R-pronoun.

(108) *? Waar$_i$ heb jij de cognac [t_i na] gekocht?
Where have you the cognac after bought

Of course, in this example the R-pronoun has been reordered out of an adjunct-PP, which is an L-barrier and therefore triggers a weak subjacency violation. But it turns out that even simplex subcategorized temporal PPs are resistant to extraction operations (see also Van Riemsdijk (1978)):

(109) a. Dit boek dateert [uit die periode]
This book dates from that period

b. *? Waar$_i$ dateert dat boek [t_i uit]?
Where dates that book from

Whatever the precise explanation of this opaque behavior of temporal PPs, it seems that the ill-formed sentence (107) is already out for independent reasons, which have nothing to do with the complex status of the containing PP.[18]

I will end this section with a surprising extraction of an R-pronoun from within a complex PP. The relevant sentences are given in (110):

(110) a. ? De vrouw waar$_i$ deze pillen [voor [[t_i bij]
The woman where these pills for with

in de thee]] zijn is mijn oma
in the tea are is my grandmother

b. ?* De vrouw waarbij$_i$ deze pillen [voor [t_i in de
The woman where-with these pills for in the

thee]] zijn is mijn oma
tea are is my grandmother

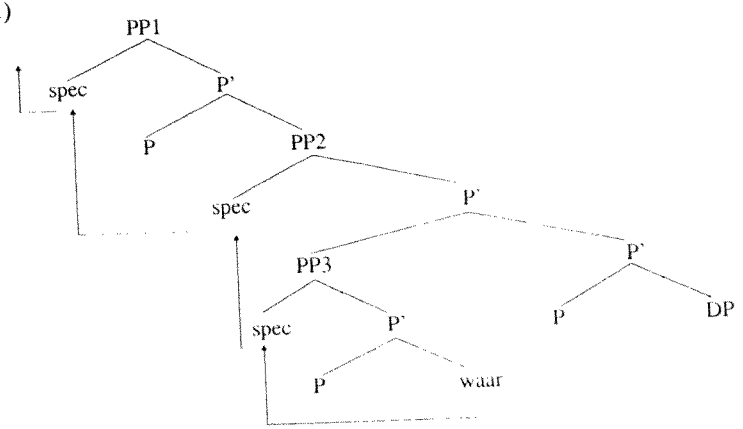
In (110a), an R-pronoun has been removed from a PP-adjunct which is dominated by a complement PP selected by another preposition. It turns out that fronting of the R-pronoun is fairly acceptable, as opposed to removal of the entire adjunct-PP (as in (110b)).

The extraction of the R-pronoun out of the complex PP is schematically represented in (111) below.

Removal of the R-pronoun does not yield an ECP-violation, since the trace t_i is antecedent governed by the antecedent governor in the specifier of the adjunct-PP. Direct removal of the R-pronoun to the adjunction site VP would strongly violate the Subjacency Condition. The adjunct-PP is not L-marked, and therefore a BC and an L-barrier. The two dominating PPs would inherit L-barrierhood from the embedded adjunct-PP. In other words, three L-barriers would be crossed, if the R-pronoun was moved in one swoop to a position adjoined to VP. The well-formedness of these sentences suggests that there is a way to circumvent the barrierhood of the dominating PPs for the R-pronoun. An obvious solution is escaping via the specifier position of these PPs (PP2 and PP1). Movement from [Spec,PP3] to [Spec,PP2] crosses one L-barrier, yielding a weak subjacency violation. From that position, the R-pronoun can move up to the spec position of the highest PP and subsequently leave the complex PP. It should be noted that movement from the specifier position of the highest PP to the next landing site (i.e. adjoined to VP) crosses one L-barrier, viz. PP. This category is not L-marked by the copular

verb, under the assumption that this verb does not assign a theta-role. However, crossing one barrier does not yield strongly ill-formed sentences.

(111)



The b-sentence, in which the adjunct-PP *waarbij* is fronted, is much worse. This can be accounted for as follows: under the assumption that the [Spec,PP] can only function as a landing site for R-pronouns, the PP *waarbij* must leave the complex PP in one swoop and finds VP as the nearest possible adjunction site. Adjunction to the intermediate PPs is not permitted, since these are argument type categories. Now the ill-formedness of this structure can be accounted or in terms of the ECP: PP1 (or P1' if it is present) creates a M-barrier for the trace: it is a projection containing (i) the trace, (ii) a maximal projection which includes the trace (viz. PP2), and (iii) a head c-commanding the trace, namely the preposition of the highest PP.

9.7 Left branch extractions from postpositional phrases

This section briefly investigates the possibility of extracting left branch elements from PPs headed by postpositions in Dutch. Before investigating the left branch extraction patterns, I will consider the internal syntax of these postpositional phrases.[19]

In general, postpositional phrases have a motional meaning (cf. (112)).[20]

(112) a. ...dat Jan [het bos in] liep
...that John the woods into walked

b. ...dat Jan [de trap op] liep
...that John the stairs up walked

c. ...dat Jan [de boom in] klom
...that John the tree into climbed

As Van Riemsdijk (1978) has pointed out, motional postpositional phrases behave ambiguously in Dutch. With respect to certain phenomena the postpositional phrase behaves as a unit, with respect to other phenomena it seems that the postposition is no longer part of the PP. Arguments in favor of considering the sequence NP-P a constituent are the following. First, the sequence can undergo movement.

(113) [De boom in] klom Jan!
The tree in climbed John
'John climbed into the tree'

In this sentence, the sequence NP-P has been topicalized into [Spec,CP].

Second, the constituenthood of the string NP-P is also shown by the fact that the sequence can be coordinated. As is well-known, only constituents can be coordinated.

(114) a. Dat Jan [niet alleen [de berg op] maar ook
That John not only the mountain up but also

[de berg af]] moest rijden
the mountain down had-to ride

b. [Zowel [de stad in] als [het bos in]] gingen zij
Both the city into and the woods into went they

Notice that the conjuncts in both sentences are coordinated by so-called initial coordinators. As Neijt (1979) has pointed out, initial coordination is allowed for maximal projections only. This implies that the conjuncts in (114) should be analyzed as PPs headed by postpositional phrases.

Third, as Van Riemsdijk (1978) has pointed out the sequence NP-P can occur as motional PP-complements within noun phrases:

(115) [De weg [de stad in]] was moeilijk te vinden
The way the city into was difficult to find
'The way into the city was difficult to find'

It is not clear at all how to analyze these sentences if one would adopt a structure in which the postposition does not form a syntactic unit (PP) with the preceding noun phrase.

Fourth, the sequence NP-P can be replaced by the pronominal form *daar* ('there'), suggesting that the sequence forms a syntactic unit.

(116) a. [Enkele km's de berg op], *daar* woont een oude dame
A-number-of km's the mountain up, there lives an old lady

b. [Diep het bos in], *daar* woont een oude heks
Deep the woods in there lives an old witch

Constructions which suggest that the string NP-P does not form a constituent are the following (examples taken from Van Riemsdijk (1978)):

(117) a. ..omdat hij *de boom* is *in*-geklommen
..because he the tree is in climbed

b. omdat zij *de boom* op blote voeten *in* klommen

In these two sentences, *in* and the noun phrase *de boom* are discontinuous. In (117a), the finite verb *is* intervenes, and in (117b) the adjunct-PP *op blote voeten*.

The discontinuous patterns in (117a and b), however, are derived from the underlying structures in (118a and b), respectively. In these underlying structures, *de boom* and *in* form a postpositional phrase. Sentence (117a) is derived in the following way: The postposition *in* is incorporated into the verb *geklommen* and is subsequently moved to a position to the right of the finite verb via the Verb Raising-process (cf. a.o. Evers (1975)). The discontinuous pattern in (118b) can be derived by leftward movement of the object of the postposition to a position adjoined to VP (see a.o. De Haan (1979), Bennis & Hoekstra (1984), Koster (1986)).

(118) a. ..omdat hij *de boom in* is geklommen
..because he the tree in has climbed

b. ..omdat zij op blote voeten *de boom in* klommen
..because they on bare feet the tree into climbed

Let us now turn to the question whether postpositional phrases in Dutch can contain left branch modifiers, and if so, whether these modifiers are extractable. The following examples illustrate the possibility of having left branch modifiers within postpositional phrases:

(119) a. [Hoe ver het bos in]$_i$ denk je dat Jan gisteren t_i
How far the woods into think you that John yesterday

gelopen is?
walked has
'How far into the woods do you think John walked yesterday?

b. [Hoe ver de boom in]$_i$ klom Jan t_i?
How far the tree into climbed John
'How far into the tree did John climb?'

Consider now the following sentences:

(120) a. [Hoe ver het bos in]$_i$ denk je dat Jo gisteren t_i
How far the woods into think you that Joe yesterday

is gelopen?
has walked
'How far into the woods do you think that Joe walked yesterday?'

b. [Hoe ver]$_i$ denk je dat Jo gisteren [t_i het bos in] is gelopen?

In (120a), the entire postpositional phrase has been moved into [Spec,CP]. In (120b), the left branch modifier *hoe ver* has been reordered out of the PP. Extraction does not violate the ECP or the Subjacency Condition: The PP is not an L-barrier, since it is L-marked by the verb. So, the adverbial modifier can leave the PP and reach the [Spec,CP] via adjunction to VP. PP does not create a M-barrier, since it does not contain a head c-commanding the trace.[21]

Let us finally consider the movement behavior of left branch modifiers contained within a postpositional phrase headed by *vandaan* ('from').[22] The complement of *vandaan* is a PP:

(121) a. Ik hield Jan [[bij de computer] vandaan]
I kept John at the computer from
'I kept John from the computer'

b. Jan kroop [[onder het bed] vandaan]
John crawled under the bed from
'John crawled out from under the bed'

The following examples show that a PP headed by *vandaan* can contain a left branch modifier:

(122) a. [Zo ver mogelijk [bij de computer vandaan]] hield ik Jan
So far possible at the computer from kept I John
'I kept John away from the computer as far as I could'

b. [Zo ver mogelijk [onder het bed vandaan]] kroop Jan
So far possible under the bed from crawled John

Notice that the DegP *zo ver mogelijk* can only be interpreted as modifying the PP headed by the directional postposition *vandaan*, and not as modifying the locative PPs.

As expected, the left branch modifier can be moved from within the PP:

(123) a. Hoe ver$_i$ hield jij Jan [t_i [bij de computer] vandaan]
How far kept you John at the computer from
'How far did you keep John away from the computer?'

b. Hoe ver$_i$ kroop Jan [t_i [onder het bed] vandaan]?
How far crawled John under the bed from
'How far did John crawl out from under the bed?'

If the PP-complement of *vandaan* contains an R-pronoun, then this pronoun can be fronted as well (cf. Van Riemsdijk (1978)):

(124) a. Waar$_i$ hield jij Jan [[zo ver mogelijk] [t_i bij] vandaan]?
Where kept you John so far possible at from
'What did you keep John away from as far as you could?'

b. Waar$_i$ kroop Jan [[zo ver mogelijk] [t_i onder] vandaan]?
Where crawled John so far possible under from

The well-formedness of these sentences follows directly. The initial trace of the R-pronoun is properly governed by the antecedent trace in the specifier of the PP that is a complement of *vandaan*. So, the ECP is satisfied. From the [Spec,PP] of the PP-complement of *vandaan*, the R-pronoun can move to [Spec,CP] via adjunction to VP without violating the Subjacency Condition.

In my discussion of extractions from within complex PPs of the type [$_{PP}$ P [$_{PP}$ P DP]], it was argued that R-pronouns can move successive cyclically through the specifier of a dominating PP. The question arises whether this movement path is available for extractions from complex postpositional phrases as well. Consider the following examples:

(125) a. [[Zo ver mogelijk] [er bij] vandaan]$_i$ hield$_j$ ik Jan t_i t_j
So far possible there at from kept I John
'I kept John as far as possible away from it'

b. [Er$_i$ [zo ver mogelijk] [t_i bij] vandaan]$_i$ hield$_j$ ik Jan t_i t_j
There so far possible at from kept I John
'I kept John as far as possible away from it'

The complex postpositional phrases in (125) occupy the [Spec,CP]-position. The finite verb (*hield*) has been moved into COMP via the Verb Second movement operation. In (125a), the R-pronoun *er* is still contained within the PP-complement of the postposition *vandaan*. The relevant case is (125b). In this grammatical sentence, the R-pronoun has been moved from within the complement-PP to the specifier position of postpositional phrase. This is shown by the intervening DegP *zo ver mogelijk*, which is a modifier of the postposition *vandaan*. Note, that the R-pronoun must be moved to a position within the complex PP, since the entire complex PP occupies the first position of the sentence, i.e. [Spec,CP]. Under the assumption that adjunction to PP is excluded, the only possible landing site for the moved R-pronoun is the [Spec,PP] of *vandaan*. This supports the assumption that R-pronouns can move successive cyclically from one [Spec,PP] to a c-commanding [Spec,PP].

Consider also the following complex extraction:

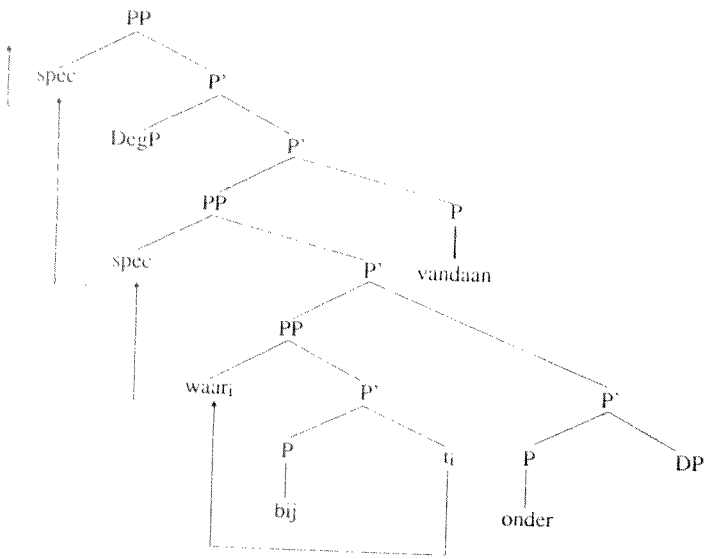
(126) Dit is de vrouw waar$_i$ Jan [[zo ver mogelijk]
This is the woman where John so far possible

[[t_i bij] onder het bed] vandaan] was gekropen
with under the bed from had crawled
'This is the woman whose bed John had crawled out from under a s far as he could'

In this sentence, the R-pronoun *waar* has been removed from within an adjunct-PP headed by *bij*, which is contained within the PP-complement of the postposition *vandaan*. The R-pronoun is moved into [Spec,CP] in the following way: first it is moved into the [Spec,PP] of the preposition *bij*. The initial trace is properly governed by the antecedent in [Spec,PP]. So, ECP is satisfied. Next, the R-pronoun is moved out of the adjunct PP headed by *bij*. So, it crosses one L-barrier. Note that this adjunct-PP is contained within the complement-PP headed by *onder*. If the R-pronoun is moved directly from the [Spec,PP] of *bij* into the [Spec,PP] of *vandaan*, then we would have a strong subjacency violation, since the R-pronoun would cross two L-barriers, viz. the adjunct-PP headed by *bij* (an inherent barrier) and the complement-PP headed by *onder* (a barrier by inheritance). The only way to circumvent a strong subjacency violation is to move through the [Spec,PP] of the preposition *onder*. Via the [Spec,PP] of *onder* and the [Spec,PP] of *vandaan*, and with adjunction to VP as an intermediate step, the R-pronoun can reach the [Spec,CP] without strongly violating the Subjacency Condition.

Schematically:

(127)



Evidence that an R-pronoun originating within the adjunct-PP can be moved into the specifier position of *vandaan* comes from the following example:

(128) [Er$_i$ zo ver mogelijk [t_i bij] onder het bed vandaan]
There so far possible with under the bed from

was Jan gekropen
had John crawled

So, via successive cyclic movement through the [Spec,PP]-positions the deeply embedded R-pronoun can reach the [Spec,CP].

9.12 Concluding remarks

This chapter examined the accessibility of various types of left branch elements contained within PP to movement operations. It was shown that the mobility of left branch measure phrases and adjectival and prepositional modifiers from within complement PPs could be accounted for within the Barriers system. It further turned out that left branch adjunct extraction is even permitted in languages which do not permit P-stranding. It was also shown that left branch adjunct-extraction from within adjunct-PPs is not permitted. Because of the L-barrierhood of PP, extraction will always yield an ECP-violation. The barrierhood of this maximal projection cannot be circumvented via adjunction to it, under the assumption that adjunction is not permitted to argument type categories.

1. For evidence that these modifiers are really part of the PP and do not hang from V', see chapter 3.

2. Relative constructions and interrogative constructions differ from each other with regard to pied piping possibilities in sentences in which a measure phrase has been relativized or questioned:

(i) a. Hoeveel meter$_i$ ligt het lijk [t_i onder de grond]?
How-manymeter lies the body under the ground

b. Hoeveel meter onder de grond$_i$ ligt het lijk t_i?

(ii) a. Ondanks de drie meter die$_i$ het lijk [t_i onder de grond] lag
Despite the three meter that the body under the ground lay

werd het toch ontdekt
was it nevertheless discovered

b. * Ondanks de drie meter die onder de grond$_i$ het lijk t_i lag werd het toch ontdekt

It is not clear at the moment what causes this asymmetry.

3. Van Riemsdijk (1978) observes that R-pronouns in Dutch may both precede and follow modifying phrases within the PP:

(i) a. [vlak daar onder]
directly there under

b. [daar vlak onder]
there directly under

I will assume that the R-pronoun can occur as a left branch sister of the preposition (as in (ia)), possibly coindexed with an empty category to the right of the preposition so that theta-assignment is unidirectional for the preposition. In (ib), *daar* occupies the [Spec,PP].

4. Consider also the following sentences:

(i) a. ?* Ver$_i$ dat de rivier [t_i buiten haar oevers] was getreden!
Far that the river over its banks had flowed
'The river had flowed over its banks so far!'

b. ?* Diep$_i$ dat dat lijk [t_i onder de grond] lag!
Deep that that body under the ground lay
'That body lay so deep under the ground!'

In these exclamatory constructions, an AP has been topicalized into the [Spec,CP] of a main clause in which the COMP-position is not filled by the fronted finite verb, but by the complementizer *dat*. To my ear, these sentences sound rather odd, just like the ones given in (10).

5. Notice that the nonextractability of modifiers such as *vlak*, *schuin*, etc. cannot be due to "heaviness factors", since even the coordinated structures in (13) cannot be moved:

(i) a. *? [Zowel dwars als schuin]$_i$ liepen die lijnen [t_i over het papier]
Both right and diagonally went these lines across the paper

b. * [Zowel recht als schuin]$_i$ zaten die vervelende kerels
Both straight and diagonally sat those annoying guys

[t_i achter haar]
behind her

6. Argument-adjunct asymmetries are also shown by movements across a wh-island and movements across a complex noun phrase. Consider, for example, the following sentences:

(i) a. ?? Whose mouth$_i$ did you forget when to stick your finger [into t_i]?
b. * How many cm's$_i$ did you forget when to stick your finger [t_i into your mouth]?

(ii) a. ?? Whose mouth$_i$ do you believe the claim that Bill stuck his finger [into t_i]?
b. * How many cm's$_i$ do you believe the claim that Bill stuck his finger [t_i into John's mouth]

7. Judgments sometimes vary among speakers of English as far as complement extraction from within adjunct-PPs is concerned. Browning (1987) notes that the following sentences are consistently rated as ? or ?? by her informants:

(i) a. Which concert did you fall asleep during?
b. Which performance did you get sick after/before?
c. What did you leave home without?
d. What did you buy tuna instead of?

In Emonds (1985, 251), we also find the following example:

(ii) It's this kind of movie that I'm always so sad after

What is important is that speakers consistently consider modifier extractions from adjunct-PPs much worse than complement extractions from adjunct-PPs.

8. Recall that it is assumed in this study that adjunction to PP is not permitted because of the argument type status of PP. See chapter 3.

9. In northern German dialects, P-stranding is permitted. My German informants, however, spoke southern dialects and did not have P-stranding in their dialect.

10. Note that in this language left branch modifiers cannot be removed from adjunct-PPs either:

(i) * Wieviel Minuten$_i$ explodierte die Bombe [t_i nach dem Spiel]?
How-many minutes exploded that bomb after the game

11. That the left branch modifier is really part of the PP is suggested by the impossibility of having intervening material between the modifier and the prepositional phrase:

(i) * Jean habite *à* 3 *km* en ce moment *au Nord de Paris*
John lives at 3 km at this moment to the-North of Paris

12. In Emonds (1976, 1985) the Recursion Restriction works at Surface structure/S-structure. If that is true, our tentative proposal does not work. But possibly, this condition can also be interpreted as a condition on X-bar configurations in D-structure. Further research is needed.

13. See chapter 3 for a discussion of the internal structure of this type of PP.

14. In these examples, I have added the locative PP *bij ons thuis* (with us home; 'at our home') so that the other PP headed by *bij* cannot receive that interpretation.

15. It should be noted that the string *boven in de kast* can also have an interpretation in which *in de kast* modifies *boven*. The string roughly means: 'upstairs in the closet'. Possibly, the string has the following structure under that interpretation.

(i) $[_{PP}\ [_{P'}\ \text{boven}]\ [_{PP}\ \text{in de kast}]]$

In this structure, *boven* is the head of the PP and *in de kast* functions as right branch adjunct within it. Under this interpretation, the string *boven in de kast* is pronounced with a very short pause in between *boven* and *in de kast*. So, maybe its is more of an appositive-like structure.

Like most other adjuncts, the PP is optional:

(ii) [Boven (in de kast)] ligt jouw trui
Upstairs in the cupboard lies your sweater

Notice also the following structures:

(iii) [Boven [boven in de kast]] ligt jouw trui
Upstairs up in the closet lies your sweater
'Your sweater is upstairs at the top of the closet'

(iv) [Niet alleen [boven boven in de kast] maar ook [beneden boven
Not only upstairs up in the closet but also downstairs up

in de kast]] zitten van die vette spinnen
in the closet are of those thick spiders

In these two sentences, the complex PP occupies the [Spec,CP], which shows that it is a constituent. (iv) consists of the two coordinated PPs *boven boven in de kast* and *beneden boven in de kast*. If structure (i) is the correct structure for the right branch adjunct-interpretation, then the complex PPs in (iii) and (iv) could be analyzed as follows: the leftmost P' (*boven/beneden*) is the head of the complex PP, and it is modified by the right branch PP *boven in de kast/beneden in de kast*. These adjunct-PPs are headed by the compound prepositions *bovenin*.

16. The nonextractability of a left branch modifier from within a PP-complement of another preposition also holds for English:

(i) a. He comes from far behind the iron curtain
b. This vase dates from 2 years before the war

(ii) a. * How far$_i$ does he come [from [t_i behind the iron curtain]]?
b. * How many years$_i$ does this vase date [from [t_i before the war]]?

Direct removal of a measure phrase like *how many years* in (iib) to a position outside of the complex PP (e.g. a position adjoined to VP) will yield an ECP-violation: The highest PP will

always create a Minimality-barrier, since it contains (i) a head c-commanding the trace of the fronted measure phrase (namely, the P^o of the higher PP), (ii) a maximal projection containing the trace in question (viz. the lower PP) and (iii) the trace itself. Even if one held the view that a measure phrase like *how many meters* can move successive cyclically through the [Spec,PP]-position of the two PPs, the system would correctly block extraction of the measure phrase from within the lower PP. Movement of the measure phrase out of the lower PP to the [Spec,PP]-position of the higher PP will yield an ECP-violation because of minimality. The P'-category of he higher PP forms a Minimality-barrier.

Notice that extraction of the measure phrase from within the lower PP always results in an ECP-violation, independently of whether the measure phrase is moved directly out of the complex PP, or whether it is moved.

17. Also in English, it is possible to extract complements from within complex PPs (see also Bennis & Hoekstra (1984)). It should be noted, that the acceptability judgments of these sentences vary sometimes.

(i) a.(?) Which war does this cognac date from before?
b.(?) Which table did Fido jump out from under?
c.(?) What did the thief crawl out from under?

(ii) * Which match did John stay at home till after?

In the sentences in (i), the complement has been extracted from within a complex PP which is a complement of the verb. In (ii), *which match* is reordered out of an adjunct-PP (an L-barrier), yielding a less acceptable sentence.

18. Another example from the literature where extraction cannot take place is the following (see Van Riemsdijk (1978), Koster (1987), Bennis & Hoekstra (1984)):

(i) * Ik vraag me af waar$_i$ hij de cognac [voor [t_i bij]] kocht
I wonder REFL PRT where he the cognac for with bought

Presumably, the unacceptable status of this extraction fact is related to the adjunct-status of the complex PP *voor waar bij*. The adjunct-PP creates an L-barrier for extraction.

19. See Van Riemsdijk (1978) for an elaborate discussion of the syntax of postpositional phrases.

20. Sometimes a postpositional phrase headed by *in* ('in') appears as a complement of a non-motional verb. Consider, for example, the following examples taken from the Geerts e.a.(1984)):

(i) a. Hij woonde [diep het bos in]
He lived deep the woods in

b. Dat gebouw staat [een heel eind het centrum in]
That building stands a big distance the centre in

21. Van Riemsdijk (1978) observes that the complement of the postposition can be separated from the postposition by intervening material:

(i) omdat zij *de boom* op blote voeten *in* klommen
because they the tree on bare feet in climbed

He notes (p. 100): "Thereby the PP is split up, allowing elements to be interposed between the object of the postposition and the now incorporated postposition itself."

According to this analysis, the postpositional phrase and the verb are adjacent at D-structure, since incorporation of the postposition into the verb requires adjacency. For (i) this means that the D-structure is the following:

(ii) omdat zij op blote voeten [de boom in] klommen

If I interpret Van Riemsdijk's analysis correctly, the PP *op blote voeten* is moved after incorporation of the postposition to a position to the right of the noun phrase *de boom*. It is not clear to me what exactly this position is. It is highly unlikely that it is a position somewhere inside the postpositional phrase. One possibility would be to say that there is an empty PP-position at D-structure in between the postpositional phrase and the final verb, which functions as a landing site for a structure preserving rightward movement operation. Notice, however, that such a proposal immediately raises the question why you cannot have sentences like (iii) in Dutch:

(iii) * omdat zij [de boom in] [op blote voeten] klommen
because they the tree in on bare feet climbed

Notice furthermore that if one would assume an empty PP-slot occurring in between the postpositional phrase and the verb, then the postposition and the verb are no longer adjacent, which would be problematic for the adjacency requirement on incorporation.

Notice that under an analysis in which the object of a postposition is scrambled leftwards to a position adjoined to VP (cf. De Haan (1979), Bennis & Hoekstra (1984), Koster (1987), Den Besten (1989)), this problem does not arise. The D-structure of (i) would be a structure as in (ii). The adjunct-PP appears in between the postposition and the object, after the latter has been moved out of the postpositional phrase. Notice that scrambling of the noun phrase out of the postpositional phrase does not violate the minimality condition. After incorporation of the postposition into the verb, the head of the PP is no longer lexically filled. Following Chomsky's proposal that empty heads do not create M-barriers for proper government, the trace adjoined to VP can antecedent govern the trace of the moved noun phrase.

In accordance with the scrambling analysis, it is possible to have the following parasitic gap constructions:

(iv) Welke boom$_i$ heeft Jan [zonder ooit [e$_i$ in] te zijn geklommen] t$_i$ omgehakt?
Which tree has John without ever in to have climbed cut-down

(v) Jan heeft deze boom$_i$ [zonder ooit [e$_i$ in] te zijn geklommen]$_i$ omgehakt?
John has this tree without ever in to have climbed cut-down

22. The postposition *vandaan* cannot incorporate into the verb.

10 LEFT BRANCH EXTRACTION FROM NOUN PHRASES

10.1 Introduction

This chapter investigates the extractability of left branch constituents that are contained within NP. Section 10.2 provides an analysis of the frozen character of attributive adjective phrases in languages such as Dutch and English. After having shown that the immobility of these elements cannot be accounted for under a traditional noun phrase structure, I will attempt to account for it in terms of the DP-structure. Section 10.3 discusses the impossibility of reordering constituents out of attributive adjective phrases. Section 10.4 deals with the movement properties of ordinals and cardinals. In section 10.5, an analysis will be presented of the possibility of extracting left branch constituents from within noun phrases in Slavic languages such as Polish and Czech. It will be proposed that the accessibility of these left branch elements to movement operations is related to the absence of a DP-projection in these languages.

10.2 The frozen character of attributive adjective phrases

Ross (1967) has pointed out for English that left branch attributive adjective phrases cannot be extracted out of a dominating noun phrase:

(1) a. * How expensive$_i$ did he buy [a t_i picture by Dali]?
b. * How interesting$_i$ did he propose [an t_i analysis of that problem]?

The impossibility of extracting attributive adjective phrases also holds for Dutch:

(2) a. * Hoe mooi$_i$ bezat Jan [een t_i schilderij van Dali]?
How beautiful owned John a picture by Dali

b. * Hoe interessante$_i$ heeft Jan [een t_i lezing] gegeven?
How interesting has John a lecture given

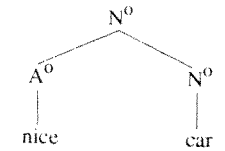
How can the frozen character of these constituents be accounted for? In chapter 2, it was shown that the nonextractability of these elements cannot be explained in terms of the Subjacency Condition or the ECP under a traditional NP-analysis. Suppose the NP is a direct object. Then it will be L-marked and therefore it will not be an L-barrier. Via intermediate adjunction to VP, the fronted attributive adjective phrase can be moved into [Spec,CP] without violating the ECP or the Subjacency Condition (see chapter 3 for more details). Of course, one might argue that the trace left behind after removal of these adjective phrases violates the ECP via minimality. Consider, for example, (2a). Under the assumption that the trace is in an adjunct position (i.e. sister of N' and daughter of N'), the narrow definition of minimality (see Chomsky (1986b)) does not block antecedent government of the trace by the nearest antecedent, i.e. the intermediate trace adjoined to VP.[1] The broader concept of

minimality, however, blocks antecedent government of the trace by the VP-adjoined antecedent, since the trace is contained within a projection of the head. Notice, that if it is assumed that the definition of minimality is constant across categories, then the broader concept of minimality blocks all left branch adjunct-extractions from within adjective and prepositional phrases, since AP and PP (being projections of A and P, respectively) will always protect the adjunct-trace from external governors. Of course, such an assumption makes incorrect predictions. As we have seen in the previous sections, adjunct-positions within AP and PP are accessible to movement operations and therefore traces in these positions should be accessible to antecedent government.

One could propose, however, that the nonextractability of these elements is not due to the Subjacency Condition or the ECP but to some other factor. A potential approach to this left branch effect could be based on Stowell's (1981) assumption that an adjective-noun sequence is generated in the morphological component by the word formation rules, and as such forms a compound noun (cf. also Hudson (1984)). Making that assumption, one might account for the nonextractability of attributive adjectives in terms of the lexical integrity hypothesis, which excludes the accessibility of parts of words to transformational operations.

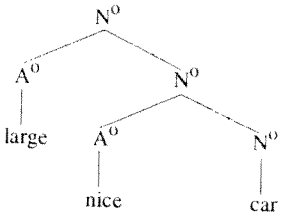
According to Stowell (1981), word formation rules build complex nouns of the following type:

(3)



Iterative application of the word formation rules creates complex nouns containing stacked adjectives, as we find in *a nice large car*.

(4)



Notice that A-N compounds do occur in English (5) and Dutch (6):

(5) a. quick-sand
b. quick-lime
c. high-school
d. short-list
g. long-wave
h. loud-speaker
i. loud-mouth
j. full-back

(6) a. dik-kop (thick-skull)
b. vet-zak (fat-sack;'fat-guts')
c. rond-vaart (circular-trip)
d. lang-oor (long-ear)
e. zwaar-gewicht (heavy-weight)
f. hoog-vlieger (high-flier)
g. zuur-kool (sauer-kraut)
h. fris-drank (soft-drink)
i. luid-spreker (loud-speaker)

If attributive adjective-noun sequences as in *a big car* were generated by the same word-formation rules as "normal" compounds, then one would expect that these sequences exhibit the same behavior as those compounds. And in that case, one could maintain an account of the nonextractability of attributive adjectives in terms of the lexical integrity hypothesis, which also blocks removal of the left branch adjectives in the compounds in (5) and (6), as is shown in (7) and (8).

(7) a. * Loud$_i$ he has [a [$_N$ t$_i$ speaker]]
b. * Quick$_i$ this is [[$_N$ t$_i$ sand]]

(8) a. * Rond$_i$ heb ik [een [$_N$ t$_i$ vaart]] gemaakt
Circular have I a trip made

b. * Zuur$_i$ heb ik [[$_N$ t$_i$ kool]] gegeten
Sauer have I kraut eaten

It turns out, however, that A-N compounds as in (5) and (6) behave very differently from attributive adjective-noun sequences, suggesting that they should not be treated in the same way. I will now present a number of arguments against analyzing attributive adjectives as being the left branch member of a nominal compound.

First of all, prenominal adjectives can be modified, but the adjective in an A-N compound cannot. This contrast is shown in (9) and (10) for English, and in (11) and (12) for Dutch:

(9) a. this very quick worker
b. this extremely loud cry

(10) a. * this very quicksand
b. * this extremely loudspeaker

(11) a. een erg zwaar gewicht
a very heavy weight

b. een vreselijk lang oor
an extremely long ear

(12) a. * een erg zwaargewicht
a very heavy-weight

b. * een vreselijk langoor
an extremely long-ear

Notice furthermore that in Dutch attributive adjectives can be the head of a very complex structure, which clearly has a phrasal (AP) and not a word-level (A) status.

(13) een [toendertijd in het geheim op Marie verliefde] jongen
a at-the-time in the secret with Mary in-love boy
'a boy secretly in love with Mary at the time'

Second, prenominal adjectives can have superlative and comparative forms (as in (14) and (15)), but adjectives in true A-N compounds cannot (see (16) and (17)):

(14) a. John is a taller man than Peter
b. Mary is the prettiest girl of our class

(15) a. Dit is een zwaar gewicht, maar dat is een nog zwaarder gewicht
This is a heavy weight, but that is a even heavier weight

b. Een frissere drank dan deze bestaat niet
a more-refreshing drink than this (one) exists not

(16) a. * This is a louderspeaker than my loudspeaker
b. * This looks like quickestsand

(17) a. * Jan is een zwaargewicht, maar Piet is [een zwaardergewicht]
John is a heavy-weight, but Pete is a heavier-weight

b. * Tonic is een frisserdrank dan Cola
Tonic is a fresher-drink than Cola

Third, there are syntactic rules that refer to prenominal attributive adjectives. This is unexpected under the lexical integrity hypothesis, which states that parts of words cannot be units for syntactic rules. Consider, for example, the following *one*-substitution facts:

(18) a. John bought a big red *car* and Mary bought a big red *one* too
b. * John bought a big loud*speaker* and Mary bought a big loud *one* too

So, in a syntactic process like *one*-pronominalization, *one* can substitute for a syntactic head N^o, but not for a morphological head N^o. If the adjective *red* in (18a) was part of a compound noun, one would not expect the possibility of replacing the noun *car* by *one*.

Fourth, if attributive adjectives are treated on a par with adjectives that are part of true compounds, we would expect that they exhibit the same behavior with regard to inflection. The following examples from Dutch, however, clearly show that they do not.

(19)	a.	een zur*e* pruim	('a sour plum')
	b.	het zoet*e* hout	('the sweet wood')
	c.	de zwar*e* gewichten	('the heavy weights')
	d.	de dikk*e* kop	('the thick head')
	e.	een grot*e* vader	('a tall father')
	f.	een snell*e* trein	('a fast train')
(20)	a.	een zuurpruim	(' a sour-face')
	b.	het zoethout	('the liquorice')
	c.	de zwaargewichten	('the heavy-weights')
	d.	de dikkop	('the thick-heads')
	e.	een grootvader	('a grandfather')
	f.	een sneltrein	('an express')

The attributive adjectives in (19) bear the inflectional marker *-e* in the given noun phrases. In the same environments, the adjectives that are part of a compound do not bear this inflection. This asymmetric behavior suggests that attributive adjectives and the adjectives in (20) should not be treated in the same way.

Fifth, A-N compounds and attributive adjective noun sequences have different stress patterns, suggesting that they have different underlying structures (cf. also Hoekstra (1984)). Compare, for example, the Dutch phrases in (21) with those in (22), and the English phrases in (23) with those in (24). The italicized elements are stressed:

(21)	a.	een wit *boek*	(a white book)
	b.	een edel *man*	(a noble man)
	c.	een klein *kind*	(a small child)
(22)	a.	een *wit*boek	(a white-paper)
	b.	een *edel*man	(a noble-man)
	c.	een *klein*kind	(a grand-child)
(23)	a.	a black *board*	
	b.	a mad *man*	
	c.	a long *boat*	
(24)	a.	a *black*board	
	b.	a *mad*man	
	c.	a *long*-boat	

Both in Dutch and in English, compound stress is on the first member (viz. the adjective) of the compound word, whereas phrasal stress is on the right member of a phrasal constituent (i.e. the N underneath N' in the examples

given above). Notice that attributive adjectives do not bear compound stress, showing that they are not word-internal.

Given the considerations above, I conclude that Stowell's interpretation of attributive adjectives as being part of a compound noun is wrong. Consequently, an account of the nonextractability of attributive adjectives in terms of the lexical integrity hypothesis is no longer warranted. I will assume that attributive adjectival elements are generated in syntax and are attached to the iterative N'-node. Furthermore, given the X-bar theory restriction that all satellites of the main projection line of a head are maximal projections, attributive adjectival elements are analyzed as heading a maximal projection.[2]

I propose to account for the nonextractability of attributive adjective phrases in English and Dutch in terms of the ECP and the Subjacency Condition. According to the DP-hypothesis which I assume in this study, these phrases occupy a left branch position that is a sister of N'. The left branch phenomenon at issue can now be accounted for as follows. D^o does not L-mark NP, and hence NP is a BC and an L-barrier. Since it does not permit adjunction (see chapter 3), the L-barrierhood of NP cannot be circumvented via adjunction. So, if the adjective phrase is moved out of NP, a barrier is crossed, yielding an ECP violation. Notice furthermore that removal out of NP crosses D', which is a minimality barrier: This category contains (i) the trace, a maximal projection containing the trace (viz. NP), and a head c-commanding the trace (D^o).[3,4]

Whether extraction of the attributive adjective phrase yields a strong or only a very weak subjacency violation depends on the possibility of moving the adjective phrase through [Spec,DP]. If it cannot, then the first available landing site for an adjective phrase which originates within a direct object DP, is a position adjoined to VP. In that case, movement of the adjective phrase crosses two L-barriers, namely the non-L-marked category NP and the category DP, which inherits barrierhood from NP (see also Corver (1989)). If, however, the adjective phrase can move through [Spec,DP], then extraction only crosses one L-barrier, namely NP. At the moment, it is not entirely clear what restrictions there should be on the entities which may use the [Spec,DP] position as an escape hatch for A'-movement. Let us tentatively assume that the DegP can move through [Spec,DP].[5]

For English, the following question arises in connection with the above-mentioned analysis which excludes fronting of attributive adjective phrases: How to account for the constructions in (25) in which the attributive adjective phrase occurs in a position preceding the indefinite article:

(25)	a.	[How big a car] did John buy?
	b.	John bought [too big a car]
	c.	John bought [as big a car as Bill]
	d.	John bought [so big a car that he could live in it]

If these DPs were derived by a local syntactic movement operation that moves a DegP from a post-determiner (NP-internal) position to a pre-determiner

(NP-external) position (e.g. [Spec,DP]), then we would expect these structures to be out because of the ECP, since this movement operation would cross the L-barrier NP.

Let us see whether there are any arguments against such a local movement operation which moves the attributive DegP into the [Spec,DP]-position in syntax. A possible objection against this analysis might come from the impossibility of fronting adjective phrases (i.e. DegPs) containing PP-complements into [Spec,DP]. Consider, for example, the following contrast:

(26) a. [How proud a man] did you meet?
b. *? [How proud of Mary a man] did you meet?

It is not clear why a noun phrase as in (26b) is out. Presumably it is not due to the right recursive structure of the DegP, since similar structures are permitted if the [Spec,DP] is filled by a possessor, as in (27):

(27) [[the man who was proud of me]'s father] lives in Canada

Another potential argument against this PP-internal fronting operation could come from the possibility of extracting the complement of a preposition out of a DP in which a DegP appears in a position preceding the indefinite article:

(28) Who$_i$ did you get [so big a picture of t_i that you did not know what to do with it]?

If it is assumed that *who* is extracted from within the noun phrase via [Spec,DP] in order to circumvent a Subjacency Condition violation, then one would expect this sentence to be out, since it would cross two L-barriers, namely NP and DP (the latter by inheritance). The [Spec,DP] cannot be used as an escape hatch in the above-mentioned analysis, since that position is already filled by the fronted DegP *so big*.

If a DegP-fronting analysis is not assumed, the question arises what alternative there is for generating a structure like *how big a car*. An alternative approach could be the following: Instead of saying that DegP is moved to the left of the indefinite article, one could assume that the article (D^o) is moved to a position to the right of the attributive DegP and ends up cliticized to the adjacent overt X^o to its left.[6] Interestingly, in a language like middle Dutch (1250-1550), which, as opposed to present day Dutch, also had the construction type under discussion, the indefinite article normally appeared as an enclitic indefinite article in this construction (cf. Stoett (1977, 90), Duinhoven (1988; 147)). Also in spelling, the indefinite article was often written attached to the noun (examples taken from Duinhoven (1988)):

(29) a. so swar*en* leven
so heavy-a life
b. so goed*en* meester
so good-a master

This cliticization analysis is in accordance with the phenomena mentioned in our argumentation against a DegP-movement analysis. The ill-formedness of *how proud of Mary a man* is due to the same principle that rules out *a proud of Mary man*, possibly the Head Final Filter (Williams (1982)). The complement extraction facts are not problematic either, since the [Spec,DP] remains empty in this analysis, and therefore can function as an escape hatch for the fronted complement.

A potential problem for this analysis is perhaps the fact that the trace left behind after the downgrading movement is not properly governed by the trace in D-position. Hence, it should give rise to an ECP-violation. Possibly, this problem may be solved by moving the indefinite article back into its original position (i.e. the D^o-position) before ECP applies in LF. An alternative approach would be to say that the cliticization process takes place at PF and therefore does not leave a trace which must be licensed (Furthermore, ECP does not work at that level).[7] This interpretation could be motivated by several observations by Woisetschlaeger (1981). He argues that the permutation operation at issue is a response to the rhythmic difficulties engendered by the three stacked stresses in a sequence like *a how big car*.[8]

I admit that the discussion above has a fairly open character and just explores possibilities of approaching this phenomenon. Nevertheless, there certainly seem to be ways of dealing with it and therefore it does not necessarily jeopardize our analysis of the nonextractability of attributive adjective phrases.

I would like to end this section with the observation that the explanation of the nonextractability of left branch attributive adjective phrases in languages such as Dutch and English extends to the frozen character of right branch attributive adjective phrases in a language like French. So, as opposed to Ross's Left Branch Condition, the analysis presented above in terms of the ECP and the Subjacency Condition generalizes over left branch and right branch adjective phrases.

Consider the following ill-formed sentences:

(30) a. * Gris$_i$ j'ai perdu [$_{DP}$ un [$_{NP}$ chapeau t_i]]!
Grey I have lost a hat

b. * Fier de son fils$_i$ j'ai connu [$_{DP}$ un [$_{NP}$ hommet_i]]!
Proud of his son I have known a man

The ill-formedness of these sentences can be accounted for as follows: Extraction of these adjectival elements crosses NP, which is an L-barrier, since it is not L-marked by D. Furthermore D' forms a M-barrier blocking antecedent government of the trace, occupying the position of the attributive adjective phrase, by a NP-external antecedent. Thus, ECP is violated. Whether Subjacency is violated strongly or weakly depends on the possibility of using the [Spec,DP] as an escape hatch. Subjacency is strongly violated if a VP-adjoined position is the first possible landing site for the fronted adjective

phrase: DP will inherit L-barrierhood from the non-L-marked NP; So, movement of the adjectival element will cross two L-barriers. If [Spec,DP] can be used as an escape hatch, then only NP creates a barrier.

So much for the nonextractability of attributive adjective phrases. In the next section, I will discuss the possibility of moving elements out of left branch attributive phrases in Dutch.

10.3 Extractions from within attributive adjective phrases

In the previous section, the nonextractability of left branch attributive adjective phrases was examined. In this section, I will consider the possibility of moving material from within an attributive adjective phrase to a position outside the DP which dominates it.

Consider first the following left branch modifier extraction patterns from Dutch:

(31) a. * Hoeveel meter$_i$ kocht Jan [een [t$_i$ lange] auto]
How-many meter bought John a long car

b. * Hoeveel cm$_i$ kocht Jan [een [t$_i$ te kleine] jas]?
How-many cm bought John a too small coat

c. * Hoeveel cm$_i$ kocht Jan [een [t$_i$ kleinere] jas dan Piet]?
How-many cm bought John a smaller coat than Pete

(32) a. * Hoe nauw$_i$ is dat [een [t$_i$ verwant] dier]?
How closely is that a related animal

b. * Hoe moeilijk$_i$ is dat [een [t$_i$ bereikbaar] dorp]?
How difficult is that an attainable village

c. * Hoe ernstig$_i$ heb jij [een [t$_i$ gewonde] man] geholpen?
How badly have you a wounded man helped

All sentences are ungrammatical. In (31a), the measure noun phrase *hoeveel meter* has been removed from the complement position of the attributive adjective to the [Spec,CP]. In (31b and c), a measure noun phrase has been moved from the [Spec,DegP] of an attributive DegP to the [Spec,CP]. The examples in (32) are all sentences in which a DegP-modifier has been extracted.

Of course, it is also impossible to front the entire adjective phrase from within the DP, as in (33a) for example. As we have seen in the previous section, this yields a violation of the ECP and the Subjacency Condition. So, the only possibility is to front the entire DP, as in (33b):

(33) a. * Hoeveel meter lange$_i$ heeft Jan [een t$_i$ auto] gekocht?
b. Een hoeveel meter lange auto$_i$ heeft Jan t$_i$ gekocht?

The sentences in (31) and (32) violate the ECP. Although the initial trace of the adjunct chain is properly governed by an antecedent governor which is adjoined to the attributive DegP or AP, the intermediate trace adjoined to DegP or AP itself is not properly governed. Suppose the first possible landing site is a VP-adjoined position. NP is an intervening L-barrier including the trace adjoined to DegP or AP but excluding the VP-adjoined antecedent. Hence, ECP is violated. ECP is also violated because of minimality: D' functions as a M-barrier which includes the trace adjoined to DegP or AP and excludes the VP-adjoined trace. As a consequence, the former trace is not properly governed.

Let us next consider whether the Subjacency Condition is violated by the extraction operations in (31) and (32). As we have seen, the first local step is adjunction to the dominating AP/DegP. This way, the L-barrierhood of these non-L-marked maximal categories is circumvented. The next dominating maximal projection is NP. This category is not L-marked and therefore an L-barrier. Whether the Subjacency Condition is strongly violated depends on whether the fronted elements in (31) and (32) can move through the [Spec,DP]. If they can, then subjacency is only weakly violated since there is only one intervening L-barrier between the antecedent in [Spec,DP] and the intermediate trace adjoined to AP/DegP. If, however, the fronted elements cannot use [Spec,DP] as an intermediate landing site, then extraction yields a stronger violation of the Subjacency Condition: On its way up to a VP-adjoined position, the fronted element will cross two L-barriers, namely the non-L-marked NP and DP. The latter becomes a barrier by inheritance.

The ungrammaticality of the following sentence is caused by the fact that an zero-level category (viz. Deg^o) is fronted to [Spec,CP].

(34) * Hoe$_i$ kocht Jan [een [t$_i$ kleine] jas]?
How bought John a small coat
'How small a coat did John buy?'

First of all, this structure is ruled out since X^o-categories cannot occupy the [Spec,CP], which is only available for maximal projections given the structure preservingness requirement on substitution operations. Second, movement of Deg^o violates the ECP and the Subjacency Condition because of the fact that it cannot adjoin to the dominating maximal projections (DegP, NP, etc.) and therefore cannot escape their L-barrierhood.

The question arises as to whether there are any argument - adjunct asymmetries visible with extractions from within attributive adjective phrases. The following examples from Dutch suggest that there are such asymmetries:

(35) a. Ik heb [een [daarmee bevriende] man] ontmoet
I have a there-with friendly man met

b.??? Waar$_i$ heb jij [een [[t$_i$ mee] bevriende] man] ontmoet?
Where have you a with friendly man met
'You have met a man who is friendly with whom?'

c. *? Waarmee$_i$ heb jij [een [t$_i$ bevriende] man] ontmoet?
Where-with have you a friendly man met

d. * Hoe goed$_i$ heb jij [een [t$_i$ daarmee bevriende] man] ontmoet?
How well have you a there-with friendly man met

(36) a. Ik heb [een [daartegen tamelijk goed opgewassen] man] ontmoet
I have a there-to reasonably well equal man met

b.??? Waar$_i$ heb jij [een [tamelijk goed [t$_i$ tegen] opgewassen]
Where have you a reasonably well to equal

man] ontmoet?
man met
'You met a man who proved himself equal to what occasion?'

c. *? Waartegen$_i$ heb jij [een [tamelijk goed [t$_i$] opgewassen]
Where-to have you a reasonably well equal

man] ontmoet?
man met

d. * Hoe goed$_i$ heb jij [een [[t$_i$] daartegen opgewassen] manontmoet?
How well have you a there-to equal man met

The b-sentences all involve removal of the R-pronoun *waar*, which is a complement of the preposition. The c-sentences show extraction of the entire PP-complement of the adjective. In the d-sentences, finally, it is a DegP-modifier of the attributive adjective that has been fronted.

The sentences are all out. Nevertheless, I feel a contrast in acceptability between the three extraction patterns. The adjectival modifier extractions are completely out and are sharply less acceptable than the complement extractions. There also seems to be a slight difference in acceptability between the two types of complement extractions. I feel removal of R-pronouns to be somewhat better than removal of the entire PP-complement. How can we account for these contrasts?

Consider first the modifier extractions. Following Lasnik & Saito's (1984) theory of proper government, I assume that the trace of a moved adjunct (and also its intermediate traces) receives its proper government g(amma)-feature at LF. The proper government of an adjunct (a non-argument)-trace crucially depends on the availability of a local antecedent at LF. Removal of the modifier from within an attributive AP yields an ECP-violation. The extraction-sequence is the following. The attributive adjective phrase is not L-marked and therefore a BC and an L-barrier. Being a non-argument type,

however, adjunction to the adjective phrase is permitted. Hence, the barrierhood of this attributive phrase is voided and the initial trace of the moved modifier is properly governed by the local antecedent that is adjoined to the adjective phrase. It is the second step in the extraction sequence that violates the ECP, i.e the movement operation from the adjective phrase-adjunction site to the next possible landing site. This movement operation crosses both NP and DP, unless the modifier can move through [Spec,DP]. NP is not L-marked by D and therefore a BC and an L-barrier. DP is L-marked by the verb, but inherits barrierhood from NP. As I have argued, adjunction to NP and DP is not permitted, so that the L-barrierhood of these maximal projections cannot be circumvented. So, movement up to the next adjunction site (i.e. VP) crosses two L-barriers, and therefore the intermediate adjunct trace is not properly governed, yielding an ECP-violation.

Let us next consider the PP-complement extractions. Recall that in Lasnik & Saito's system only the initial trace of an argument expression needs to be properly governed. Since the PP-complement can always adjoin to the attributive adjective phrase, which is a non-argument type category, the initial trace is properly (i.e. antecedent) governed. Removal from that position to the next landing site VP, however, crosses the L-barriers NP and DP, yielding a strong subjacency violation. Since it only violates the subjacency condition, PP-complement extraction from within attributive APs is more acceptable than extraction of an adjunct from within the same syntactic configuration.

Let us turn now to the R-pronoun extractions, and ask what the slight contrast in acceptability between them and the PP-complement extractions may be caused by. Notice first that removal of these arguments does not yield an ECP-violation, since the PP-internal movement creates an antecedent government configuration. The initial trace of the R-pronoun is properly governed by the intermediate trace in [Spec,PP]. Of course, movement of the R-pronoun to [Spec,PP] does not yield a subjacency violation either, because no L-barrier is crossed. Further movement of the R-pronoun crosses NP, which is an L-barrier since it is not L-marked by D^o. So, this yields a weak subjacency violation. Notice that if one moves directly from the position adjoined to the attributive adjective phrase to a position adjoined to VP, then two L-barriers are crossed, namely NP (inherently) and DP (by inheritance). But as I have shown in chapter 3, it is possible to move R-pronouns into [Spec,DP]. Notice now the examples in (37), which at least to some speakers are not completely unacceptable. These sentences are, for example, much better than those in (38), where a PP originating within the attributive adjective phrase occurs in a pre-determiner position:[9,10]

(37) a. ?? [Daar een tamelijk goed tegen opgewassen man] heb ik ontmoet
There a reasonably well against proof man have I met

b. ?? [Daar een heel nauw aan verwante diersoort] heb ik ontdekt
There a very closely to related animal have I discovered

(38) a. * [Daartegen een tamelijk goed opgewassen man] heb ik ontmoet
b. * [Daaraan een heel nauw verwante] diersoort heb ik ontdekt

Now, the contrast between (35b/36b) on the one hand and (35c/36c) on the other can be accounted for. The b-sentences, in which the R-pronoun is extracted, are somewhat better than the c-sentences, since they violate the Subjacency Condition less severely: they only cross the L-barrier NP, whereas the fronted PP-complements cross two L-barriers, namely NP and DP, the latter by inheritance.

Consider also the following examples:

(39) a. Ik heb [een [daartegen$_i$ tamelijk goed t_i opgewassen]
I have a there-against reasonably well proof

man] ontmoet
man met

b. * Waar$_i$ heb jij [een [[t_i tegen] tamelijk goed
Where have you a against reasonably well

opgewassen] man] ontmoet?
proof man met

c. * [Daar$_i$ een [[t_i tegen] tamelijk goed opgewassen] man]
There a against reasonably well proof man

heb ik ontmoet
have I met

The sentences (39b) and (39c) are much worse than (36b) and (37a), respectively. How can we account for this? Notice that the PP-complement in these sentences is no longer sister of A°. It occurs in a position adjoined to the adjective phrase. Consequently, the PP-complement is no longer L-marked. So removal of the R-pronoun crosses the L-barriers PP and NP. In other words, two L-barriers are crossed. This explains the less acceptable status of these sentences.

Note that the above-mentioned asymmetries also hold for adjectival passives:

(40) a.??? Waar$_i$ heb jij [een [t_i mee ingesmeerde] rug] gezien?
Where have you a with embrocated back seen

b. *? Waarmee$_i$ heb jij [[een [t_i ingesmeerde]] rug] gezien?
Where-with have you a embrocated back seen

c. * Hoe goed$_i$ heb jij [een [t_i ingesmeerde] rug] gezien?
How well have you an embrocated back seen

(41) a.??? Waar$_i$ heb jij [een [t_i van beschuldigde] man] ontmoet?
Where have you a of accused man met

b. *? Waarvan$_i$ heb jij [een [t_i beschuldige] man] ontmoet?

c. * Hoe zwaar$_i$ heb jij [een [t_i beschuldigde] man] ontmoet?
How severely have you a accused man met

So far, I have only considered extractions of and from attributive adjective phrases in Dutch. I will now briefly discuss a number of extraction patterns from similar syntactic configurations in English. Consider the following examples:

(42) a. * How badly$_i$ did you meet [a man [t_i short of funds]]?
b. * How closely$_i$ did you meet [a man [t_i related to Fred]]?

(43) a. * How badly short of funds$_i$ did you meet [a man t_i]?
b. * How closely related to Fred$_i$ did you meet [a man t_i]?

In (42), a left branch modifier has been extracted out of an adjunct-AP. First, the modifier is adjoined to the containing AP. The barrierhood of this maximal projection can be voided via adjunction to it. Movement to the next landing site (possibly [Spec,DP]), however, crosses the L-barrier NP. This barrier blocks antecedent government of the trace adjoined to AP. Minimality is also violated: D' creates a M-barrier for antecedent government of the trace adjoined to the adjunct-AP. D' contains (i) the trace, (ii) a maximal projection containing the trace (viz. NP), (iii) a head c-commanding the trace (D°). Whether the Subjacency Condition is strongly or weakly violated depends on whether the fronted modifier (a DegP) can move through [Spec,DP]. If it can, then only one L-barrier (NP) is crossed, yielding a very weak subjacency violation. If it moves in one swoop to a position adjoined to VP, it crosses two L-barriers, viz. NP and DP (the latter by inheritance).

In (43), the entire attributive DegP has been fronted: The sentences are ruled out for the same reasons as the ones in (42). NP is an L-barrier blocking antecedent government of the initial trace of the fronted DegP. Furthermore, minimality is violated.[11]

Consider also the following impossible extraction patterns:[12]

(44) a. * How many pages did John write [a paper [t_i long]]?
b. * How did John buy [a [t_i big] car]?

In (44a), the measure phrase *how many pages* has been reordered out of an AP-adjunct which is contained within the direct object-DP. Extraction yields an ECP violation because of the minimality barrier D' and the L-barrier NP. In (44b), the degree word *how* has been fronted: It violates the ECP and the Subjacency condition, because on its way up to [Spec,CP] it cannot escape the L-barrierhood of the dominating maximal projections, since it cannot adjoin to them. Furthermore, the degree word cannot be moved into [Spec,CP] because

of the structure preservingness requirement on substitution operations: a zero-level category cannot land in [Spec,CP].

10.4 A brief note on the immobility of ordinals and cardinals

In this section I will briefly consider the immobility of cardinals such as *many* and *few* and ordinals such as *first*, *second*, etc. Let us begin our investigation with the nonextractability of ordinals. I will assume that ordinals are numerical adjective phrases which are attached to N'. The following sentences illustrate that it is impossible to reorder these elements out of the containing DP in languages such as English and Dutch:

(45) a. * First$_i$ I liked [the t_i song]!
b. * Third$_i$ I forgot [the t_i word]!

(46) a. * Eerste$_i$ herkende ik [het t_i deuntje]!
First recognized I the tune

b. * Derde$_i$ heb ik [de t_i prijs] gewonnen!
Third have I the prize won

Their frozen character can be accounted for in the same way as that of the attributive adjectives which were discussed in section 10.2. Removal from within the NP crosses an L-barrier, because the NP is not L-marked by the D-position. Consequently, the trace of the extracted ordinal will not be properly governed and therefore always violate the ECP. If these elements cannot move through [Spec,DP], they will yield a strong subjacency violation as well.

I will now proceed giving some arguments in favor of an adjectival analysis of ordinals. Notice, first of all, the following word order facts:

(47) a. That is John's first remark
b. His stupid last remark
c. His last stupid remark

(48) a. Dit is de eerste opmerking van Jan
This is the first remark by John

b. het saaie tweede deel
the boring second episode

c. het tweede saaie deel

The a-sentences show that the ordinal does not occupy the D^o-position, since that position is already filled by *'s* in (47a) and by the determiner *de* in (48a). The pairs (47b,c) and (48b,c) show that the ordinal and the attributive adjective need not be strictly ordered with respect to each other, something which is also true for non-numerical adjectives.

Second, like other adjectives, ordinals can appear in predicative positions:

(49) a. I think he is first
b. John came in second

Third, the possibility of coordinating attributive adjectives and ordinals suggests that the latter have the adjectival status as well.

(50) a. the last but best performance
b. the first and oldest theory about syntax

(51) a. De eerste en tevens leukste aflevering
The first and likewise nicest issue

b. Dit is het tweede maar beste team van de VS
This is the second but best team of the USA

Fourth, the possibility of attaching *-ly* to ordinals suggests that these should be analyzed as adjectives too, given the fact that this morpheme typically attaches to adjectival elements. Compare:

(52) a. angrily, quickly
b. thirdly, secondly

Given this symmetric behavior between "normal" adjectives and ordinals, it seems fair to conclude that the latter are adjectival as well. Consequently, the above-mentioned account of the nonextractability of these elements can be maintained.

Let us next consider the nonextractability of cardinals such as *many* and *few*. Like ordinals, these cardinals cannot be extracted from within the containing noun phrase. This is illustrated by the following sentences from English (53a,b) and Dutch (53c,d):

(53) a. * How many$_i$ did you see [t_i cars]?
b. * Few$_i$ John rescued [the t_i survivors]!

c. * Hoe-veel$_i$ heb je [t_i appels] gegeten?
How-many have you apples eaten

d. * Hoe-veel$_i$ spreekt Jan [t_i talen]?
How-many speaks John languages

How should these elements be characterized? Certain facts indicate a clear adjectival status of these elements.[13] Klein (unpublished) gives a number of arguments for analyzing cardinals like *many* and *few* as adjectives (all English examples taken from Klein):[14] (i) Cardinals can appear in post-determiner positions (54); (ii) cardinals can occur in predicate positions (55); (iii) they can cooccur with degree modifiers (56-57); (iv) cardinals like *many* and *few* can have comparative forms (58):

(54) We were baffled by Leo's many problems

(55) a. The problems with this approach are many
b. The questions to which the inquiry team are now seeking answers are many

(56) a. The seats were too hard/few for the guests to be comfortable
b. very tasty/many

(57) Dat is [erg veel]/te veel/zo veel
That is very much/toomuch/somuch

(58) Sue has nicer/more/fewer friends than me

Notice also that *many* can occur in a position preceding the indefinite article, just like other adjectives (as in *how big a car*):

(59) I thank him for many an interesting debate

Suppose these adjectivals are base-generated within the NP, then their nonextractability can be accounted for in the same way as the frozen character of other adjectives: The empty determiner does not L-mark the NP which contains the cardinal.[15] Therefore, NP is an L-barrier and DP inherits L-barrierhood. So, extraction will always yield an ECP-violation.

Consider, finally, the following ill-formed examples:

(60) a. * How$_i$ does he read [[t$_i$ many] books]?

b. * Hoe$_i$ heeft Jan [[t$_i$ veel] boeken] gekocht?
How has John many books bought

In these sentences, the degree word has been extracted out of the quantifying adjective. The trace within the NP is not properly governed by the nearest antecedent because of the intervening L-barrier NP.

So much for left branch extractions from noun phrases in Dutch and Engish. In the next section, I will discuss the well-known possibility of Slavic languages such as Polish, Czech, Russian etc. of extracting left branch elements from within nominals.

10.5 Left branch extractions in Polish and Czech

It has been shown that elements such as determiners, possessors, attributive adjective phrases etc. cannot be extracted from within noun phrases in Dutch and English. In other words, left branch constituents generally cannot be removed from noun phrases in these languages. Ross (1967) noted in his thesis that the inaccessibility of left branch constituents contained within noun phrases was not a general property of natural languages, since Slavic

languages such as Russian, Polish and Czech, for example, permit left branch extractions from within noun phrases. In Ross (1967), the following examples from Russian are given:

(61) a. *Č,ju knigu* ty čitaješ?
Whose book you are reading

b. *Č,ju* ty čitaješ *knigu*?
Whose you are reading book

In (61a), the entire noun phrase has been fronted. In (61b), however, the left branch constituent *c,ju* has been reordered out of the dominating noun phrase.

The accessibility of left branch elements in Slavic languages is highly problematic for Ross's Left Branch Condition and many of its reformulations. In this section, I will address the question of how this cross-linguistic variation concerning left branch accessibility can be accounted for. I will base my analysis on data from Polish and Czech.

Consider first some left branch extraction examples fom Polish (62) and Czech (63):[16]

(62) a. Wspaniałą$_i$ zapowiadają [t$_i$ pogodę]! (P)
Great (they) are forecasting weather

b. Jak piękną$_i$ ma [t$_i$ córkę]?
How beautiful (he) has daughter

c. Które$_i$ Jan namalował [t$_i$ obrazy]? (Borsley (1984))
Which John painted paintings

d. Jaki$_i$ wykręciłeś [t$_i$ numer]? (Horn(1978))
Which (you) dialed number

e. Czyje$_i$ on pożyczyl [t$_i$ kalosze]? (Giejgo (1981))
Whose he borrowed galoshes

(63) a. Jak pěkná$_i$ Jan potkal [t$_i$ děvčata]? (C)
How beautiful John meets girls

b. Jak silného videl Jan [t$_i$ muže]?
How strong saw John man

c. Jakou$_i$ čte Petr [t$_i$ knihu]?
Which reads Peter book

d. Její$_i$ čte Petr [t$_i$ knihu]!
Her reads Peter book

e. Tu_i čte Petr [t_i knihu]!
This reads Peter book

The fronted left branch element can pied pipe the rest of the noun phrase:

(64) a. Wspaniałą pogodę zapowiadają! (P)
b. Jak piękną córkę Jan ma?
c. Które obrazy Jan namalował?
d. Jaki numer wykręciłeś?
e. Czyje kalosze on pożyczył?

(65) a. Jak pěkná děvčata Jan potkal? (C)
b. Jak silného muže videl Jan?
c. Jakou knihu čte Petr?
d. Její knihu čte Petr?
e. Tu knihu čte Petr!

Under the assumption that N'-constituents cannot undergo movement, the sentences in (62) and (63) cannot be derived by first extraposing the N' and subsequently moving the entire noun phrase containing the left branch modifier into [Spec,CP]. For the same reason, I will not adopt an analysis in which the split pattern is derived by first moving the entire noun phrase into [Spec,CP] and subsequently extraposing N'. Furthermore, if you extrapose an N' after having fronted the containing noun phrase to [Spec,CP], one expects that the extraposed constituent appears in a right peripheral position. The following sentences, however, show that material can appear after the noun which is associated with the fronted left branch constituent ((66a and b) are taken from Horn (1978) and Bobrowski (1988), respectively). This indicates that no extraposition has operated in the derivation of the discontinuous patterns at issue.

(66) a. $Jakie_i$ pozyczyles [t_i książki] z biblioteki? (P)
Which (you) borrowed books from library

b. $Czyja_i$ dales [t_i ksiazke] Marii
Whose (you) gave book (to) Mary

(67) a. $Jakou_i$ by Jan dal [t_i knížku] Markovi? (C)
Which would John give book to-Marek

b. $Červenou_i$ najdeš [t_i tužku] v mé zásuvce
Red (you) will find pencil in my drawer

I propose that the accessibility of left branch NP-internal constituents in Czech and Polish is due the absence of a DP-projection in nominals. In other words, nominals in these languages consist of "bare" NPs. The absence of the "extra" DP-projection makes it possible to remove elements from within nominals without violating the ECP and the Subjacency Condition.

Initial support for the claim that languages like Czech and Polish lack a DP is the fact that they do not have articles corresponding to *the* or *a* in English. This is exemplified in (68):

(68) Ptak patrzy na kota (P)
Bird looks at cat
'The/a bird is looking at the/a cat'

(69) Marie mluvila s velmi velkým mužem (C)
Mary spoke with very big man
'Mary spoke with a/the very big man'

Of course, potential candidates for the functional category D would be demonstratives, possessive pronouns, etc. It turns out, however, that these elements behave as adjectives, and as such are part of the noun phrase. A first indication of this adjectival status is the fact that demonstratives and possessives have (declension) endings similar to normal adjectives. This is shown for demonstratives, for example, in the following paradigm of masculine animate singular forms in Czech:

(70) Nominative ten dobrý student (C)
that good student

Accusative toho dobrého studenta
Genitive toho dobrého studenta
Dative tomu dobrému studentovi (-u)
Locative tom dobrém studentovi (-u)
Instrumental tim dobrým studentem

Another fact which shows their adjectival status is their occurrence as predicates in copula-constructions.

(71) a. Pioro jest nowe (P)
(The) pen is new

b. To zadanie jest moje
This exercise is my
'This exercise is mine'

(72) a. Mé péro je nové (C)
My pen is new

b. To péro je mé
This pen is my
'This pen is mine'

Word order possibilities also suggest that possessives, demonstratives etc. should not be interpreted as D's heading a DP. Consider, for example, the following paradigms from Czech:

(73) a. ta pěkná děvčata (NOM) (C)
these pretty girls

b. pěkná ta děvčata
c. pěkná děvčata ta
d. ta děvčata pěkná
e. děvčata ta pěkná
f. děvčata pěkná ta

(74) a. její dlouhé vlasy (C)
her long hair (NOM)

b. dlouhé její vlasy
c. dlouhé vlasy její
d. její vlasy dlouhé
e. vlasy její dlouhé
f. vlasy dlouhé její

The strings in the a-sentences represent the neutral word order. The strings in the c/f-examples are marked and normally only appear in poetic style. If demonstratives and possessive pronouns were D's, one would expect that they occur always to the left of adjectival modifiers (Polish and Czech are head-first languages), since the D selects the NP which contains these modifiers. The examples in (73) and (74), however, show that demonstratives and possessives do not have a fixed position with respect to the adjectival modifiers *pekna* and *dlouhe*. Instead they behave like adjectival modifiers, in the sense that they exhibit rather free ordering with respect to other adjectival modifiers, and in the sense that they can occur in a postnominal position.

Under the assumption that nominals in Czech and Polish are "bare" NPs, and that possessives and demonstratives are adjectival modifiers, the possibility of extracting left branch constituents can be accounted for within a Barriers system. Suppose the left branch constituent is extracted from within a direct object noun phrase. The direct object is L-marked by the verb. Therefore it is not a BC, nor an L-barrier. The adjectival element can be moved from within the NP to the specifier of CP via adjunction to VP, without crossing any L-barrier. So neither the Subjacency Condition nor the ECP is violated because of intervening L-barriers.[17] It should be noted, however, that the definition of minimality assumed so far seems problematic for the left branch extraction operations considered above. Under the definition of minimality assumed in this study, NP would be a M-barrier for the trace in the left branch position in a structure like (75) but also in a structure like (76), in which the left branch modifier is a sister of the N'-category. Notice by the way that both structures are permissible given Chomsky's (1986b) proposal that choice of the X'-level is optional as long as there is no specifier.

(75) $[_{NP}$ AP $N^o]$
(76) $[_{NP}$ $[_{N'}$ AP $[_{N'}$ $N^o]]]$

Subextraction of the modifier out of the dominating NP is blocked by minimality, since the trace occupying the left branch position is not accessible to an external antecedent governor because of the intervening M-barrier NP. NP is a M-barrier since it contains (i) the trace, (ii) a maximal projection containing the trace (NP itself), (iii) a head c-commanding the trace, viz. N^o.

It seems that the notion of command as it is used in the definition of minimality so far is too lax. A possibility to explore is to replace c-command by i(mmediate)-command, where i-command is defined as follows: A i-commands B if the first constituent containing A contains B (see also Sportiche (1988)). Now, a definition of minimality in which c-command is replaced by i-command and the possibility of having structures as in (76) in which the left branch AP is not i-commanded by N^o have the effect of allowing removal of left branch modifiers as in the examples from Czech and Polish above.

The left branch extractions discussed so far involve direct object-NPs. The question arises whether subextraction of left branch elements is also permitted from within NPs having a different syntactic position within the tree. Let us start with the possibility of extracting left branch modifiers from noun phrases that are complements of a preposition. Recall that P-stranding is not possible in Polish and Czech ((77a) from Borsley (1983)):

(77) a. * Kim_i rozmawiałes [z t_i]? (P)
Who (you) talked with

b. * Jaky $stůl_i$ Jan skočil [na t_i]? (C)
What table John jumped onto

Left branch removal is not possible either from within NP-complements of prepositions ((78a) from Giejgo (1981)).

(78) a. * $Jakim_i$ on mieszka [na [t_i piętrze]]? (P)
What he lives on floor
'On what floor does he live?'

b. * Dużym on mieszkał [w [t_i domu]] w czasie swojej młodosci
Large he lived in house during his youth

(79) a. * $Jaký_i$ Jan skočil [na [t_i stůl]]? (C)
Which John jumped onto table

b. * $Jakém_i$ Jan bydlel [v [t_i paláci]]?
Which John lived in palace

The NP containing the left branch trace is L-marked by P, and therefore is not an L-barrier. The PP is not an L-barrier either, because it is L-marked by the verb. Removal of the left branch element to the nearest landing site (i.e. adjunction to VP) does not cross any L-barriers. From the VP-adjoined position, the left branch constituent can move into [Spec,CP] without crossing any other L-barriers. So, the ungrammaticality of these sentences is not due to

the Subjacency Condition. Extraction of the adjectival left branch modifiers from within the NPs that are sisters of P yields a minimality violation (i.e. an ECP-violation). The nearest antecedent for the NP-internal trace, is the intermediate trace adjoined to VP. This intermediate trace cannot properly govern the NP-internal trace, because PP is an intervening M-barrier. PP contains a head i-commanding the trace (viz. P), the trace itself and an Xmax containing the trace (viz. NP).

Consider now the following sentences ((80a) from Jaworska (1984)):

(80) a. *Z którym* Maria rozmawiala *mężczyzną*? (P)
With which Mary talked man
'Which man did Mary talk to?'

b. *W dużym* on mieszkał *domu* w czasie swojej młodosci
In large he lived house during his youth
'He lived in a large house during his youth'

(81) a. *Na jaký* Jan skočil *stůl*? (C)
Onto which John jumped table
'Onto what table John jumped?'

b. *V jakém* Jan bydlel *paláci*?
In which Jan lived palace
'In which palace did John live?'

The striking property of this construction is that a left branch modifier is fronted together with a preposition. It looks as if a nonconstituent has been removed. In Zabrocki (1984), the following analysis is proposed for these constructions: First the noun is removed by extraposition from the NP and next the entire PP is fronted. Such an analysis faces the following problems: First, extraposition of N^o involves adjunction to the maximal projection VP. This is not in accordance with the structure preserving requirement on adjunction operations which states that X^o-categories can only adjoin to other X^o-categories. Second, the b-sentences in (82) and (83) make an analysis involving extraposition of N^o implausible.

(82) a. Jan rozmawial [z tym chłopcem] [o tamtej teorii] (P)
John spoke with this boy about that theory

b. *Z ktorym* rozmawial Jan [-- *chłopcem*] [o tamtej teorii]?
With which spoke John boy about that theory

c. *O której* rozmawial Jan [z tym chłopcem] [-- *teorii*]?
Aboutwhat spoke John with this boy theory

(83) a. Jan mluvil [s tímto chlapcem] [o té teorii] (C)
John spoke with this boy about that theory

b. *S jakým* mluvil Jan *chlapcem* [o této teorii]?
With which spoke John boy about that theory

c. *O jaké* mluvil Jan [s tímto chlapcem *teorii*?
About what spoke John with this boy theory

In these sentences, a verb is subcategorized for two PPs. Under Zabrocki's analysis, the c-sentences can be derived as follows: The head-noun of the NP contained within the second PP is extraposed to a right-peripheral position of the sentence. The entire PP-complement is subsequently fronted to [Spec,CP]. In the b-sentences, the first PP-complement is involved in the movement process. Notice now that if extraposition of N^o was involved, one would expect that the extraposed head-noun appeared in a position to the right of the second PP-complement. This is not where it occurs in the b-sentences, however. The relevant head-noun precedes the second PP-complement and hence it does not seem to have undergone extraposition.

Another possibility for deriving the sentences in (80) and (81) would be to say that the left branch element is adjoined to the preposition heading the PP and that this complex preposition is fronted. Under the structure preservingness requirement on adjunction operations, it is not permitted to adjoin to maximal projection AP to P^o. So, the adjectival head must move via head to head movement to the preposition. Notice that this violates the ECP, since it crosses the adjunct-AP, which is an L-barrier because it is not L-marked. Notice further that such an analysis is not very likely, since prepositions in Polish and Czech can never be fronted from within PP ((84) is taken from Bobrowski (1988)).

(84) * Do_i Janek idzie [t_i domu] (P)
To Johnny went home

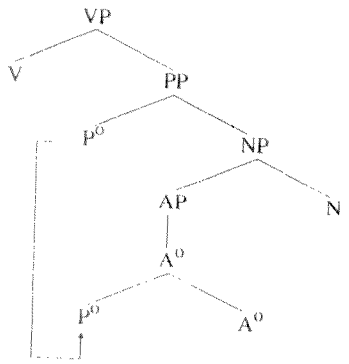
(85) * Na_i Jan skočil [t_i stůl] (C)
Onto John jumped table

The sentences (84) and (85) cannot be derived, since removal of the P will yield an ECP-violation. The preposition cannot be adjoined to VP because of the structure preservingness requirement on adjunction operations. Direct movement to the left periphery of the clause yields an ECP-violation, since VP and IP (the latter by inheritance) are intervening barriers. Notice furthermore that P cannot be moved into [Spec,CP] since this position only permits maximal projections.

I will assume that the derivation of these sentences involves cliticization of the preposition onto a right adjacent host in syntax. This host must be an zero-level category in order to fulfill the structure preservingness requirement on adjunction operations. So, before the left branch constituent is fronted, the preposition is left-adjoined to it, yielding a PP headed by an empty P^o.

Schematically:

(86)



Since the prepositional head is no longer lexically filled, the PP dominating this preposition does not constitute a M-barrier.[18] This accounts for the fact that removal of the left branch modifier together with the cliticized AP out of PPs is permitted in these constructions.[19,20]

A question which arises is how the trace of the downgraded prepositional clitic behaves with respect to ECP. I will tentatively assume that the cliticized preposition does not leave behind a trace. Notice that the preposition (P^o) is not an argument: it does not bear any theta-role. Therefore, its presence is not forced by the Projection Principle (see Chomsky (1981)), which requires that elements bearing a theta-role are present at all levels of representation. So, the trace of the lowered prepositional clitic need not be present at LF, the level where nonargument traces are licensed.

Note that P can only cliticize onto a right host, and not onto a left host. In other words, it is a pro-clitic.

(87) a. Jan włożył (swoj) palec [głęboko do (swojej) buźi] (P)
John stuck (self) finger deep in (self) mouth

b. [Jak głęboko do buźi] włożył Jan palec?
How deep in mouth stuck John finger

c. Jak głęboko$_i$ włożyl Jan palec [t_i do buźi]?
d. * *Jak głęboko do* włożył Jan swoj palec *buźi*?

(88) a. Jan schoval zlato [hluboko pod zem] (C)
John hid gold deep under ground

b. Jak hluboko pod zem Jan schoval zlato?
How deep under ground John hid gold

c. Jak hluboko$_i$ Jan schoval zlato [t_i pod zem]?
d. * *Jak hluboko pod* Jan schoval zlato *zem*?

The b-sentences illustrate removal of the entire PP. In the c-sentences, a left branch adjectival modifier has been removed from PP. Notice that this extraction does not violate the ECP via minimality: PP is not a M-barrier for the trace occupying the adjunct-position within the PP, since it does not contain a head i-commanding the trace. The ill-formed d-sentences show that the preposition cannot move along with a preceding left branch maximal category. So, P can only attach to an element that follows it. It cannot move along with an element that precedes it.

The phenomenon that a projection of a X^o looses its barrierhood status after cliticization of X^o to a right-adjacent element has also been proposed by Shlonsky (1988) in his analysis of subject extractions from COMP-trace environments in Hebrew. Wh-extraction of a subject-NP across the declarative complementizer *še* is permitted (even in structures which do not allow a null pronominal subject, e.g. with present tense).

(89) Mi amar-ta še-halax
who said-2sm that-left
'who did you say (that) left?'

Shlonksy (1988) argues that *še* is cliticized to the right-adjacent overt X^o in syntax. When the C^o is vacated, C' no longer constitutes a M-barrier and therefore subject extraction does not yield an ECP-violation.

I will now address the question whether left branch APs can be extracted from within possessor-NPs that are complements of N. Before turning to a discussion of left branch extractions from within genitive NPs, let us look at the mobility of genitive noun phrases. The following sentences show that genitive noun phrases can be removed from within NPs:

(90) a. Którego mężczyzny$_i$ widziałes [książke t_i]? (P)
Which-GEN man-GEN (you) saw book

b. Czyjego profesora$_i$ Jan czytał [artykuł t_i]?
Who-GEN professor-GEN Jan read article

(91) a. Čího bratra$_i$ to je [klobouk t_i]? (C)
Who-GEN brother-GEN this is hat

b. Vojákovi$_i$ lékař obvázal [ránu t_i]?
Soldier-GEN doctor bandaged wound
'The doctor bandaged the soldier's wound'

Direct removal of the genitive NP out of the containing NP is not allowed. It would violate ECP, since the dominating NP counts as a M-barrier. Notice, however, that it is possible to have the genitive NP in prenominal position in Polish and Czech:

(92) a. Jan widział [książke [tego mężczyzny]] (P)
John saw book-ACC that-GEN man-GEN

b. Jan wiział [[tego mężczyzny] ksiazke]
John saw that-GEN man-GEN book-ACC

(93) a. [Knihu [kterého muže]] jsi viděl? (C)
Book-ACC which-GEN man-GEN (you) have seen
'Which man's book did you see?'

b. [[Kterého muže] knihu] jsi viděl?

I will assume that the prenominal genitive NPs in the b-sentences can occur in [Spec,NP]. This means that genitive NP-extraction from within a dominating NP goes through [Spec,NP]. The intermediate trace in [Spec,NP] antecedent governs the initial trace. In other words, Minimality is not violated.

Consider now the extractability of left branch APs from within NPs that are complements of N.

(94) a. [Książke [którego mężczyzny]]$_i$ (ty) widziałes t_i? (P)
Book-ACC which-GEN man-GEN (you) saw.

b. Którego mężczyzny$_i$ (ty) widziałes [książke t_i]?
c. * Którego$_i$ (ty) widziales [ksiazke [t_i mezczyzny]]?

(95) a. [Knihu [kterého muže]]$_i$ jsi viděl t_i? (C)
Book-ACC which-GEN man-GEN (you) have seen
'Which man's book did you see?'

b. Kterého muže$_i$ jsi viděl [knihu t_i]]?
c. * Kterého$_i$ jsi viděl [knihu [t_i muže]]?

In the a-sentences, the entire direct object-NP is fronted. In the b-sentences, the genitive complement is moved into [Spec,CP]. In the ill-formed c-sentences, the left branch adjectival elements *ktorego* and *ktereho*, which are contained within the NP-complement, are moved to [Spec,CP]. What causes the ungrammaticality of these sentences? These sentences are not ruled out by the Subjacency Condition: Removal of the interrogative adjectival phrase does not cross any L-barriers. The NP directly dominating this phrase is not an L-barrier since it is L-marked by the noun which takes the genitive NP as its complement. The higher NP is L-marked by the verb. Via adjunction to VP, the left branch constituent can be moved to [Spec,CP] without violating the Subjacency Condition. So, the ill-formedness of these structures is presumably due to ECP. Removal of the interrogative elements to the nearest landing site (i.e. a position adjoined to VP) violates minimality: The N' (or NP, if the N'-level is absent) of the higher NP forms a M-barrier for the trace contained within the lower complement-NP: it contains: (i) the trace occupying the adjunct-position, (ii) a head i-commanding the trace, namely the nominal head of the larger NP, (iii) a maximal projection including the trace (viz. the lower NP-complement).

Consider, finally, the following ungrammatical sentence (taken from Horn (1978)):

(96) * *O jakim* Jan podarł [artykuł - - polityku]]? (P)
About which John tore-up article politician
'About which politician did John tear up an article?'

In this construction, the interrogative left branch constituent is extracted together with the cliticized preposition. The sentence is ruled out because of minimality. After cliticization of the P to the left branch modifier of the lower NP, the PP complement is no longer a M-barrier. Notice that neither NP nor PP are L-barriers. Despite te fact that PP looses its M-barrierhood status, the sentence is still out, because the higher NP headed by *artykul* constitutes a M-barrier. It contains the trace, a head i-commanding the trace (the noun *artykul*), and a maximal projection containing the trace (viz, PP and NP).

This concludes my discussion of left branch extractions from noun phrases in languages such as Polish and Czech. The accessibility of these elements to movement operations can be accounted for within a Barriers system if it is assumed that nominals are bare NPs in these languages, that is to say, there is no DP-projection.

10.6 Conclusion

Summarizing, I discussed the possibility of extracting left branch constituents from within noun phrases in languages such as Dutch and English on the one hand and the Slavic languages Polish and Czech on the other hand. As Ross (1967) pointed, the latter class of languages is characterized by the extractability of left branch elements from within noun phrases. In this chapter, I have proposed that this difference might be caused by the presence versus absence of a DP-projection. If a DP-projection is absent, then the "bare" NP can be L-marked by some lexical category, since it is not within the government domain of the functional category D. So, NP is not a barrier and extraction is permitted.

1. Chomsky (1986b, 42) formulates the following definition of Minimality Barrier:

   (i) g is a barrier for **b** if g is (a projection, the immediate projection) of **d**, a zero-level category distinct from **b**

Choice of the "immediate projection" gives the narrower concept of minimality and choice of "a projection" gives the broader concept.

2. One might also propose to analyze the nonextractability of left branch strings such as *extremely tall* and *very proud* in terms of the stipulation that these strings are phrasal but not maximal (i.e. A'). In that case they cannot adjoin to VP, so that extraction will always yield an ECP-violation. Furthermore, the A'-constituent would not be able to land in [Spec,CP] under the structure preservingness hypothesis. However, such a proposal is not very likely, since similar strings can be fronted when they are contained within the VP:

   (i) a. Extremely tall$_i$ he certainly was t_i!
   b. And very proud$_i$ he certainly was t_i!

Of course, under such an analysis it would be ad hoc to say that the strings in (i) are maximal projections.

3. The impossibility of extracting adjunct-PPs from noun phrases can be accounted for in the same way:

   (i) a. * From which city$_i$ did you meet [a man t_i]?
   b. * With red hair$_i$ I met [a girl t_i]!

The trace left behind after removal of the adjunct-PP is not antecedent governed by the nearest intermediate trace (presumably adjoined to VP). The L-barrier NP includes the trace of the fronted adjunct but excludes the trace adjoined to VP. Furthermore, if it is assumed that PP cannot move through [Spec,DP], then the extractions in (i) will also strongly violate the Subjacency Condition: DP will inherit L-barrierhood from NP, so that movement of PP to a position adjoined to VP will cross two L-barriers.

The following question arises: Why is extraposition of PP out of DP not ruled out as well, since it also crosses two L-barriers: NP and DP?

   (ii) a. I met [a man t_i] yesterday [from that city]$_i$
   b. I met [a girl t_i] yesterday [with red hair]$_i$

Of course, the contrast between (i) and (ii) poses a problem for any analysis which tries to account for the ungrammaticality of the extractions in (i) in terms of the Subjacency Condition and/or the ECP. Let us briefly speculate on possible approaches to this problem. One obvious possibility would be to say that (certain types of) extraposition is not a syntactic movement operation, but a PF-movement operation (see also Koster (1978), Chomsky (1986b)). On the assumption that ECP and the Subjacency Condition do not work at this level, the contrast between (i) and (ii) follows. Another approach would be to say that extraposition is a syntactic movement rule which does not leave behind a trace. For adjunct traces as in (ii) this might even be defendable given Lasnik & Saito's (1984) assumption that traces need not be present when no principle of grammar requires their presence. Of course, traces of adjuncts are not always required by the Projection Principle. So, possibly the ECP is not violated in (i). Of course, traces of complements are always required by the Projection Principle. So, if a complement-PP is extraposed and crosses the L-barriers NP and DP, then the trace in

complement position will not be antecedent governed by the extraposed complement. Notice further that, if the Subjacency Condition is a condition on rule application, then an analysis in which extraposition does not leave behind a trace does not help us very much: The extraposed adjunct-PP in (i) crosses two L-barriers, viz. NP and DP. So, one would still expect these sentences to be out.

I will leave it at these sketchy remarks, since extraposition is beyond the scope of this study. As long as the extraposition phenomenon is not better understood, it is hard to decide whether the extraposition facts in (ii) form a real problem for my analysis.

4. The ill-formedness of sentence (ia) can be accounted for in the same way under the assumption that there is an empty D-position present. Despite of the fact that the D-position is empty and therefore possibly does not create a M-barrier, extraction is not permitted because the NP-complement of D is not L-marked and therefore creates an L-barrier. So, it is required to move the entire noun phrase to [Spec,CP], as in (ib).

   (i) a. * Hoe grote$_i$ heb je [t_i olifanten] gezien?
   How big have you elephants seen

   b. Hoe grote olifanten$_i$ heb je t_i gezien?
   How big elephants have you seen

5. Recall that in chapter 5, a non-split exclamative wh-phrase like *wat een grote auto* ('what a big car') was tentatively analyzed as a DP in which *wat* was interpreted as a DegP, base-generated in the [Spec,DP] position. If this analysis is correct and a DegP can appear in [Spec,DP] in certain noun phrases, then one could defend the proposal that an attributive DegP in Dutch can leave the DP using the [Spec,DP] as an escape hatch.

6. One might hypothesize that the clitic is adjoined to N°, which would be the reverse of normal upward head to head movement. In that case, one would incorrectly predict that a string like (ib), in which two attributive adjective phrases hanging from N' precede the indefinite article, is possible, and that a string like (ia), in which the article occupies a position in between the two adjective phrases, is out.

   (i) a. How big an American car
   b. * How big American a car

7. It should be noted that if the rule changing a string like *a how big car* into *how big a car* were a PF-rule, then the fronting analysis, which moves DegP into [Spec,DP] would be in accordance with the facts that are mentioned in the text as well. If ECP only works at S-structure and LF, then this PF-process will never yield an ECP-violation. The ill-formedness of *how proud of Mary a man* follows from the Head Final Filter, if this filter applies at S-structure. At that level, the DegP has not been shifted leftward, so that the words contained within the noun phrase have the following order at that level: *a how proud of Mary man*. Sentence (28) can also be derived, since the [Spec,DP] position is still available for extraction.

8. Notice that the constructions in (25) are also problematic under a traditonal NP-analysis. If it is assumed that the indefinite article is base-generated in the specifier position, then such structures are derivable by moving the adjective phrase to a pre-determiner position and adjoin it to NP. Notice that this is not in accordance with the stipulation that adjunction is not possible to NPs (an argument type). Of course, it could be argued that these facts precisely show that adjunction is possible to NP. But then the question arises why the AP cannot be moved out of the NP, since it can escape an ECP-violation (minimality) via adjunction. Another analysis of these constructions would be movement of the indefinite article to a position after the first adjective phrase.

9. The strong ungrammaticality of the examples in (38) is just an empirical observation. The question of course arises what blocks the occurrence of a PP in [Spec,DP]. At the moment, I do not know of any satisfying answer to this question. Clearly, the question as to why certain elements can substitute for [Spec,XP] but not others is of a more general nature. As is well-known, the [Spec,CP] can be occupied by (nearly) any type of maximal projection (PP, DP, CP, VP, etc). The [Spec,IP]-position, on the other hand, only permits noun phrases (DP), in general. A full study of this problem is beyond the scope of this study.

10. Notice that extraction of the R-pronoun from within the attributive adjective phrase is worse when the dominating noun phrase occupies the subject position:

(i) a. ?? Waar$_i$ heb jij [een [t$_i$ mee] bevriende] vrouw] gezoend?
Where have you a with friendly woman kissed

b. * Waar$_i$ werd [een [t$_i$ mee] bevriende] vrouw] door jou gezoend?
Where was a with friendly woman by you kissed

As we have seen in the main text, extraction of the R-pronoun from within a direct object-DP yields a weak subjacency violation. Removal of the R-pronoun from within a subject-DP yields a stronger subjacency violation. Two L-barriers (i.e. the subject-DP and IP, the latter by inheritance) are crossed when the R-pronoun is moved from the [Spec,DP]-position to the [Spec,CP]-position.

11. Notice that interrogative elements such as *quanto* in Italian and *cómo* in Spanish, which are can be moved out of the containing phrase in certain syntactic environments (see chapter 7), cannot be reordered out of attributive adjective phrases. This is exemplified in (i) (example (ia) is taken from Rivero (1980)). See also Giorgi & Longobardi (forthcoming) on Italian.

(i) a. * Quanto$_i$ hai visto [una machina[t$_i$ bella]]?
How-muchyou-have seen a car beautiful

b. * ¿Cómo$_i$ quieres que te compre [una casa [t$_i$ de grande]]?
How (you) want that you (I) buy a house of large

These extractions violate the ECP. The intervening NP, which is not L-marked by D^o will form an L-barrier intervening between the trace of the fronted interrogative element and its nearest antecedent, i.e. an intermediate trace adjoined to VP.

12. The following examples show that left branch adjuncts cannot be reordered out of PP-adjuncts contained within noun phrases (cf. also de Haan (1979)):

(i) a. Jan heeft [een dorpje [3 km ten Zuiden van Tilburg]] bezocht
John has a village 3 km to South of Tilburg visited
'John visited a village which was 3 km south of Tilburg'

b. * Hoeveel km$_i$ heeft Jan [een dorpje [t$_i$ ten Zuiden van Tilburg bezocht?
How-many km has John a village to South of Tilburg visited

(ii) a. John bought [a house [deep in the forest]]
b. * How deep$_i$ did John buy [a house [t$_i$ in the forest]]?

The PP-adjunct is not L-marked and therefore forms an L-barrier. Extraction of the left branch adjuncts out of the dominating NP-internal PP will always yield an ECP-violation.

13. See also Bowers (1975), Verkuyl (1981)).

14. Klein notes that other quantifying elements such as *every*, *some*, *each* etc. are determiners. These elements do not exhibit adjectival behavior:

(i) a. * A cargo boat rescued the some survivors
b. * The remaining obstacles are all
c. * very some apples

Given their determiner like status, the nonextractability of these elemnts can be accounted for as follows: being D^o, the quantifying determiner element cannot escape the barrierhood of the intervening maximal projections. Furthermore, it cannot land in [Spec,CP] given the structure preservingness hypothesis.

15. Consider also the following examples in which the adjectival cardinal quantifier contains a nominal in [Spec,DegP].

(i) a. Jan heeft [[2 keer zo veel] boeken als Marie]?
John has 2 times so many books as Mary

b. * Hoeveel keer$_i$ heeft Jan [[t$_i$ zo veel] boeken als Marie]?
How-many times has John so many books as Mary

In (ib), the nominal *hoeveel keer* has been moved to [Spec,CP]. This extraction operation violates the ECP. Let us consider the extraction path: first the nominal is adjoined to DegP, which is permitted since DegP is a nonargument type category. So, the trace in [Spec,DegP] is antecedent governed by the intermediate trace adjoined to DegP. It is this intermediate trace that violates the ECP. Movement to the next landing site will always cross the L-barrier NP. This barrier blocks antecedent government of the intermediate trace. Whether the Subjacency Condition is violated strongly or weakly depends on whether [Spec,DP] can function as an escape hatch for the nominal. Given the fact that other nominals can be moved into that position (e.g. possessor noun phrases), it seems plausible that *2 keer* can move through [Spec,DP]. In that case, we have a weak subjacency violation.

16. From now on Polish examples will be indicated by (P) and Czech examples by (C).

17. Italian also has adjectival possessives (see Giorgi & Longobardi (forthcoming)). As opposed to adjectival possessives in languages such as Polish and Czech, these elements cannot be extracted out of a nominal constituent.

(i) * Mio ha visto [$_{DP}$ il [$_{NP}$ t$_i$ libro]]
My (he) has seen the book
'He saw my book'

This asymmetry may be caused by the presence versus absence of a DP-projection. The trace of a fronted possessive adjective in Italian is dominated by the L-barrier NP, which blocks antecedent-government of the NP-internal trace.

18. See Chomsky (1986b) for the proposal that empty heads do not create M-barriers. He makes this assumption for his analysis of extraction of subjects from within embedded clauses. Extraction of the subject is only permitted when *that* is deleted:

(i) a. * Who$_i$ do you think [t$_i$ that [t$_i$ saw her]]?
b. Who$_i$ do you think [t$_i$ [t$_i$ saw her]]?

(ia) is ruled out, because it violates the ECP. The lexically realized complementizer creates a M-barrier (C') which blocks antecedent government of the trace in subject position. (ib) does

not violate the ECP, since the COMP-position is empty and therefore does not form a M-barrier.

19. See Giejgo (1981) and Borsley & Jaworska (1988) for a restructuring analysis of these facts.

20. In Booij & Rubach (1987), phonological evidence is given for the pro-clitic status of Polish prepositions.

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DE SYNTAXIS VAN LINKERTAK-EXTRACTIES

In deze studie staat het linkertak-extractie-vraagstuk centraal, d.w.z. het vraagstuk aangaande de verplaatsbaarheid van constituenten die zich op een linkertak bevinden in een syntactische boomstructuur. Het theoretisch kader waarbinnen dit vraagstuk wordt onderzocht is de Regeer- en Bindtheorie, zoals gepresenteerd in Chomsky (1981, 1986a,b).

Hoofdstuk 1 introduceert het bovengenoemde vraagstuk en geeft aan welke modules van de grammatica een rol spelen bij het onderzoek naar de (on)toegankelijkheid van linkertakconstituenten voor verplaatsingsoperaties.

In hoofdstuk 2 wordt de historische achtergrond geschetst van het linkertak-extractie-vraagstuk. Het overzicht begint bij Ross (1967), die zijn 'Left Branch Condition' (Linkertak Conditie) voorstelde ter verklaring van het "bevroren" karakter van linkertakconstituenten in het Engels (bv. *whose* in *whose car*, *how big* in *how big a car*, enz.). Vervolgens worden er alternatieve benaderingen besproken die het onbeweeglijke karakter van linkertak-constituenten trachten te verklaren in termen van syntactische factoren zoals (i) eigenschappen van het dominerende extractiedomein of (ii) eigenschappen van de extractiepositie zelf, enz.

In hoofdstuk 3 wordt wordt een beschrijving gegeven van de interne structuur van nominale, adjectivische en prepositionele woordgroepen, met nadruk op de de positie van linkertak-constituenten daarbinnen. Er wordt onder meer beargumenteerd dat Determiners (bv. *de*, *die*, etc.) en Degree words (bv. *zo*, *hoe*, etc.) respectievelijk een Determiner Phrase-projectie (DP) en een Degree Phrase-projectie (DegP) hebben. Tevens wordt aangegeven hoe de verschillende syntactische noties zoals voorgesteld binnen het Barriers-kader van Chomsky (1986b) van toepassing zijn op de aangenomen constituentstructuren.

In hoofdstuk 4 wordt beargumenteerd dat een analyse van Subcomparatief-constructies (bv. Jan had [*evenveel appels*] verkocht als Marie [- *peren*] had geplukt) in termen van syntactische *wh*-verplaatsing van een kwantificerende linkertakconstituent uit de subcomparatief-phrase naar de [Spec,CP]-positie onjuist is. Op de vraag welk syntactisch proces verantwoordelijk is voor het gat in de subcomparatief-phrase is jammergenoeg geen duidelijk antwoord te geven. Wel wordt aangetoond dat subcomparatieven kenmerken vertonen van coordinatie-structuren, hetgeen wellicht duidt op een elliptische interpretatie van het gat.

Hoofdstuk 5 geeft een analyse van de zogenaamde *wat*-exclamatief constructies. Deze constructies komen in twee varianten voor: de niet-gespleten variant zoals in *Wat een boeken heeft Jan gekocht!*) en de gespleten variant (*Wat heeft Jan een boeken gekocht!*). Er wordt betoogd dat de niet-gespleten variant wordt afgeleid via syntactische wh-verplaatsing van de exclamatief-phrase naar

de [Spec,CP]-positie. Voorts wordt beargumenteerd dat de gespleten variant niet beschreven dient te worden in termen van verplaatsing van het linkertak-woord *wat* naar de [Spec,CP]-positie. Het betreffende element wordt geinterpreteerd als een exclamatief-morfeem dat basisgegenereerd is in [Spec,CP].

Nadat in de hoofdstukken 5 en 6 een analyse is gegeven van constructies waarin linkertak-extractie ogenschijnlijk heeft plaatsgevonden, wordt in hoofdstuk 6 de zogenaamde *wat voor*-constructie onderzocht. Ook deze constructie heeft een niet-gespleten en een gespleten variant. Vergelijk hiervoor de zinnen: *Wat voor boeken heeft Jan gekocht? Wat heeft Jan voor boeken gekocht?* Op grond van een interpretatie van de *wat voor*-phrase waarin *wat* het hoofd is en de streng *voor (een) N* een predikatieve phrase, wordt een analyse gegeven van de (on)mogelijkheid om in bepaalde syntactische omgevingen het linkertak-element *wat* naar de [Spec,CP]-positie te verplaatsen. Die gevallen waarin subextractie van *wat* niet mogelijk is kunnen worden uitgesloten met behulp van het 'Empty Category Principle' (ECP, Het Lege Categorie Principe) en de Subjacenctie Conditie.

In hoofdstuk 7 wordt het bevroren karakter van determiners, degree words en linkertak possessief-elementen onderzocht (bv.* *The I saw car*, * *How is he tall?*, * *Whose did you see car?*). Er wordt voorgesteld dat de niet-extraheerbaarheid van determiners en degree words een gevolg is van hun X^0-status. Verplaatsing van deze X^0-constituenten naar [Spec,CP] zal altijd een schending van het Empty Category Principle opleveren, aangezien de verplaatste constituenten de barrières die bepaalde dominerende maximale projecties (bv. DegP, VP, IP) opwerpen niet kunnen omzeilen via adjunctie, en wel vanwege de Structuur Behoudendheid Conditie. Gevolg: het initiële spoor of een of ander tussenliggend spoor van de verplaatste X^0-categorie zal niet juist geregeerd worden. Bovendien sluit de Structuur Behoudendheid Conditie uit dat X^0-categorieen in [Spec,CP] komen te staan. De niet-verplaatsbaarheid van *whose* volgt uit de aanname dat het morfeem *-se* een clitic is dat de D^0-positie bezet. Extractie van *whose* levert een schending op van de algemene conditie op verplaatsing dat alleen constituenten toegankelijk zijn voor "Verplaats alfa". Tenslotte worden er nog enige opmerkingen gemaakt over extractiemogelijkheden uit possessief doubling-constructies in Germaanse talen als het Nederlands en het Noors, en over een aantal welbekende linkertak-extractiefeiten uit de Romaanse talen (onder meer: *combien*-extractie).

Hoofdstuk 8 is gericht op de verplaatsingsmogelijkheden van linkertakconstituenten uit DegPs en APs. Na een korte beschrijving van bepaalde eigenschappen van maatbepalingen, wordt een analyse gegeven van de verplaatsbaarheid van deze elementen uit DegPs. Opvallend feit daarbij is de mogelijkheid om maatbepalingen uit adjunct-DegPs te halen. Via adjunctie aan de dominerende DegP kan de maatbepaling deze maximal projectie verlaten zonder een ECP-schending op te leveren. Vervolgens wordt onderzocht in hoeverre adjectivische linkertak-adjuncten (zoals in *badly short of funds*) toegankelijk zijn voor verplaatsing. Tenslotte worden bepaalde argument-adjunct asymmetrieën bij extracties uit sententiële complementen van adjectiva besproken, waarbij de notie 'minimaliteit' een rol lijkt te spelen.

Hoofdstuk 9 gaat in op de extractiemogelijkheden van linkertakconstituenten uit PPs. Zowel adjectivische als nominale adjuncten blijken toegankelijk te zijn voor verplaatsing. Opmerkelijk feit daarbij is dat ook in talen die geen prepositiestranding toestaan linkertak-adjuncten extraheerbaar zijn. Dit verschil in extractiegedrag in deze talen tussen adjuncten enerzijds en complementen anderzijds volgt uit 'minimaliteit'. Aan de hand van het Nederlands en het Engels wordt voorts aangetoond dat argument-PPs en adjunct-PPs zich verschillend gedragen ten aanzien van linkertak-extractie. Adjunct-PPs in tegenstelling tot argument-PPs gedragen zich als eilanden voor extractie van linkertak-adjuncten die bevat zijn in deze maximale projecties. Indien een linkertak-adjunct geëxtraheerd wordt uit een dominerende adjunct-PP, dan zal het spoor van het verplaatste adjunct niet juist (d.w.z. antecedent-) geregeerd worden vanwege de barrière-status van de dominerende PP. Ook wordt de mogelijkheid besproken om maatbepalingen te extraheren uit DegPs die zich op een linkertak bevinden in een dominerende PP. Vervolgens wordt aandacht besteed aan het extraheerbaarheid van een linkertak-PP zoals *bij Marie* in een streng als *bij Marie in de keel* en aan het onbeweeglijke karakter van een prepositioneel element als *boven* in de PP *boven in de kast*. De onbeweeglijkheid van *boven* wordt verklaard in termen van de lexicale integriteitshypothese, waarbij er vanuit wordt gegaan dat *boven-in* een prepositioneel compound is. Tot slot, wordt er nog enige aandacht besteed aan linkertakextracties uit postpositionele phrases.

In hoofdstuk 10 is de niet-extraheerbaarheid van attributieve adjectivische phrases, rangtelwoorden en hoofdtelwoorden aan de orde. Op basis van een DP-structuur, wordt het bevroren karakter van deze elementen verklaard in termen van de ECP en de Subjacenctie Conditie. Tenslotte wordt in dit hoofdstuk voorgesteld dat de toegankelijkheid van linkertak-adjuncten in nominale constituenten in Slavische talen als het Pools en het Tsjechisch verklaard kan worden door de aanname dat deze talen geen DP-projectie hebben. Afwezigheid van deze projectie maakt het mogelijk om een linkertak-constituent te extraheren zonder dat het een schending van de ECP of de Subjacentie Conditie oplevert.

Curriculum Vitae

Norbert Corver werd op 24 juni 1963 geboren te Bergen op Zoom. In 1981 behaalde hij het diploma gymnasium alfa aan het Mill-Hill college te Goirle en begon hij zijn studie Taal- en Literatuurwetenschap aan de Katholieke Hogeschool Tilburg (thans Katholieke Universiteit Brabant (KUB)). Het doctoraal-examen, met de afstudeerrichting Grammaticamodellen als specialisatie, werd in juli 1985 cum laude afgelegd. Van september 1985 tot januari 1989 is hij werkzaam geweest als toegevoegd onderzoeker bij het werkverband Grammaticamodellen van de Faculteit der Letteren aan de KUB. Thans is hij als universitair docent part time verbonden aan deze faculteit bij het werkverband Grammaticamodellen en werkt hij part time als toegevoegd onderzoeker aan het Instituut voor Taal- en Kennistechnologie aan de KUB.