Interpretive Islands: Evidence for Connectedness and Global Harmony in Logical Form*

Josef Bayer
Max-Planck-Institute for Psycholinguistics, Nijmegen

0. Introduction

The goal of this article is to show how certain problems of German syntax can find a natural solution in a theory which has become known over the last few years as Connectedness Theory (CT). I want to make clear from the very beginning, however, that CT is used here in a rather loose sense, to refer to a class of theoretical developments. It should therefore not be expected that the analyses presented in this paper can be cast in any one fixed version of CT. The common core of these theoretical approaches is that non-local dependencies should be derived from local dependencies.

The problems that I will address arise from cases of ungrammaticality, which are prima facie unexpected from the viewpoint of standard Government and Binding Theory. My starting point in approaching the phenomenological array is the behavior of so-called “scalar” or “quantificational” particles like only and even. While these words have attracted a great deal of attention by semanticists, they have received very little attention from syntacticians. As I hope to show in this article, the lack of con-

* For their theoretical advice and/or discussion of my blurred data I would like to thank the following colleagues: Manfred Bierwisch, Melissa Bowerman, Ad Foolen, Liliane Haegeman, Hans Peter Kolb, Ewald Lang, Andreas Lötcher, Janet Randall, Henk van Riemsdijk, Arnim von Stechow and Craig Thiersch. Thanks also to Yves Fuchs who has worked on various versions of the text, Inge Tarim for the graphics and Lee-Ann Weeks for checking my English. First and foremost, however, I am indebted to Wolfgang Sternfeld whose comments on the entire chapter led to various improvements. Needless to say that all remaining errors are mine.
tributions from recent developments in syntax may be understandable only insofar as CT is left aside. The gist of my arguments will be that the syntax and logical form (LF) of particles is constrained by largely the same principles that constrain overt syntactic movement; principles which themselves derive from such basic notions as “direction of government,” “g(overnment) projection,” etc.

Most of the empirical problems to be treated here were brought to the attention of linguists working on German by Jacobs (1983). As should become clear, I owe a lot to this work, although I disagree with certain conclusions drawn by Jacobs.

The article is organized as follows: Section 1 introduces a number of problems that arise when we make the natural assumption that only, even, etc. may adjoin to any major syntactic category. Section 2 introduces the relevant part of the theory of Jacobs (1983). Section 3 contains the major arguments of the article. In 3.1 several conditions are discussed under which the islandhood of PPs for proper scope assignment can be dissolved. In 3.2, complex-NP constructions are dealt with, which are also islands for the scope assignment of only and even. Sections 3.1 and 3.2 are close in spirit to CT in the sense of Kayne (1983); the most important issue there is how an illicit path can connect to a licit path. In 3.3 we will have a close look at directionality of government and the formation of extraction domains in the sense of Koster (1987). Section 3.4 is a slight deviation from the general course of this article. It will be argued there that certain ill-formed coordinations involving particles can possibly be ruled out on quite independent semantic grounds. Section 3.5 deals with constraints on rightward movement. The instances of rightward movement are basically extraposition and verb raising. The article ends with a brief comparison of German and English with respect to the scope of scalar particles such as only and even in rightward movement.

1. Some Problems with Particle-Adjunction

I want to argue — in agreement with traditional grammar — that particles like only and even may adjoin to any major constituent. This constituent then counts as the syntactic domain of the particle. There are two possibilities: Either the domain coincides with the focus of the particle, or the focus is a proper part of this domain. This is exemplified in the following two examples.

(1) a. John loves [only [MARY]]
   b. John would [only [go to ENGLAND]]

In (1a), only adjoins to an NP which is both its domain and the only focus constituent within this domain. In (1b) only adjoins to the VP go to England, but the focus constituent is England — a proper part of the adjunction domain.

One of the most reliable facts about German syntax is the “V-second constraint” or simply “V2.” It means that in a root sentence there should be one and at most one constituent before the verb. V2 serves in various ways as a test for constituency in German syntax. We will use it here to argue that the combination [Particle + XP] forms a single syntactic constituent. If such a string can occur before the finite verb in a root sentence, it must be a single constituent at some level of representation. If it cannot occur there, we have good evidence that this string only appears to be a constituent. The following examples clearly show that [Particle + XP] is a constituent.

(2) a. [Nur den Hund] hat Hans gefüttert
   "It was only the dog that Hans had fed"
   b. [Nur gefüttert] hat Hans den Hund
   "Hans had only fed the dog (... he hadn't done anything else with the dog)"
   c. [Nur den Hund gefüttert] hat Hans
   "Hans had only fed the dog (... he hadn't done anything else)"
   d. [Nur daß der Kanzler zu dick sei] hat Hans gesagt
   "The only thing Hans said was that the chancellor is too fat"

In the following section we will address some problems with the adjunction account as pointed out in Jacobs (1983).

1.1 Extraposition

A problem for the adjunction account becomes obvious from the following set of data.
(3) weil Hans nur gesagt hat [daß der Kanzler zu dick sein] since Hans only said has that the chancellor too fat is

(4) Nur daß der Kanzler zu dick sein hat Hans gesagt only that the chancellor too fat is has Hans said

(5) *weil Hans gesagt hat [nur daß der Kanzler zu dick sein] since Hans said only that the chancellor too fat is

In (4), nur adjoins to a CP which is also the focus of nur. (3) is unproblematic as well, because nur may adjoin to VP and select its focus (i.e., CP) within VP. This is shown in (6).

The question is: Why does extraposition of a nur-adjoined CP lead to ungrammaticality? This fact is unexpected, because the grammar must allow for [particle + CP] constituents, as shown in (4).

1.2 NP in PP

Another problem that was noticed by Jacobs (1983) is the following: If [particle + NP] is a constituent of type NP, it should be able to appear in the governing domain of a preposition. As the following data show, this holds in English but not in German:

(7) a. John would only go to ENGLAND
   b. John would go only to ENGLAND
   c. John would go to only ENGLAND

(8) a. weil sie nur mit dem OPA plaudert since she only with the grandfather chats
   b. *weil sie mit nur dem OPA plaudert since she with only the grandfather chats

(9) a. weil sie sogar von der KÖNIGIN träumt since she even of the queen dreams
   b. *weil sie von sogar der KÖNIGIN träumt since she of even the queen dreams

1.3 Genitive-NPs

A similar problem appears in genitive constructions. The position NP_ is an environment into which in German genitive Case is assigned. Thus if [particle + NP] is a constituent, it should be able to appear in this environment. The facts again contradict this expectations.

(10) a. weil sie nur den Sohn des GRAFEN liebt since she only the son (of) the count loves
    b. *weil sie den Sohn nur des GRAFEN liebt

(11) a. weil sie sogar die Schuhe der KINDER putzt since she even the shoes (of) the children polishes
    b. *weil sie die Schuhe sogar der KINDER putzt

1.4 Coordination

Judgements on the following examples are less clear cut, but it is still surprising that [particle + NP] cannot freely undergo coordination with a bare NP.
Of course, the a-sentences are well-formed because the syntactic domain of nur and sogar may be the coordinate NPs, i.e.,

In the b-sentences, however, a bare NP is coordinated with a [particle + NP]-type NP. Free adjunction of the particles generates such cases.

I will argue below that in spite of the problems mentioned in sections 1.1 through 1.4, the adjunction analysis can be maintained in full generality, and that the problem cases can be ruled out on independent grounds. Although we will argue for a solution which is totally different from the one proposed by Jacobs (1983), it should be clear that Jacobs' major insights will be maintained. In order to make this transparent, it is necessary to give a brief introduction to the syntax part of Jacobs' work.


Jacobs distinguishes three notions which are essential for any sound theory of particles. These are syntactic domain, scope and focus. The syntactic domain of a particle X is the (sub)tree Y with which X forms a constituent; that is, another (sub)tree Y.

In (15)  
John only [goes to England]

In (15), the bracketed phrase is the syntactic domain of the particle only. Scope is determined by the "logical" properties of the particles in question.
In (19), the syntactic domain of *nur* is \( V^1 \), a traditional VI'. Notice that within such a framework each step in the syntactic composition corresponds to a step in the semantic composition. This may be seen as a well-motivated aspect of such an approach in that *nur ihrem Arzt* cannot be associated with a meaning in the same way as *ihrem Arzt* can. On the other hand, there is a less favorable consequence for the overall theory of German syntax, which Jacobs discusses in detail.\(^3\) This has to do with the fact that the underlying structure (18) can surface as (20).

(20) Nur *ihrem Arzt* vermachte Luise ein Auto.

Now, if *nur* can only adjoin to a V-projection, the representation of (20) must be as follows.

(21)

In (21) the finite verb *vermachte* is preceded by two constituents, *nur* and *ihrem Arzt*, that is, we get the verb as the third constituent in the sentence. Jacobs is willing to accept this consequence and treat cases with particles preceding the finite verb in root sentences as exceptions to the V2-constraint. Certain deviations from this general proposal have to be allowed, however, specifically cases where the particle is in fact inside a non-V-projection; examples in which the particle serves what Jacobs calls an "ad-predicative" and "ad-article" function are given below.

(22) a. *Peter gilt als nur mäßig INTELLIGENT*  
   Peter counts as only moderately intelligent
b. *Die Polizei geht von nur einem bewaffneten Täter aus*  
   The police assume that only one armed criminal was involved

(23) a. Die Polizei geht von nur einem bewaffneten Täter aus  
   The police goes from only one armed criminal out
b. Die Sanierung nur einer Altbauwohnung machte ihn zum Millionär  
   The renovation (of)only one old-apartment made him (into a) millionair

The interesting thing in the above examples is that *nur* must select the immediately following word as its focus. Otherwise the examples are severely ungrammatical.

(24) a. *Peter gilt als nur mäßig INTELLIGENT*  
   b. *Die Polizei geht von nur einem bewaffneten Täter aus*

Moreover, the constituents that serve as the focus of *nur* are consistently of a special type. They are, themselves, quantifiers. For example, *ein*, which in German is ambiguous between the indefinite article and the numeral 'one,' can only have the numerical interpretation in this particular context.

Although Jacobs' work covers a lot of interesting ground and provides us with some insights into the operation of quantificational particles, e.g. that they must have access to the V-projection, this work nevertheless leaves us with a distorted picture of German syntax. The largest problem is the violation of the V2-constraint. My feeling is that this constraint (or whatever it derives from) should only be abandoned in the face of the strongest sort of counterevidence. Jacobs' list of problems with unlimited adjunction that were mentioned in sections 1.1 through 1.4 is impressive, but considering the amount of exceptions he is forced to allow into the syntax it is certainly not enough to abandon the V2-constraint. Let us therefore see how the problem cases can be accounted for under a description of German syntax in which particles can freely adjoin to any major syntactic category.

3. An alternative consistent with adjunction to X\(^n\)

In the following I will adopt a level of syntactic representation which became known as "Logical Form" (LF). LF provides a structure that can be interpreted semantically and provides information which is not available from either the D-structure or S-structure levels of representation, in other
words, a structure from which structural ambiguities and scope options can directly be read off. I will show that an LF-account of the phenomena noted in sections 1.1 through 1.4 covers a much wider range of data than considered up to this point and that LF as a level of linguistic representation is therefore given additional empirical support. I will adopt the rule of quantifier raising (QR) as proposed by May (1977, 1985). QR is a sub-rule of the rule move-alpha which applies in the derivation of S-structures. As the name says, QR moves a quantified (or other scope-sensitive) expression to a place where it c-commands its semantic scope. To take one familiar example, QR raises the quantified NP in

(25)  John saw everyone

and adjoins it to the highest node (which we take, following Chomsky (1986) to be a maximal projection of I(NFL)):

(26)  [iP Everyone, [iP John saw e]]

Only, even, are quantifiers in the sense that they map the entity that corresponds to their focus constituent on some mental scale. Thus, a sentence such as

(27)  Even John smokes cigars

induces a scale onto which people may be mapped with respect to their likelihood of cigar-smoking. What (27) then says is that John ranges low on such a scale. Take another example,

(28)  John smokes even cigars

Here the ontological domain of even consists of things that are being smoked. In the ordering of these things, cigars range very low. The LF-representations for (27) and (28) are roughly as follows:

(29)  [iP Even John, [iP e, smokes cigars]]

(30)  [iP Even cigars, [iP John smokes e]]

Since I am not concerned here with the lexical semantics of only and even etc., I will not delve any deeper into the issues of the properties of such scales.6

Let us now look back at the problems with free adjunction of particles which were addressed in sections 1.1 through 1.4.

3.1 NP in PP

As we have seen in the discussion of Jacobs' work, quantificational particles can, in principle, appear inside a PP. In an earlier proposal, Bayer (1985), I argued that the difference between (31) and (32):

(31)  *weil sie mit nur dem Opa plaudert
since she with only the grandfather chats

(32)  weil sie mit nur einem Opa plaudert
one

can be derived from Case theory. A filter was invoked which said that in PPs the Case assigner has to be adjacent to the head of the assignee in the sense that it should not be separated from the head by a non-inflecting category. Since nur does not belong to an inflecting category, it breaks the Case assignment process in (31), the structure being

(33)  ... [iP mit [iP nur [NP dem Opa]]]

In (32), things are different, since nur adjoins to an inflecting category which is again adjacent to the head.

(34)  ... [iP mit [iP nur [iP einem Opa]]]

A problem with this account is that it does not extend to all the other cases. Take the particle ausgerechnet ('exactly'). The following example does not sound bad to me, and yet a noninflecting particle intervenes between the NP and the Case-assigner.6

(35)  ?weil sie mit ausgerechnet dem Opa plaudert
since she with exactly the grandfather chatted

In any case, (35) is not bad enough to invoke a system as central to syntactic theory as Case Theory to handle it. Now, the interesting thing here is that ausgerechnet is not quantificational or "scalar" in the sense of only and even. Ausgerechnet has more the flavor of an attitude marker, although it is sometimes subsumed under the scalar particles.7 On the other hand, uncontroversial scalar particles cannot be used in PPs, if they cannot adjoin to a quantificational determiner. The proper distinction to be drawn seems to be that only those particles that are affected by the rule QR lead to ungrammaticality when they are c-commanded by a preposition. This may suggest that PPs are islands for QR. However, as this statement stands, it is immediately falsified by the fact that other types of quantifier NPs inside PPs can undergo QR.
We may speak of \textit{all}, \textit{every}, \textit{both}, etc. as "primary quantifiers" because their lexical semantics is not context dependent in the sense that \textit{only} and \textit{even} are. Another reason to distinguish them from scalar particles is that they are not — like the particles — parasitic on a focus constituent. A third distinction appears only in inflecting languages like German or Russian. This is that \textit{all}, \textit{every}, \textit{both} etc. inflect and thus may function as autonomous NPs, whereas \textit{only}, \textit{even} etc. to my knowledge never inflect even in inflecting languages. Let us therefore call quantificational or scalar particles "secondary quantifiers." Provided that particles like \textit{ausgerechnet} may not be quantificational at all, we can state the following constraint, at least for the grammar of German:

\begin{equation}
\text{(38) (to be revised)}
\begin{align*}
\text{PPs are islands for QR affecting secondary quantifiers}
\end{align*}
\end{equation}

The constraint expressed in (38) rules out cases like (31), but it allows for cases like (32). The reason for the latter is that \textit{nur} in (32) is parasitic on a primary quantifier. QR can raise \textit{nur} together with the "primarily quantified" NP \textit{einem Opa}.

Now I would like to turn to cases like (22c) which, for convenience, is repeated as (39).

\begin{equation}
\text{(39) Die meisten der Prüfer hielten Gerda's (The) most (of)the examiners considered Gerda's}
\end{equation}

\begin{equation}
\text{Leistung für \textit{nur} DURCHSCHNITTLICH (achievement as \textit{only} mediocre)}
\end{equation}

Since \textit{für} heads a PP and there is obviously no primary quantifier involved which could give \textit{nur} a free ride as QR takes place, (39) seems to constitute a counterexample to the constraint in (38). This is, however, only an impression. \textit{DURCHSCHNITTLICH} denotes a property that induces a scale. Thus, there are reasons to assume that in such cases \textit{nur} can range over this scale and does not need to be raised out of the PP. An analysis along these lines is supported by other examples in which \textit{nur} focuses on NPs whose referents can easily be plotted on a scale. In such cases, the particle can always appear inside the PP, for example \textit{Sie ist mit nur einem ARBEITER verheiratet} ("She is married with only a worker"). In this use, \textit{nur} induces a prestige scale for professions and suggests that workers range low on such a scale.

As we will see below, the particle and its focus-NP cannot be raised out of the PP for good reasons. This does not do any harm here, however, because the particle can be interpreted in situ. It does not need the property expressed by the VP in order to quantify over a set of entities. A set of entities is already inherent in the scale induced by the NP-meaning.

Let us now return to those cases in which the syntactic domain of the particle does not contain a constituent that could by itself induce such a quantificational domain. Notice that \textit{halten} in (39) in the sense of 'consider' is a lexical item which strictly subcategorizes for a \textit{für}-PP. Although things in this area are far from settled, the overall effect of strict subcategorization of a specific P seems to be that the barrierhood of P is markedly reduced in such cases. Other examples are \textit{denken an} ("think about"), \textit{sich erinnern an} ("remember"), \textit{achten auf} ("take notice of"). As the following examples show, particles are not completely impossible in these contexts:

\begin{equation}
\text{(40) a. Hans dachte \textit{nur(noch)} an den Käsekuchen}
\end{equation}

\begin{equation}
\text{Hans thought only about the cheese-pie}
\end{equation}

\begin{equation}
\text{b. ?? Hans dachte an \textit{nur(noch)} den Käsekuchen}
\end{equation}

\begin{equation}
\text{(41) a. Emma erinnerte sich sogar an den Urlaub}
\end{equation}

\begin{equation}
\text{Emma remembered even the vacation}
\end{equation}

\begin{equation}
\text{b. ?? Emma erinnerte sich an sogar den Urlaub}
\end{equation}

\begin{equation}
\text{(42) a. Der Gefangene achtete zumindest auf den Polizisten}
\end{equation}

\begin{equation}
\text{The captive took notice at least of the policeman}
\end{equation}

\begin{equation}
\text{b. ?? Der Gefangene achtete auf zumindest den Polizisten}
\end{equation}

The (b)-examples can be considerably improved if they are followed by \textit{nach} ("still") or something similar. In order to account for the (b)-sentences as they stand, however, we assume that the lexicon specifies in one way or the other that P here is "in construction with" V. That is, we have a case that is very similar to the various reanalysis processes that have been proposed to account for cases of preposition-stranding.\footnote{Given this, the constraint in (38) should be changed to that in (43), where we leave — for the time being — the notion "in construction with" deliberately vague.

\begin{equation}
\text{(43) (to be revised)}
\end{equation}

\begin{equation}
\text{PPs are islands for QR affecting secondary quantifiers unless P is in construction with a governing V.}
I would now like to draw attention to an observation that to my knowledge has never been addressed in the literature. I owe this observation to Ad Foolen (personal communication). There are cases where (43), as stated, makes wrong predictions. Note the following contrasts.

(44) a. *Das schafft ein Normalbegabter nur mit Studieren*  
This achieves a normally-gifted(person) only with *studying*  
'A normally gifted person can achieve this only if (s)he studies'
b. *Das schafft ein Normalbegabter mit nur Studieren*  
(45) a. *Das schafft ein Normalbegabter nur mit Studieren nie*  
This achieves a normally-gifted(person) only with *studying never*  
'A normally gifted person will never achieve this with studying alone'
b. *Das schafft ein Normalbegabter mit nur Studieren nie*

Interestingly, the presence of the adverb *nie* makes (45b) acceptable. Recall now that something similar was found to be true for the (b)-examples of (40) through (42) above in connection with the presence of the particle *noch* ('still'). What might be the reason for this? Two things seem to be crucial. First, *nie* is itself a quantifier, meaning something like 'for no time t.' Thus, *nie* itself must undergo QR. Second, *nie* appears at S-structure lower in the tree and to the right of the problematic PP. Since V2 is irrelevant in this case, we will represent the S-structure of (45b) with the finite verb in its D-structure (end) position.

The syntactic domain of *nie* is *schafft*. German, however, also allows such adverbs to select a larger domain. An example is given in the next tree representation.

(46)

The syntactic domain of *nie* is *schafft*. German, however, also allows such adverbs to select a larger domain. An example is given in the next tree representation.

(47)
For me and some of my informants, (47) is markedly worse than (46). Given that in both cases QR moves nie and adjoins it to IP, the difference may be attributed to its position relative to the annoying PP. While the raising of nie crosses the PP in (46), it fails to do so in (47). This is reminiscent of Kayne's (1983) Connectedness Theory.

The essence of Connectedness Theory (CT) is that certain geometrical properties of phrase structure trees can account for the binding of empty categories by an antecedent or for the linking of WH-elements in situ to other such elements. A universal principle of government projection ("g-projection") together with a parameterized option for directionality of government defines an accessible path through a tree. A g-projection is started by the projection of a lexical head in the sense of X'-syntax. It can be extended above the XP-level if there is a maximal projection Z of a g-projection of X", and Z is in a canonical government configuration with some sister W. In languages like English and the Romance languages, where the verb governs to the right, W has to precede Z in order to fulfill the requirement; in languages like Dutch or German, where the verb governs to the left, W has to follow Z. The latter prediction causes problems, as pointed out in Grewendorf (1988). We will, however, not address these problems here. Kayne's definition of g-projection captures the fact that certain extractions in English lead to ECP-violations. In the complex NP a picture of (e), for example, the empty element e can form a g-projection up to the NP-level. This projection, however, can only be continued if there is an element W which governs the NP canonically. A situation like this is given if the NP is the object of a verb, but not if it is a subject: Who do you think that Mary bought pictures of? versus *Who do you think that pictures of were bought by Mary? Notice that the ill-formed sentence cannot be explained by the usual ECP-account according to which an empty category must be properly governed, since it is properly governed in both cases. As the tree-diagrams (48) and (49) show, however, the g-projection can only be continued up to the WH-antecedent in (48). This is indicated by the wavy line. In (49), the wavy line ends before the antecedent-WH is reached, because the subject-NP is on a left branch.

Most important for our observation is the fact that deviant examples of this kind can be "rescued" by the g-projection of another empty element, when the path of this second g-projection spans the offending subtree. This situation is exemplified in (50).
The maximal set $S$ of empty categories $e_1, \ldots, e_n$ together with an antecedent $A$ defines a tree $T$. Kayne’s Connectedness Condition (CC) requires that any subset of $S$ together with $A$ form a subtree of $T$.

In (50) the path marked with the dotted line can, of course, only be created if the object of *after* is an empty category. If it is a lexical NP, no path will be created and, as a consequence, the path that stops due to its being locked on a left branch cannot reach the antecedent. The reason is that it does not connect to a tree which is spanned by a licensed path.

As the CC is formulated in order to deal with ECP-violations and parasitic gap constructions, it is of little help for our purposes. The reason is that all the gaps in question share one index with the antecedent. However, Kayne (1983) extends the CC in order to capture connectedness effects also in cases where different indices play a role, for example connectedness effects in multiple WH-questions. Note the following contrast:

*Which man said that which woman was in love with him?* versus *Which man said that which woman was in love with which boy?* The idea, which makes multiple interrogation accessible to CT, is the following: The WH in situ must be linked to the WH in COMP in order to be interpretable. Notice that the WH-phrase must have scope over the embedding verb *say* because this verb does not tolerate WH-complements. Linking a WH-item from a left branch seems to be impossible, however, as the ill-formed example shows. But once there is another WH-item from which a g-projection can be built to the WH in COMP, the problematic phrase ceases to be annoying. The CC, as it stands, is not in a position to deal with these cases, because each WH-phrase has a separate index. Kayne therefore reformulates the CC in such a way that the set $\{e_1, \ldots, e_n\}$ of empty categories is replaced by a set of categories that are uniformly bound by some antecedent $A$. In the case of multiple interrogation the WH in operator position would “bind” a set of WH-phrases (in situ). It is evident that Kayne’s generalization of the CC provides a framework in which an explanation for the contrast between (46) and (47) could be found.

Before we proceed to applying the CC to our examples, however, a word of caution is necessary: Kayne’s original proposal introduces the directionality parameter only at the level of extended g-projections, but not at the level of X’-syntax. Although the orientation of the verb is suggested as the key factor in determining the canonical government direction of a language, the CT allows lexical governors to deviate from the canonical orientation. As Koster (1984,1987) has shown, and as we will demonstrate independently below, the orientation of lexical governors must also conform to the general orientation that holds in a language. Under this assumption, a g-projection would stop in a German PP in which $P$ governs to the right. The reason is that rightwards government does not conform to the general leftward orientation of German governors.

With this in mind, (46) and (47) will get LF-representations, created by raising the quantified focus phrase and the temporal adverb to sentence-initial operator positions. If we assume that S-structure encodes potential operator positions and the CC applies at S-structure, as suggested by Kayne, (46) and (47) should be as follows:

\[
(46')
\]
As signalled by the paths through the trees, the g-projection of mit along which nur Studieren has to be raised is a subtree of the g-projection of the verb and the INFL-element along which the adverbial can raise in (46'), but not in (47'). In both of these representations, the PP is an island for QR affecting secondary quantifiers. This is not due to the PP's sitting on a "wrong" branch, but to its being an island in the sense of the constraint expressed in (43). The difference lies in the fact that only in (46') the path of nur Studieren is connected to the path of nie. Let us thus summarize that a PP-barrier can be neutralized if it is connected to an LF-path spanning it.

Nur imposes quantificational properties on Studieren and therefore the whole NP must be assigned scope. Now that the PP-barrier is neutralized, QR can affect the quantified NP and the desired LF-representation of (46) can be derived. Ignoring irrelevant details this may be as follows.

\[(46') \quad [\text{IP nie, } [\text{IP nur Studieren, } [\text{IP ein Normalbegabter das mit e_i e_i schafft] }]]\]

We may now ask whether the CC, as it stands, makes the right predictions in all possible cases of an LF-element licensing an otherwise illicit path. Kayne's theory is not specific enough to determine what happens when paths with separate indices are created. However, his application of the CC to sentences with multiple interrogation suggests that the WH-binder, which is in the matrix-COMP at S-structure, "absorbs" the WHs in situ at LF in the sense of Higginbotham and May (1981). A proposal that is more specific in this respect is Pesetsky's (1982) Path Theory. Elaborating on an earlier proposal by Fodor (1978), Pesetsky claims that structures with intersecting paths are only well-formed if one path is properly contained in the other one. This has become known as the "Path Containment Condition" (PCC). Given the reading in which the negative takes widest scope, the path \([\text{nur studieren}, e_i]\) in (46') is properly nested in the path \([\text{nie}, e_i]\).

This raises the question of whether we are dealing with a general requirement of "path containment". I will show that such a generalization may be premature and that — given certain qualifications — other scope options do not necessarily violate the PCC. Consider the following contrasts.

\[(51) \quad * \text{weil Hans sich unter nur dem Bett sicher fühlt} \]
since Hans feels under only the bed safe feels
'since Hans feels safe under only the bed'

\[(52) \quad ? \text{weil Hans sich unter sogar dem Bett nicht sicher fühlt} \]
since Hans feels under even the bed not safe feels
'since Hans doesn't feel safe under even the bed'

If our explanation of the contrast between (46) and (47) is reasonable, then it should also capture the contrast between (51) and (52). It should be noted that the stress pattern of the sentences under investigation is a strong cue for proper scope assignment. In (45b), Das schafft ein Normalbegabter mit nur Studieren nie, both studieren and the adverb of negation nie have stress peaks, and a small pause may be inserted between the two stressed items. The stress on nie seems to signal that it has to be assigned wide scope. In (52) (?w\text{eil sich Hans unter sogar dem Bett nicht sicher fühlt}), on the other hand, there is only one stress peak, namely on Bett. Nicht remains unstressed and may even cliticize onto the following adjective. The S-structure order is retained for the assignment of LF-scope. As a result, the negative remains in the scope of the even-phrase. Assuming that nicht is an LF-sensitive element that has to undergo raising, a reasonable LF-representation of (52) is the following.

\[(52') \quad [\text{IP sogar dem Bett, } [\text{IP nicht, } [\text{IP Hans sich unter e_i e_i sicher fühlt}]]]\]

Any occurrence of neg before sogar, irrespective of whether it is due to some requirement on S-structure order or to a deeper principle of scope, is excluded. Whatever the reason for this may be, the paths in (52') are not nested; they intersect.
May (1985) makes similar observations with respect to an application of the ECP at the level of LF. If both quantified NPs are assigned absolute scope over S (IP) and if the ECP holds at LF, wide scope of every student in the sentence *Every student admires some professor* would violate the ECP. May adopts the definition of c-command by Aoun and Sportiche (1983) according to which the two operators c-command each other (because they are adjoined to S, which counts here as a non-maximal projection). This enables the quantifiers to freely convert with respect to their relative scope without violating the ECP. May points out problems with an ECP-account of scope phenomena and these lead him to abandon it and instead adopt the PCC. Unfortunately, the discussion of quantification other than WH is too sketchy to say anything conclusive. Further elaboration on path theory would lead us off the track. Thus, we will conclude with the remark that particles can escape PP-islands if there is some path which neutralizes the barrier. We hope that future research will clarify in which way issues of relative scope can precisely be accommodated in CT or in Path Theory.

The licensing LF-elements in the sentences used above were all negatives. This may superficially give the impression that quantificational particles embedded in PPs are negative polarity items. The crucial characteristics of negative polarity items, however, is that they can only appear in the scope of negation in LF. As (52) and (52') showed, however, the negative may also be in the LF-scope of the expression to be licensed, a disqualification of this particular syntactic construction as a negative polarity item under any of the current theories. In addition, there seem to be data which do not involve negation and still exhibit a subject/object asymmetry. Among the following examples, I clearly disfavor (53b) and (53c):

(53) a. *weil Hans hinter sogar dem KLEIDERSCHRANK jemanden gesehen haben will*  
   *Even behind the closet Hans wants to have seen someone'*  
   since Hans behind even the closet someone seen have wants  
   b. *weil jemanden hinter sogar dem KLEIDERSCHRANK gesehen haben will*  
   (same gloss as in (53a))  
   c. *weil jemand Hans hinter sogar dem KLEIDERSCHRANK gesehen haben will*  
   *Even behind the closet someone wants to have seen Hans'*

It is obvious how the connectedness explanation given above would account for the contrasts in (53).

Let us turn now to a major complication for the proposal presented so far. It has been observed by many generative grammarians that syntactic movement to operator positions and movement in LF share certain properties. As the examples in footnote 10 have shown, English WH-movement seems to interact with QR in such a way that traces on both levels of representation, S-structure and LF, count in the determination of path geometries. We have seen that the ban against intersecting paths cannot be upheld in German syntax. The least we could expect, however, is that WH-movement in German can license LF-sensitive particles inside PPs. The prediction would be that (54a) below is well-formed while (54b) is not.

(54) a. $a_1 \ldots [p_p \ldots \text{particle} \ldots] \ldots e_i$  
   b. $a_1 \ldots e_i \ldots [p_p \ldots \text{particle} \ldots]$

Testing this prediction is difficult, because it is not entirely clear what the underlying position of the PP should be. A plausible assumption would be that questioned NPs must have rhematic status and that, in the unmarked case, rhematic elements are placed as near as possible to the verbal complex. The problem stems from the fact that the PP in question must itself be rhematic because it bears the focus-sensitive particle. This is exemplified with the following pair of sentences involving WH in situ.

(55) a. *Wer hat gesagt, daß man welchen deutschsprachigen Aufsatz sogar in Linguisitic Inquiry abdrucken wollte?*  
   Who said that they wanted to print which article in German even in Linguistic Inquiry?  
   Under the assumption that (55a) is a well-formed input for WH-movement, but not (55b), CT predicts that all sentences of type (54) should be ungrammatical in German, that is, no subject/object asymmetries should be observed. The following examples present strictly subcategorized as well as adjoined PPs in relevant question contexts:
Although one cannot “see” traces, if our argument concerning (55b) above is correct, the WH-trace is never to the right of the illicit PP. Thus, the path induced by the projection of the WH-trace does not cross the PP, and the sentences should all be ruled out. A number of speakers who I consulted for judgements found similar sentences odd, but not entirely bad. Subject/object asymmetries were hardly ever reported. Moreover, a few speakers found some of the (b)-sentences less ungrammatical than the (a)-sentences. I will return to the issue of WH-movement in the next section. The only conclusion to be drawn at this point is that there is no reason to expect any interesting interactions between WH-movement and LF-movement of particles such as nur and sogar out of PPs in German. Given that the above argumentation can be maintained, CT would, of course, rule out all the examples in (56) and (57) because in none of them would the WH-path span the offending PP.

To summarize, we have found still another condition under which quantificational particles (‘secondary quantifiers’) can escape PP-islands without depending on primary quantifiers. The condition is that they must lie in some path induced by LF-movement. The constraint in (38) will therefore need to be revised a second time along the following lines.

(56) subcategorized:
   a.  [Welchen Jungen], hat man [e], auf nur den boden gesetzt?
       ACC NOM  ‘Which boy was placed only on the floor?’
   b.  [Welcher Junge], hat [e], sich auf nur den boden gesetzt?
       NOM ACC  ‘Which boy placed himself only on the floor?’

(57) adjoined:
   a.  [Welchen Aufsatz], hat man [e], in sogar linguistische inquiry
       ACC NOM  abgedruckt?
       ‘Which article was printed even in Linguistic Inquiry?’
   b.  [Welcher Artikel], hat [e], in sogar linguistische inquiry
       NOM  Aufsehen erregt?
       ‘Which article created excitement even in Linguistic Inquiry?’

Although one cannot “see” traces, if our argument concerning (55b) above is correct, the WH-trace is never to the right of the illicit PP. Thus, the path induced by the projection of the WH-trace does not cross the PP, and the sentences should all be ruled out. A number of speakers who I consulted for judgements found similar sentences odd, but not entirely bad. Subject/object asymmetries were hardly ever reported. Moreover, a few speakers found some of the (b)-sentences less ungrammatical than the (a)-sentences. I will return to the issue of WH-movement in the next section. The only conclusion to be drawn at this point is that there is no reason to expect any interesting interactions between WH-movement and LF-movement of particles such as nur and sogar out of PPs in German. Given that the above argumentation can be maintained, CT would, of course, rule out all the examples in (56) and (57) because in none of them would the WH-path span the offending PP.

To summarize, we have found still another condition under which quantificational particles (‘secondary quantifiers’) can escape PP-islands without depending on primary quantifiers. The condition is that they must lie in some path induced by LF-movement. The constraint in (38) will therefore need to be revised a second time along the following lines.

(58) PPs are islands for QR affecting secondary quantifiers if neither
   (i) P is in construction with a governing V
       nor
   (ii) the LF-path of the secondary quantifier connects to a licit (LF-)-path.

Before turning to some less construction-dependent considerations about bounding effects in LF, let us take a closer look at the problems presented in sections 1.3 and 1.4.

3.2 Particles Inside NP

What we have said in 3.1 about the circumvention of constraints on LF-movement can be extended to the case of complex NPs. For convenience, I will repeat examples (10) and (11) (here numbered (59) and (60)) from section 1.3:

(59) a. weil sie nur den Sohn des Grafen liebt
       since she only the son (of) the count loves
   b. *weit sie den Sohn nur des Grafen liebt

(60) a. weil sie sogar die Schuhe der Kinder putzt
       since she even the shoes (of) the children polishes
   b. *weit sie die Schuhe sogar der Kinder putzt

We can start by saying that NPs are islands for QR whenever secondary quantifiers alone are involved. Once there is a primary quantifier involved, which the particle can adjoin to, the (b)-sentences above turn out to be acceptable. As we have seen above, the same is true for particles in PPs. With respect to particles in PPs we have found two ways in which the PP-barrier could be crossed in LF: (i) reanalysis of P as part of the verb, such that the particle has immediate access to the verbal projection and does not have to cross a barrier; (ii) licensing the LF-path induced by the particle by connecting it to a path which is induced by LF-movement of some other element; “connecting” means that the licit path has to start to the right of the offending phrase. We could not, however, find evidence that the stronger condition of path containment needs to hold in German. It was also not possible to determine whether or not particle-induced paths can be licensed by syntactic movement.
It is immediately clear that in German we cannot expect a circumvention of the NP-barrier by means of mode (i), reanalysis; there is no way to lexically attach the NP-head to the verb. Thus, the NP-barrier cannot be removed by a lexical operation. The examples given below demonstrate, however, that licensing by mode (ii), connecting, is as operative here as we have found it to be in the PP-cases. In (61) are examples in which the negative adverb nie ('never') is assigned LF-scope over the secondary quantifier.

(61) a. weil Hans den Sohn nur des GRAFEN NIE geschlagen hat
since Hans the son only (of) the count never beaten

'Since it was never the case that it was only the son of the count who Hans has beaten (Hans has beaten other people's sons as well)'

b. *weil Hans nie den Sohn nur des GRAFEN geschlagen hat
As expected, it is also not essential here that the LF-raising element take scope over the problematic NP. This is shown by the following contrast in (62). Note that in (62a), nicht remains in the scope of the nur-phrase.

(62) a. weil Hans den Sohn nur des GRAFEN nicht geschlagen hat
since Hans the son only (of) the count not beaten

'Since it was only the son of the count who was not beaten by Hans (everybody else's son was beaten by him)'

b. *weil Hans den Sohn nur des GRAFEN geschlagen hat
'Since it was only the son of the count who was beaten by Hans (nobody else's son was beaten by him)'

The following pair of examples is designed to show that LF-sensitive elements other than negatives can license particles in NPs as well, e.g. quantified NPs.

(63) a. weil der Sohn nur des GRAFEN jeden Jungen schlagen will
since the son only (of) the count every boy beat

'`It is only the son of the count who wants to beat every boy (nobody else's son would possibly want to do that)'

b. ?? weil jeder Junge den Sohn nur des GRAFEN schlagen will
'`It is only the son of the count whom every boy wants to beat (and nobody else's son)'

I must admit that the judgements above are my own and that it is unlikely that every other speaker of German will agree on the observed contrasts in these highly marked constructions. A further complication is that some speakers show a higher tolerance for particles in NPs than for particles in PPs. For example, a particle may be disfavored in a PP and nevertheless less disfavored in an NP that is part of a PP. Furthermore, once an LF-path is licensed by a crossing quantifier, depth of embeddedness in virtual bounding nodes seems to be irrelevant. My own intuitions are perhaps not reliable enough in these complex cases, and therefore I again asked native speakers for judgements. The marks on the following sentences represent the average for eight raters.

(64) Bei starken Regenfällen ärgert sich der Hofbibliothekar darüber, daß der Lakai...
during heavy rainfall, the royal librarian gets mad that the servant...

a. ?? unter nur das Dach der BIBLIOTHEK keine Eimer stellt
under only the roof (of) the library no buckets puts

b. *alle Eimer unter nur das Dach des fürtlichen Schlafzimmers stellt
all buckets under only the roof (of) the royal bedchamber puts

c. unter das Dach nur der BIBLIOTHEK keine Eimer stellt

The difference between (64a/c) on the one hand and (64b/d) on the other is, of course, that in the former but not in the latter QR moves a quantified NP across the offending category. There is, however, another remarkable difference, namely that (64a/d) are felt to be less ungrammatical or even perfectly acceptable when compared to (64a/b). Thus, in the end NP does not seem to be as strong a bounding node for QR affecting secondary quantifiers as PP. What might be the reason for this? In order to answer this question we must turn to a concept which plays a role in Kayne's original CT, but which received a lot more attention in Koster (1987). This concept is "directionality of government."
In Kayne (1983), a rather crude distinction was made between languages in which the (transitive) verb seeks the object-NP to its right and languages in which the verb governs to its left. As we indicated in the brief introduction to CT in section 3.1, English verbs govern to the right. According to Kayne, this property parameterizes the canonical extraction site for English in such a way that above the X^0-level of a structural governor, extraction is only possible from a right branch but not from a left branch, unless a subtree can be connected to a (government)-projection, which itself is subject to the direction parameter. Kayne's CT has been developed in various ways in the recent literature, and one of the most interesting proposals is by Koster (1984), which is also a substantial part of Koster (1987). A full presentation of Koster's theory would go beyond the scope of this chapter and therefore I will confine myself to only those aspects of the theory which most immediately touch upon the issues being discussed here.

One goal of the theory is to replace the notion of subadjacency with a unified theory of binding and bounding. We will not discuss the binding theory here, but keep in mind that within the theory, binding and bounding are ruled by the same core principles. Koster proposes that minimal maximal projections like NP, PP, AP, S' are bounding nodes for movement. An empty category can, however, be licensed within such a category if it fulfills the condition of "Global Harmony." This condition is an extension of Kayne's notion of directionality of government. What it says is that a local domain like a PP can be extended upwards when governed by a series of governors, a so-called "dynasty," in which all of the governors have a uniform orientation. The most interesting testing ground for such a proposal are languages with a mixed rather than uniform orientation of governors. Dutch and German are such languages, because they happen to have prepositions i.e., rightward governors and verbs that govern to the left. According to the Condition of Global Harmony, extraction out of prepositional PPs should be impossible in Dutch and German. This prediction is borne out.

(65) a. *Wat, heeft hij [mee e] gespeeld? (Dutch)
    what has he with played
b. *Da+mit [mite,] gespielt? (German)

English exhibits preposition stranding effects simply because the Condition of Global Harmony (CGH) is fulfilled: The local domain of the preposition can be extended upwards because it is governed by an element that also governs to the right, the verb. In Dutch and German, however, the PP cannot be extended because it is governed by a verb that is oriented to the left. In other words, the formation of a dynasty is blocked. However, Dutch and German also have a small number of postpositions. These are mostly lexical PPs consisting of pronominal-P; for example waar+onder ('where under') or da+mit ('there with'). In these cases, P is a postposition and therefore the CGH is met. Under these conditions, P-stranding should be allowed. Again, this prediction is borne out by Dutch and various dialects of German.

(66) a. *Waar, slaapt hij [e, onder]? (Dutch, from Koster (1987))
    what sleeps he under
b. *Waar, heeft hij [e, mee] gespeeld? (Dutch)
    what did he with play
c. *Hoe, hat er [e, mit] gespielt? (various German dialects)

Notice that P-stranding is forbidden in Standard German, probably due to a rule of prescriptive grammar. But even Standard German has a limited number of postpositions that allow P-stranding and as a consequence fulfill the CGH. Entlang ('along') is one of the most interesting cases; it can be used either as a preposition (with the Genitive Case following) or as a postposition (with the Accusative Case preceding). In fact, the following contrast is exactly as expected in Koster's theory.

(67) a. Den Zaun, hat er [e, entlang] die Bäume gefüllt
    the fence:ACC has he along the trees cut
    'He cut the trees along the fence'
b. *Der Zaun, hat er [entlang e] die Bäume gefüllt
    GEN

The same effect has also been demonstrated for other languages, such as Swedish. In Swedish, as in German and a number of other languages, adjectives can be Case assigners. In German, the NP-complement of A appears on the left side e.g., ihm treu ('him (dat) faithful'), whereas PP-complements appear on the right side of A. In Swedish, NP-complements of A appear generally on the right side, but in some cases also on the left side e.g., överlägsen sin motsnandare ('superior (to) his opponent') versus honom kär ('(to) him dear'). Koster presents data indicating that in
370

3.3 Harmonious LF-Paths

We have observed in the previous section that NPs seem to count as bounding nodes for the movement of secondary quantifiers to a lesser extent than PPs. It would be difficult to account for such a difference in CT when the original Chomskyan proposal is adopted according to which N is a governor in the same sense as V, A, and P are governors. As a matter of fact, it is completely unclear just what kind of lexical governor a noun that does not subcategorize for a complement would be. For example it has been stated over and over again in the recent generative literature that nouns do not assign genitive or possessive Case to the NP that follows; rather Case is assigned to a structurally determined position. Given this state of affairs, it is not surprising to see that N as a lexical governor also misbehaves to some extent in Koster's theory of Global Harmony. Koster (1987) quotes the following Dutch example from van Riemsdijk (1978).

(70) *Waar heeft hij [een argument [e tegen]] verworpen?
what has he an argument against rejected

If argument is a rightward-looking governor, the CGH predicts the ungrammaticality. On the other hand, there are fully grammatical cases where the same constellation seems to hold, as in the following examples.

(71) a. Waar, heeft hij [een collectie [e, van]] gezien?
what has he a collection of seen
b. Waar, heeft zij [een boek [e, over]] geschreven?
what has she a book about written

It is not clear how to account for these conflicts. One way out may simply be to say that there are lexical reasons that is, certain nouns and semantically related pre-/postpositions may be "more closely linked" than usual and therefore an apparent bounding node can get skipped. It is, however, difficult to see why this line of reasoning should not also pertain to (70). After all, "arguments" are also inherently linked to the relations "for" or "against." One alternative, which needs further exploration, might be that nouns are neutral with respect to the direction of government, or more radically, that most nouns do not lexically govern at all. NPs lacking an explicitly governing head would then only weakly block extraction. Whether the barrier can be removed or not would depend entirely on lexical overuse and not on the CGH. Example (70) would then be ruled out on the rather trivial ground that the N and P are not encountered frequently.
enough in the language to justify the process of barrier-removal. When the NP lacks a governing head, no conflict in direction of government arises and the extraction process does not violate the CGH. Applying this suggestion to our findings in (64) above, the contrasts would get accounted for in the following manner: (64a) violates a PP-barrier, but given that there is a second LF-path, the barrier is removed. In (64c) the particle is closer to the focus-constituent — which may be desirable for completely different reasons — and it therefore locally fulfills the CGH; a second LF-path then becomes available and the barrier that may still be involved gets removed. Example (64b) involves a local violation of the CGH, nur being in the immediate domain of a preposition, and there is also no LF-path to span the offending phrase. The same is true for (64d), although in this case the CGH-violation is reduced by the fact that nur is embedded in a category (NP), the head of which may not observe the directionality constraint. If this suggestion gains further support, it might account for the observation that for LF-movement NPs seem to be weaker bounding nodes than PPs in which the P has a rightwards orientation.

Let me now turn to the predictions which the CGH makes for LF-movement out of PPs. As we have seen above, preposition phrases seem to be severe obstacles to the extractability (raising) of secondary quantifiers. For postposition phrases, however, the CGH predicts that they will lead to much milder violations. Testing this prediction is unfortunately accompanied by a complicating factor. In German, nur (‘only’), sogar (‘even’) and a number of other particles can not only precede their focus constituent but also follow it i.e., adjoin to the right of it. This is a stylistically marked option. There are conversational situations in which a postposed particle is felt to be stylistically inappropriate. On the other hand, if postpositions are taken into consideration the choice of this marked option is necessary. Notice that the string in (72a) below could always be analyzed according to the unproblematic option (72b). In this case, the interesting option, (72c), would most likely not be tested at all. What we need is then a postposition with an NP-complement that shows the stylistically marked option of particle attachment as in (72d).

(72) a. nur den fluss entlang
only the river along
‘only along the river’

b. [nur [den fluss entlang]] (nur adjoined to PP)

c. [nur den fluss entlang] (nur adjoined to NP)
d. [[den fluss nur] entlang] (nur adjoined to NP)

Thus, we have to make use of the marked option which enables us to insert the particle between NP and P. But even with this prerequisite, the postpositional PPs fare better than the prepositional ones.

(73) a. postpositional entlang:
?? weil er die bäume den fluss nur/sogar entlang gefällt hat
since he the trees the river only/even along cut has
‘since he had cut the trees only/even along the river’

b. prepositional entlang:
*weil er die bäume entlang nur/sogar des flusses gefällt hat

(74) a. postpositional gegenüber:
?? weil Hans seiner mutter nur/sogar gegenüber aggressiv
since Hans his mother only/even against aggressive
became
‘since Hans got aggressive only/even against his mother’

b. prepositional gegenüber:
*weil Hans gegenüber nur/sogar seiner mutter aggressiv
wurde

(75) a. postpositional wegen:
?? weil der computer nur wegen die temperatur gesenkt
since the computers only for the temperature reduced
wurde
‘since the temperature was reduced only for the computers’

b. prepositional wegen:
*weil wegen nur der computer die temperatur gesenkt wurde

Notice that the (b)-sentences conform to the stylistically unmarked positioning of the particles. In spite of this, however, the (a)-sentences are still more acceptable. We can attribute this to the fact that in German, postpositions establish a dynasty of successive canonical governors, whereas prepositions fail to do so.

I have already drawn attention to the fact that some German adjectives govern complements to their left. For the sake of completeness, I want to show now that the CGH also makes the correct predictions with respect to
adjectives and their complements. In the following, I will present adjectives governing an NP-complement. In German, this is only possible if the NP appears to the left of A. I will also present adjectives with PP-complements, which are not constrained in the same way, because the NP is not Case-marked by the adjective but by the preposition. One should also be aware that the prenominal use of APs is constrained by an adjacency requirement by which the category adjacent to N must be an inflecting A. This rules out cases like *ein [beliebt(-er) [bei allen Menschen]] Mann (‘a man, liked by all people’) versus ein [[bei allen Menschen] beliebt-er] Mann. With this independent restriction in mind, the data pattern as follows.

(76) a. weil das Gericht [dem kränken sogar] bekömmlich war since the meal the patient even suitable was ‘since the meal was suitable even for the patient’
   b. ein [dem kränken sogar] bekömmliches Gericht a the patient even suitable meal ‘a meal suitable even for the patient’

(77) a. weil er [nur auf die sportschau] gespannt war since he only for the sportnews curious was ‘since he was curious only for the sportnews’
   b. weil er [auf die sportschau] gespannt war ‘since he was curious only for the sportnews’
   c. ein [auf nur die sportschau] gespannter Mann a only for the sportnews curious man ‘a man curious only for the sportnews’
   d. ein [auf die sportschau] gespannter Mann

(78) a. *weil er gespannt [nur auf die sportschau] war since he curious only for the sportnews was ‘since he was curious only for the sportnews’
   b. *weil er gespannt [auf nur die sportschau] war

The examples in (76) are entirely as predicted by the CGH. The adjective *bekömmlich* governs the NP-complement canonically and therefore the AP does not count as a bounding node for QR. In (77), (b) and (d) are worse than (a) and (c), although they are not ungrammatical. At first glance, one might conclude that (77b,d) should be excluded entirely. After all, the CGH is violated by the fact that the leftwards looking governor ges-pannt meets with a rightwards looking governor, the preposition. Recall, however, that it was concluded in section 3.1 that something like reanalysis must be allowed in the grammar. The APs in question here are exactly this type of phrase. Gespannt, for instance, allows for an auf-PP and nothing else. As far as I can see, this holds in general for adjectives governing a PP; the associated preposition is as predictable as the Case assigned by NP-taking adjectives. The crucial difference between the two sets of examples therefore seems to be entirely reducible to the Case Filter. If reanalysis or some equivalent operation can be motivated, it is obvious how to account for the weakening of the PP-bounding-node in (77b,d).

Let us turn now to the completely ungrammatical examples in (78). One may at first think that the canonically governed PP has been extrapoosed from the AP; but extraposition in German always attaches a node to the right of the finite verb. In (78), however, the PP stays in the so-called “Mittelfeld” i.e., it does not move across the INFL-boundary. I have suggested that there is a unique reason for distinguishing NP- and PP-complements of adjectives: NPs are subject to the Case-Filter while PPs are not. This means that PP-complements can appear on either side of A, although canonical government of the PP is only achieved on the left side. We will henceforth assume that government is independently guaranteed by the presence of a c-commanding relationship between a lexical head and a complement. The directionality requirement enters in as an independent factor. We will turn to this in more detail in section 3.6 below. For the time being it is sufficient to draw attention to the following: The cases of reanalysis presented so far all involve constituents in a canonical government configuration. Although this is not so obvious in cases of V2 (cf. examples (40) through (42) of section 3.1 above) at D-structure the verb occupies a position in which it canonically governs the PP and, as Koster (1987) has independently pointed out, the D-structure position seems to be critically involved in dynasty formation. In (78) the situation is entirely different, however. As I have argued above, the appearance of PP at the right side of A is not likely to be the result of movement. Rather the PP is most likely base generated to the right of A and the CGH cannot find a level of representation at which to build a dynasty. The result is that reanalysis cannot apply and the AP becomes an island for QR. In (78a) it is only the AP; in (78b) it is the AP and the PP embedded in it. Native speakers found both examples in (78) ungrammatical and could hardly detect a difference between (a) and (b). It seems that once the competence system is pushed to its limits, the calculation of possible violating factors is not an issue anymore.

If the analysis presented above is not completely misguided, we are
now in a position to generalize the construction-specific condition (58) of section 3.1 in such a way that specific bounding nodes for LF-movement need not be mentioned. As I, following Jacobs (1983), have pointed out, the particles under investigation must have access to the verbal projection. If this is impossible, then a well-formed LF cannot be derived from S-structure. A natural consequence of this is that the German V- and/or INFL-projection does not lead to a bounding node for the LF-movement of a secondary quantifier. As we have seen, the maximal projections of lexical categories other than V i.e., NP, PP and AP, show island effects for secondary quantifiers. We also saw that NPs seem to impose less stringent constraints than PP and AP, and I speculated that this may be because the head of NP does not have directionality properties for government. LF-movement out of PP and AP is subject to the CGH (Koster, 1984; 1987). However, if a dynasty of successive governors can be built, then particles can occur inside PP and AP as a marked option and LF-movement is licensed. That is, contrary to Koster’s claims we have found fairly broad agreement between the grammar of overt gaps and the grammar of "LF-gaps." General conclusions may be premature, however, because the overall evidence in favor of LF as a syntactic level of representation is still littered with unpleasant asymmetries between syntactic movement and LF-movement. Leaving this difficult problem unsettled, we can still consider a generalization of condition (58) in section 3.1.

(79) \[XP \text{ is a bounding node for QR affecting secondary quantifiers if none of the following conditions holds:} \]
\[
(i) \quad X = V \text{ or } X = \text{INFL} \\
(ii) \quad X \text{ is part of a chain of successive uniformly oriented governors or } X \text{ is in construction with a canonical governor} \\
(iii) \quad \text{a licit (LF-)path spans } \text{XP. }
\]

Conditions (i) and (iii) of (79) should be clear by now. Assuming that “in construction with” is the result of an abstract lexical process, we may still want to supplement (ii) with the following:

(80) A (head) category Y can be in lexical construction with an absorbing head category X iff Y or the projection of Y is canonically governed by X, the direction of canonical government being a matter of crosslinguistic parametrization.

In German and Dutch, (80) automatically excludes parts of complements from being absorbed into a governor if the part to be absorbed does not appear to the left of the governor in D-structure. We will see in section 3.6 that this relates to a set of highly interesting facts about rightward movement in German and closely related languages/dialects. Before we turn to this, however, a few words should be said about the fact that particles also cannot freely appear in coordinate constructions.

3.4 Coordination

In this section I want to address the problems with coordination that were pointed out in section 1.4. As the reader will see, this section turns out to be a digression from the main topic of this chapter because I do not refer to CT in my analysis of the restrictions on coordinate constructions.

For the sake of convenience, I will repeat below the data from section 1.4. ((12), (13)) which were brought up in Jacobs (1983).

(81) a. weil nur Peter und Luise spazieren gehen
b. ??? weil Peter und nur Luise spazieren gehen

(82) a. weil Gerd sogar Peter und Luise traf
b. ??? weil Gerd Peter und sogar Luise traf

Recall that Jacobs used these data as support for an analysis in which scalar particles must have access to the V-projection throughout a derivation (or a Montagovian process of sentence composition). I have assumed that particles of this kind are quantifiers and therefore have to undergo raising in order to provide an interpretable LF. Under such an assumption one can argue that the (b)-sentences in (81) and (82) are simply ruled out by a constraint on the syntax proper, namely Ross' (1967) Coordinate Structure Constraint (CSC). This constraint says that no conjunct of a coordinate structure may be moved. Ross adopted it in order to block the derivation of sentences like *What sofa will he put the chair between some table and? or *Whose tax did the nurse polish her trombone and the plumber compute?

We could argue that something parallel goes on in the derivation of LF. Indeed, many cases could be captured by extension of the CSC, as indicated in (83) below.
(83) a. *John and everybody would go to Mary's party
b. *Hans und jeder würde auf Marias Party gehen

Unfortunately, this account has turned out to be too simplistic. More recent studies have shown that coordination is constrained in a variety of ways, including some which seem to be semantic in nature. Gazdar, Pullum, Klein and Sag (1985, chapter 8), for example, point to the possibility of coordinating categories which are not syntactically alike, e.g. NP and AP, ADV and PP. In a sentence such as the following (=their (10))

(84) She walked slowly and with great care

both conjuncts express a manner property which may, for instance, correspond to the question morpheme how.

However, semantic likeness of the phrases to be coordinated is not a sufficient condition either. As Lang (1984) shows, even the informational structure (i.e., theme-rheme organization) can be a filtering factor. Finally, although such a semantic homogeneity constraint would rule out coordination of quantified and unquantified expressions (e.g. the examples in (83)), such a constraint is still too simplistic, as we will shortly see.

Barwise and Cooper (1981) have developed a theory of natural language quantifiers in which they distinguish between monotone increasing and monotone decreasing quantifiers. In dealing with what they call "NP-conjunction," they argue that increasing quantifiers can combine with other increasing quantifiers and decreasing quantifiers with other decreasing quantifiers; mixing the two, however, is not allowed. The reasoning was as follows: While two increasing/decreasing quantifiers undergoing and-conjunction would produce another increasing/decreasing quantifier expression, mixing the two would produce a hybrid. This proposal would successfully rule out the examples in (83) and given that nur ("only") has the properties of a monotone decreasing quantifier, (81b) would also be ruled out. The example in (82b) seems to be more problematic. Sogar ("even") clearly gives rise to a conventional implicature, but it differs from nur ("only") in that its implicature does not involve a generalized quantifier. The Barwise and Cooper account simply does not pertain to (82b). There are other cases which also show that this condition on quantifier conjunction is not sufficient. Take German alle ("all") and jeder ("every"). Although both are increasing quantifiers, they still behave differently with respect to NP-conjunction.

(85) a. Hans und alle Mädchen spielen im Garten
b. *Hans und jedes Mädchen spielt(n) im Garten

Notice that whatever the difference between (85a) and (85b) will be, it would also be a threat to an application of the CSC in LF. Thus, neither of the approaches discussed so far seems to be quite capable of providing the appropriate constraints. Trying to develop the details of an account for these murky cases myself would lead me too far afield. Let me therefore conclude this section with only a speculation about NP-conjunction.

It was noticed quite some time ago that natural language and does only partially correspond to the truth-functional connective '&&'. As Gazdar (1980) has pointed out, this may have been a strong reason to derive NP-coordination from sentence-coordination. Gazdar, Partee and Rooth (1983) and other linguists attempt to stick to strict base-generation of all coordinate constructions and develop a theory of generalized conjunction. As far as I understand this work, however, it does not provide a solution for the problems of quantifier coordination. A somewhat different picture emerges from Link's (1983) logical analysis of plurals and mass-terms. Link adopts concepts from the mereological logics of the forties, assuming that natural language and denotes a relation that fuses individuals. Once it is acknowledged that and may denote a relation between individuals or material substances, it becomes ontologically necessary to constrain fusion in such a way that individuals can only be fused with other individuals, substances can only be fused with other substances, properties of a given order with properties of the same order, etc. Given this, we must then ask in which sense a quantified NP can be combined with a name i.e., with an individual constant. The name can not be type-lifted in such a way that it matches the quantified expression. I suspect therefore that some quantified expressions can be treated as if they were on a par with individual constants. For instance, all girls, may refer to a group exhausting the girls of a domain of discourse. To the extent that all girls can be understood as a finite set of individuals (in mereological systems, another individual) there would seem to be no objection to combining this set with another set containing only one individual. The NP every girl does not allow for a comparable group reading. When it enters into a [NP VP] construction, it works exclusively as a function from individuals into truth values. Thus, according to Link's theory we should not get coordination with an NP denoting an individual. This does not, however, preclude the possibility that an expres-
sion like every girl receives an interpretation as [+specific]. In German, for example, jedes Mädchen can be used in much the same way as the explicit partitive construction jede der Mädchen ("each of the girls"). An open question then is why NP-coordination can occur only with a name when an explicit partitive construction is used (Hans und jedes der Mädchen spielte(n) im Garten), and not simply with a partitive reading of jede Mädchen (cf. (85b)).

Returning to Jacobs' examples in (81) and (82), it seems to me that the deviant examples are not as deviant as one might expect them to be, and that a mereological semantics would be hard pressed to rule them out in some straightforward way. The adjunction of only to an NP does not destroy its referential nature; only simply adds an implicature and NP-conjunction could therefore still proceed according to Link's semantic analysis. The deviant character of both (81b) and (82b) would then have to be attributed to a violation of an independent parallelism requirement as proposed in Lang (1984). I would suggest furthermore, that it must follow from a general parallelism constraint on coordination that a constituent giving rise to a conventional implicature can only combine with another constituent giving rise to a compatible conventional implicature. Naturally, two NPs with the same particle would observe this requirement as long as one implicature does not cancel out the other. Conversely, two NPs with different particles may easily violate the parallelism requirement. Let me briefly demonstrate this with some examples.

\[(86)\]

\[\begin{align*}
  a. & \text{?? Only John and only Bill came to my party} \\
  b. & \text{Bei uns gibt es nur Spatzen und nur Ratten} \\
       & \text{with us there are only sparrows and only rats} \\
       & \text{‘Here we have only sparrows and rats’} \\
  c. & \text{Even John and even Bill came to my party} \\
  d. & \text{Hans und auch Fritz kamen zu meiner Party} \\
       & \text{Hans and also Fritz came to my party} \\
  e. & \text{?? Only John and even Bill came to my party}
\end{align*}\]

Example (86a) is odd because the implicature of the first conjunct says that nobody except John had the property expressed by the VP. The second conjunct informs the hearer that the implicature does not hold in full. In addition, it gives rise to an implicature that is incompatible with the fact that John has the same property that Bill has. In the German example (86b) things are quite different. As is well known, nur can map entities on "pre-

stige" scales; the implicature created is that the entity in question does not range high in prestige. Example (86b) gives rise to two implicatures (sparrows are low-prestige animals, rats are low-prestige animals) which, of course, do not cancel each other out. Example (86c) is also well-formed because both conjuncts trigger parallel implicatures which do not contradict each other. John's ranging low on a likelihood scale does not seem to exclude the possibility of Bill's ranging low on such a scale as well. Example (86d) does not contain parallel conjuncts, but the meaning triggered by auch Fritz is fully compatible with the first conjunct. [auch[NP]] VP means that some x has the property denoted by VP and it carries the implicature that there is some entity y which has this property too. The conjunction in (86d) leads one to automatically understand Hans as the y-individual. Notice that the reverse order auch Fritz und Hans implicates that there is a third unmentioned individual i.e., auch has the entire conjunct in its focus. Similar effects have been observed over and over in the linguistic literature; so I will not dwell on the phenomenon here. In (86e), as in all the other examples, nothing seems to block a summation of the two NP-referents in the sense of Link (1983). The problem seems to be that the same reasoning as in (86a) applies, and that the implicatures simply make reference to different scales e.g., a "prestige scale" for John and a "likelihood scale" for Bill. As Lang (1984) has shown, such cases must be ruled out by any reasonable theory of coordination.

The above remarks are not more than a sketch of a solution to Jacobs' coordination problem. One thing, however, should have become clear: The problem cannot and should not be solved in syntactic theory. The introduction of semantic features, which can block certain X'-configurations, would complicate the overall organization of phrase structure enormously. Furthermore, those principles that determine the phrase structure of a language are entirely different from those that determine entailment, implicature, semantic compatibility, etc. (In fact, a substantial part of the progress in syntactic theory can be ascribed to the exclusion of semantic, conceptual, and pragmatic aspects.)

To summarize my general arguments up to this point: I have argued that we must allow the phrase structure component to adjoin particles to all major syntactic categories and not only to V-projections. A theory of bounding should then be developed, which is articulate enough to filter out at the level of LF the many overgenerations that free adjunction would produce. And finally, the above remarks on coordination were intended to
show that certain other cases of overgeneration can then be filtered out by independent interpretive and pragmatic mechanisms. In the next section I would like to return to the strictly syntactic aspects of quantifying particles.

3.5 Rightward Movement

In this section we will look at a number of phenomena, which are best referred to with the fairly theory-neutral term “rightward movement.” It should become clear that the notion “movement” is not intended to have any serious theoretical connotations. Subsumed under the heading “rightward movement” are Extraposition, Heavy-NP-Shift, and cases of Verb Raising in which the underlying word order gets reversed.

3.5.1 Extraposition

If we assume, contrary to Jacobs (1983), that [particle + XP] form a syntactic constituent irrespective of the categorial nature of X, the following problem arises.

Given that the preverbal-position in German is transformationally derived, the following sentence (87) below must be derived from the D-structure given in (88).

(87) nur daß der Kanzler zu dick sei hat Hans gesagt

only that the chancellor too fat is has Hans said

(88) (weil) Hans [nur daß der Kanzler zu dick sei] gesagt hat

The problem is that although the quantified CP can move to the pre-verbal (A’)-position, it cannot move to the right periphery of the illustrated clause. This is shown in (89).

(89) *weil Hans gesagt hat [nur daß der Kanzler zu dick sei]

At the same time, however, extraposition of finite clauses is almost obligatory in German (and absolutely obligatory in Dutch). Notice that this has led some linguists to argue that sentences like (88) are ungrammatical and should be ruled out by principles of the grammar. 24

As soon as the extraposed form is used, the only possibility is to leave the particle to the left of the verb:

(90) weil Hans nur gesagt hat [daß der Kanzler zu dick sei]

From a D-structure like (88), however, only (89) could be derived. In order to derive (90) from a structure which preserves the fact that the CP is the syntactic domain of nur and its focus, we would have to postulate something like the following D-structure.

Moving the CP to the right by a transformation would violate the A-over-A principle. Given the weak status of this principle, this is probably not a serious problem. Nevertheless, an analysis that does not invoke reference to the A-over-A principle at all would be preferable. We can achieve this by assuming that the input-structure for extraposition is not (91), but rather (92); that is, nur is not adjoined to its focus constituent, CP, but to the VP inside which it selects CP as its focus constituent.
Although this solution would help us to avoid an A-over-A violation, it does not provide a very interesting answer to the question of why it is impossible to move the entire \([CP \text{ nur CP}]\) in (88) to the right.

In order to arrive at a solution that rests on more than a pure phrase structure stipulation, we will need to broaden our data base somewhat. In (93) below, for example, the \textit{nur}-clause is not offending at all.

\[
(93) \quad \text{weil Hans hereingekommen ist \emph{[nur wenn alle}} \\
\text{since Hans entered \emph{has only when everybody}} \\
\text{schliefen]} \\
\text{‘Since Hans entered only when everybody was asleep’}
\]

The difference between (89) and (93) is, of course, that in (89) \text{CP} is an argument of the verb and thus must be governed, while the adverbal \text{CP} in (93) is an adjoined structure. The restriction observed in (89) moreover not only occurs with lexically governed clauses but also with other argument-clauses. In (94) for example, a subject-sentence is involved.

\[
(94) \quad \text{a. weil [\text{nur ob Desdemona untreu war]} Othello} \\
\text{since only whether Desdemona unfaithful was Othello} \\
\text{interessiert hat} \\
\text{interested has} \\
\text{‘Since Othello was only interested in whether Desdemona was unfaithful’} \\
\text{b. \text{[Nur ob Desdemona untreu war] hat Othello interessiert}} \\
\text{c. ‘\text{weil Othello interessiert hat [nur ob Desdemona untreu war]}’} \\
\]

Thus, the free placement of a quantifier-joined \text{CP} seems to be possible only if this \text{CP} is not selected as an argument. If the \text{CP} is selected i.e., licensed by a governor and/or by a 0-grid, the quantifier must stay to the left of the verb. Given this and the fact that the verb governs leftwards in German and Dutch, the principles of CT would appear to play a role here.

Let us therefore explore the possibility that QR can only affect positions that are canonically governed. In a structure like (88) this would be guaranteed. QR would raise the quantified \text{CP} and adjoin it to IP. The LF-representation would then be something like the following.

\[
(95) \quad \text{[IP \text{nur daß der Kanzler zu dick sei], [IP Hans e, gesagt hat]} \\
\text{In order to explain (90) along these lines, we could assume the following S-structure in which — according to standard assumptions — the extraposed \text{CP} leaves a trace.} \\
\text{[IP Hans [VP nur [VP e, gesagt] hat] [CP daß der Kanzler zu dick sei]]} \\
\text{Here, \text{nur} is adjoined to VP and seeks a focus constituent within VP, which is the CP under the reading intended here. Let us assume a coindexation relationship (superscripts) between the particle and its focus. This is always necessary when the syntactic domain and focus of the particle are not identical. The extraposed \text{CP} would then get related back to its canonically governed D-structure position by its trace and QR could affect the quantifier \text{nur} because — as we have argued — it is on a left branch with respect to the verb governing the clause with which the quantifier must be coindexed.} \\
\text{[IP e, [VP nur [VP e, gesagt] hat] [CP daß der Kanzler zu dick sei] ...]} \\
\text{Given that (96) has the assignment specified in (97), its LF after QR will be precisely the one given in (95). The only difference between (88) and (90)/(96) therefore seems to be functional in nature, namely that (88) is harder to process due to center embedding. Moreover, to argue against cases such as...}
suggesting that at least certain cases of extraposition should indeed be dis-
acceptable because it docs not involve an unpleasant center embedding.

There is increasing linguistic evidence
ition is very likely to be a grammaticized result of the parser’s response to
same could be claimed for ungrammatical cases like (89). Although the
seems reasonable, as Koster assumes, to take D-structures (or base gener­
are built, then (89) should be just as acceptable as (88) or even more
extra posed
its reach at D-structure. And if D-structure is the level at which dynasties
are formed, then (89) should be just as acceptable as (88) or even more

As a solution to this problem, I will propose that extraposition is not an
instance of move-alpha and that it does not leave a trace; rather, extraposi-
tion is very likely to be a grammaticized result of the parser’s response to
certain processing difficulties.25 There is increasing linguistic evidence
suggesting that at least certain cases of extraposition should indeed be dis-

tingished from move-alpha. These are mostly extrapositions of PPs, 
appositive NPs and relative clauses from NPs. For example, Koster (1978)
presented numerous subjacency violations in connection with extraposition 
and concluded that these cases must be considered the result of “stylistic 
movement” (a conclusion that we will show below cannot be maintained). 
Baltin (1981) does assume traces for rightward movement, but observes 
that rightward movement must be distinguished from leftward movement 
because the bounding conditions are different in the two cases. Baltin 
(1987) reports an observation by May in which the extraposition of a rela-
tive clause with a null-VP leads to a violation of the i-within-i Condition.26 
Other possible problems are mentioned also (e.g., problems relating to the 
ECP).

Relative clauses are not licensed by the Projection Principle, and there 
is thus little motivation to postulate traces for them in an underlying posi-
tion. They should rather be treated like adjuncts. Craig Thiersch (pers.comm.) has pointed out that the postulation of traces for extraposed 
relatives, PPs, and other appositives is also unmotivated from a parsing 
point of view. In a left to right parse there is no plausible strategy for 
hyothesizing a gap as long as there is no obvious filler. This predicts, of 
course, that leftwards movement leads to the expectation of a gap, whereas 
rightward movement does not.

Culicover and Rochemont (forthcoming) argue for a conceptualization 
of extraposition from NP without traces. They propose, instead, a base-
generation account in which the extraposed phrase is linked to its antece-
dent by what they call the “Complement Principle.” I do not need to go into 
the complicated issue of extraposition in any more detail here. What I do 
need to show, however, is how a much less obvious case of rightward move-
ment can be explained without reference to a trace/binder relationship, 
namely the extraposition of arguments.

In the above, I have argued that on parsing grounds there are reasons 
for not postulating traces for rightward movement if the moved constituent 
is not felt to be missing until the string constituting a minimal clause is 
processed. Rightward movement of arguments seems to set the stage in a 
completely different way, however: The parser could postulate a gap as soon as 
an obligatory constituent is found to be missing. But, as we have argued 
above, insertion of a trace to the left of a German verb selecting a clausal 
complement would destroy the asymmetry between leftward and rightward 
movement. This asymmetry is necessary, however, if the non-occurrence of
secondary quantifiers to the right of the finite verb is to be explained. In the following I will give two straightforward reasons for why rightward moved constituents with argument status should not be related to a trace in German. I will also show this to be unnecessary in English.

3.5.2 What Gets Case Where?

It is common knowledge that German object-NPs can precede the subject-NP under certain conditions. This is particularly the case in V2-clauses, where the pre-verbal position is an A'-position. As I have already mentioned in my discussion of (98) and (99) in section 3.5.1, Case cannot be assigned to this position directly. Since it can be assigned to a canonically governed variable, however, a coindexed NP in the A'-position is licensed and will not be ruled out by the Case Filter. Let us then assume that rightwards moved categories with argument status are related to a trace to the left of the verb. The prediction would, of course, be that something like Heavy-NP-Shift exists in German. However, it does not exist at all and to my knowledge there is no exception to this. The examples in (100) should illustrate that the "heaviness" of the NP cannot outweigh this law.

(100) a. *weil Karl den Hund, der so laut bellte, geschlagen
    has since Karl the dog which so loudly barked beaten
    hat
    has
b. *weil Karl den Hund geschlagen hat, der so laut bellte
    c. *weil Karl geschlagen hat den Hund, der so laut bellte

In this respect German differs significantly from English, and also from Italian where extraposition moves the head of the relative clause along. Under the standard assumption that Case is assigned by a verb in German exclusively to canonically governed positions (to the left of the verb) and the assumption that in general rightward movement does not leave a trace, the data in (100) can be explained. With these assumptions it is also explained why certain other constituents which do not require Case may well be extraposed. An argument-CP must be governed but it does not require Case. Thus, it is free to occur on either side of the verb.

My conclusion is that we keep the notion "government" as it has been used over the years (e.g., according to the definition by Aoun and Spor tiche, 1983), and that we reserve "canonical government" for those instances of government in which a lexical item or morphological feature (e.g., AGR) governs a category in the direction that has been parametrized as canonical for the language in question. We can assume, furthermore, that θ-assignment is not subject to the canonicity requirement, while Case assignment certainly is. This may ultimately follow from the structure of the lexicon where the θ-grid of a verb is probably represented as an unordered set of θ-roles. Under this analysis and our previous processing explanation for rightward movement, a picture emerges in which grammar and processor conspire with respect to the (non-)extraposition of clauses and NPs roughly as follows: The grammar licenses argument-CPs as long as they are governed. The processor disfavors CPs in intraposed position due to some constraint on the linguistic working memory, which is not our primary concern here. The processor could in principle shift heavy NPs but the requirement of a canonical government relation for Case assignment blocks such movement.

One problem for our account may arise from the fact that in many German dialects constituents can be moved out of finite clauses with a lexical complementizer by COMP-to-COMP movement. If the COMP-position of the embedded clause must be canonically governed, this would in our theory be an unexplained phenomenon. Nothing, however, forces us to such a conclusion. Clauses are not assigned Case and therefore they can stay in non-canonically governed position. According to standard assumptions following from the ECP, the trace in COMP should be governed by the matrix verb. But the matrix verb does not Case- or θ-mark this trace under any current theory. Thus, unbounded leftwards movement in German should be unaffected by the canonicity requirement. We may, however, go even further and see what predictions would be made by adoption of such a requirement for the licensing of WH-complements. We would expect that at least long movement out of CPs canonical position is possible. Although intraposed CPs are tolerable in German, WH-movement out of intraposed CPs leads to ungrammaticality (e.g., *Er wollte wissen, wen, der Franz, daß wir e, e, einladen sollten, gemeint hat 'He wanted to know who Franz thought that we should invite.' Whatever the reason for this effect may be, it shows that extraction via COMP seems to be independent of canonical government restrictions. Another piece of evidence is that the external argument of a bare infinitival clause gets Case-marked by the governing verb in intraposed position in German, but never in extraposed position. Conversely, in English the external argument of a non-finite clause gets Case at the right side of the verb because this is the standard position
for Case assignment. We conclude that the government of clauses is not necessarily ruled by the same devices as the government of NPs.

In the following I hope to show that clauses can indeed be governed in extraposed position without the availability of traces. One must not assume that I is a node in German (as AUX seems to be in English) but rather that it is parasitic on the verb. This is clearest in cases where the lexical governor itself is inflected (i.e., where no AUX-verb is present to carry the I-morphology). Once the I-feature becomes the head of a V-projection, it will become I', and once the external argument is added it will become IP. This is illustrated in (101) below. Furthermore, it is not necessary for the VP to be completed before IP is completed, as shown in (102) below. The projections of V and I can proceed independently. One major reason for I to stick to the V-projection is that it is a subword unit and thus needs a lexical host. In the following representations one can see that non-terminals can be bundles of categories i.e., that a single node may represent more than one level of projection for each category present. This is expressed by [X/Y], where X is a projection other than Y and both X and Y may range from the zero-level to the maximal projection level.

Notice that extraposition in German moves material to the right of I i.e., the situation is not as simple as in English where I is to the left of VP and thus the extrapendum can straightforwardly be adjoined to VP. If I always governs a maximal V-projection, extraposition of an object-CP could only be licit with a trace to the left of the verb; the verb (being locked in a maximal projection) would fail to govern its argument. According to my suggestion above this problem simply does not arise. As shown in (103) below, V will govern CP according to the Aoun/Sportiche definition of government, although it is intertwined with the I-projection. In order to simplify the analysis somewhat, we assume here that auxiliaries, which govern a main verb, can be represented by I alone. (This may turn out to be untenable, but should suffice for the moment).
To sum up, I have shown that the notion of government should be distinguished from the directionality (canonicity) requirement, which may be superimposed on government. While Case is assigned by the verb only under canonical government, argument-CPs are ruled by the weaker requirement that they be governed by V. I have sketched one way in which V can naturally govern across an !-projection by arguing that V and I form syntactically independent projection lines, although I is a morpheme parasitic on V. Most important, for present purposes, is that extraposition and other cases of rightward movement can be stated without the involvement of traces. Put more strongly, under an account involving traces the absence of NP-shift in German would remain quite a mystery.

3.5.3 Complementation with Pronominal Adverbs

German has an interesting type of complementation involving a postpositional PP, the so-called “pronominal adverb.” In such cases, the PP consists of a pronominal da and a postposition; for example da+mit (‘there-with’), da+für (‘there-for’), da+gegen (‘there-against’), da+zu (‘there-to’) etc. Many German verbs which do not subcategorize for a clausal argument, nevertheless do subcategorize for such a PP. These PPs can then, in turn, license a clausal argument. I assume an analysis in which the pronominal da is coined with a CP as shown in (104).

\[(104) \quad [_{PP} \text{da}^+P] \ldots [CP] \]

V2-sentences reveal that PP and CP can form a constituent, which is itself most likely a PP. This is shown in (105b) below, which we assume derives from (105a) i.e., a representation in which the complex PP is in the “Mittel­feld.” In (105c) this PP is extraposed, which leads to severe ungrammaticality. Interestingly enough, if the pronominal adverb remains to the left of the verb and the CP is extraposed, as shown in (105d) below, we get a fully grammatical structure.

\[(105) \]

\[a. \quad \text{weil } \text{Hans} [\text{dafür} \text{ daß Nicaragua unabhän­
gig bleibt}] \quad \text{since Hans for that Nicaragua independent remains gekämpft hat} \]

\[b. \quad [\text{dafür} \text{ daß Nicaragua unabhän­
gig bleibt}] \quad \text{hat} \text{Hans e,} \quad \text{gekämpft} \]

\[c. \quad \text{weil} \text{Hans gekämpft hat [dafür daß Nicaragua unabhän­
gig bleibt]} \]

\[d. \quad \text{weil} \text{Hans dafür gekämpft hat [daß Nicaragua unabhän­
gig bleibt]} \]

In (105a,d) the complement-linking PP is canonically governed by the verb. And the complex preverbal PP in (105b) can be relocated into a canonically governed D-structure position. However, under the assumption that extraposition does not involve traces, (105c) must be ruled out. The PP is not canonically governed or may not be governed. That is once the PP-link is detached from the verb, it fails to license the CP. 33

If this analysis is correct, we have found yet another reason for not assuming traces in the rightward movement of arguments. It is very likely that with more careful analyses, even more asymmetries between the left and the right periphery of the sentence in German could be found. In the next section I will present evidence from a completely different case of rightward movement, namely verb raising. It will be shown that we are indeed dealing with a fairly pervasive phenomenon and that it is therefore highly unlikely that we have been trapped by a spurious generalization.

3.5.4 Verb Raising and the Rearrangement of the Verb Cluster

Verb Raising (VR) is an operation which lifts a non-finite verb from an embedded clause to the matrix clause where it is adjoined to the governing
verb. According to Evers (1975), the differences in the order of verbs between Dutch and German are produced by the selection of different adjunction sites. German cyclically adjoins the raised verb to the left of the matrix verb, while Dutch adjoins it to the right. As a result, Dutch shows a mirror image of the German verb order. The standard analysis assumes that the Dutch "inverted" order is derived from a canonical (German type) order i.e., VR applies in both languages in the same way, but the order of verbs is changed into a mirror image only in Dutch. Anyone familiar with the extensive literature on VR can see that this very brief characterization is nothing but a skeleton. My goal, however, is not to discuss VR per se, but to look at some of its effects. I will be concerned with constructions in which inversion (or whatever process one may assume) has applied and the raised verbs end up on a right branch with respect to their governor. Naturally, the languages we have to look at primarily are Dutch and Swiss-German. Let us first consider a Swiss-German example from L6tscher (1978). Following VR, the D-structure represented in (106) below will surface as (107).

(106)  
\[
\text{wil de Joggel s'gottlett ässe welle hät}
\]

\[
\text{since the Joggel the cutlet eat wanted has}
\]

\[
\text{since Joggel has wanted to eat the cutlet'}
\]

(107)  
\[
\text{wil de Joggel s'gottlett hät welle ässe}
\]

Lötscher observed that in such constructions the appearance of sogar ('even') and other particles is not entirely free. Assume, for instance, that sogar is adjoined to a verb which undergoes VR e.g., ässe. Then an otherwise well-formed sentence as in (107) would result in the ungrammatical string represented in (108).

(108)  
\[
*\text{wil de Joggel s'gottlett hät welle sogar ässe}
\]

In Swiss-German as well as in some other Germanic dialects, it is possible that not only V* raises but also V-projections. Thus, (106) may also surface as the following.

(109) a.  
\[
\text{wil de Joggel hät welle s'gottlett ässe}
\]

b.  
\[
\text{wil de Joggel hät s'gottlett welle ässe}
\]

According to Lötscher (pers.comm.), a particle like sogar must always precede the finite verb. Thus, if it is adjoined to an NP, which it selects as its focus constituent, and VPR then applies, the resulting construction will be ungrammatical. This is shown in (110).

(110) a.  
\[
*\text{wil de Joggel hät welle sogar s'gottlett ässe}
\]

b.  
\[
*\text{wil de Joggel hät sogar s'gottlett welle ässe}
\]

While the judgements on (108) are fairly stable across different speakers and also across different languages with V(P)R, the judgements on (110) are less stable. For example, one of my Swiss-German informants, Henk van Riemsdijk (pers.comm.) accepts both sentences in (110). The Dutch dialect spoken in West-Flanders also allows for VPR in about the same way as Swiss-German. The data in (111) (provided by Liliane Haegeman, pers.comm.) show basically the same distribution as the Swiss-German data; focussing on an NP governed by V with the element en kier ('even') is, however, possible in VPR constructions.

(111) a.  
\[
*\text{omda Jan t'vlees heet willen en kier ten}
\]

\[
\text{since Jan the meat has wanted even eat}
\]

\[
\text{since Jan even wanted to EAT the meat'}
\]

b.  
\[
*\text{omda Jan t'vlees heet en kier willen t'vlees}
\]

\[
\text{since Jan wanted to eat even the MEAT'}
\]

c.  
\[
\text{omda Jan heet willen en kier t'vlees willen}
\]

\[
\text{since Jan wanted to eat even the MEAT'}
\]

d.  
\[
\text{omda Jan heet en kier t'vlees willen eten}
\]

Standard Dutch does not have VPR but in its VR-constructions the effect can be seen very clearly, as the following pair of examples demonstrates.

(112) a.  
\[
\text{omdat Jan het boek [slechts LEZEN] wil}
\]

\[
\text{since Jan the book only read wants}
\]

\[
\text{since Jan wants to only READ the book'}
\]

b.  
\[
*\text{omdat Jan het boek wil [slechts LEZEN]}
\]

There is evidence that particle+V can form a constituent in Dutch. But then, VR plus inversion (or Evers' raising rule for Dutch) will affect the finite verb and the infinitival verb, to which the focussing particle slechts ('only') is adjoined and the phrase structure component will thus generate ungrammatical strings. Note, however, that the Dutch order of verbs is not always as rigid as one may conclude from the literature. If the V-cluster is not very complex, the German (uninverted) order can occasionally be observed. Interestingly, adjunction of a particle to a focussed V is fully acceptable under these circumstances. This can be seen in (113), which is identical to the D-structure provided in (112a).
(113)  omdat Jan het boek [slechts lezen] wil
since Jan the book only read wants

Another observation comes from German. It should be noted that the canonical order of the verbal complex in German is often rearranged when the V-cluster becomes too complex. The difference between the Dutch and the German V-cluster is roughly that inversion only takes place in German when two or more infinitival verbs precede the finite verb in D-structure and that the canonical order of the shifted verbs is then retained. This inversion operation can be characterized by a rule like (114):35

(114) V V V/I
3 2 1 → 1 3 2

The examples in (115) show that nur can take the verbal complex or part of it as its focus, and that it can also be shifted to the right of the finite verb.

(115) a. weil Hans das Buch [nur lesen] wollen hat
since Hans the book only read wanted has
b. [nur lesen], hat, Hans das Buch e, wollen e, 
<-- <--
c. weil Hans das Buch nur [hat lesen wollen]
<-- <--
d. weil Hans das Buch hat [nur lesen] wollen
<-- <--

Of course, (115d) represents a marked construction, but the canonical order of verbs is retained in the German double infinitive construction and the quantified verb lesen therefore remains in the canonical government domain of wollen. The quantified element is excluded from the government domain of the auxiliary hat.

We can give an account of these facts along the same lines as we did for extraposed clauses. The rightward movement of verbs or verb projections would lead to governed, but not canonically governed positions i.e., the CGH would be violated. As a result, extraction of a secondary quantifier in LF would be impossible. I believe that this analysis is basically correct. But as we have seen above, VPR can move particle-adjoined NPs to the right of the finite verb and the results are not necessarily ungrammatical, at least not for all speakers. In (110a,b) as well as in (111c,d) the offending phrase is outside the canonical government domain of the finite verb, but it is in the canonical government domain of a non-finite verb. In (110a), sogar s'gottlett is canonically governed by the Case-assigner ässe. In (110b) the same is true, but here ässe has undergone reanalysis with the modal welle. While ässe is not in the canonical government domain of the modal, we can assume that it discharges its Case regularly and that it can license the presence of the particle-adjointed NP. Let us therefore assume for (110b) a phrase structure such as the following.

![Phrase structure diagram]

As indicated by the arrows for the direction of canonical government, one can see that V_i is not canonically governed. V_j governs V_i, however, and projects as VP_i. Since V_j is still unsaturated, VP_j has a "hole." We must assume that the syntactic types of a daughter must be visible at the mother node as long as it is not maximal. After the NP is found at the canonical government site, V_j can project into VP_i. At this point it can be dropped from the nodes induced by a new projection line. The failure of V_j to canonically govern V_i does not have negative consequences, because the
governed element does not require Case and is not quantified. So far, the assumptions made in section 3.6.1 with respect to extraposition seem to be sufficient. A problem, however, could arise when we want to maintain standard assumptions regarding LF-raising. If LF-raising must raise any scope-taking element to the IP-level and if there are no traces available for reconstructing the canonical sentence form, cases like (110a,b) and (111c,d) should be excluded. As we have already seen, however, this would not be the right consequence for at least a subset of the speakers questioned; for them, these sentences are marked, but nevertheless acceptable. The scope of *sogar/en kier + NP* cannot reach the IP-level due to the fact that it is part of a rightward moved constituent. Thus far, our theory of trace-free (in fact, base-generated) rightward movement makes the right predictions. What we now need is a concept of "relative scope." Relative scope can be obtained when LF-raising applies in a domain smaller than IP. As May (1983: Chapter 3) points out, there are empirical as well as theoretical motivations for QR towards VP. If we relax QR in such a way that adjunction to a predicate phrase is possible, we can account for the marked cases under consideration. QR is then confined to the domain in which the scope-taking element is canonically governed. Given the basic orientation of governors in West-Germanic, the LFs of (110a,b) will then be as follows.

(116) a. \[ \text{wil de Joggel hat [vp welle, [vp e, [vp sogar s'gottleti,} \]
\[ [vp e, ässe]]]] \]
\[ \text{[vp welle, [vp e, [vp sogar s'gottleti,} \]
\[ [vp e, ässe]]]] \]

b. \[ \text{wil de Joggel hat [vp sogar s'gottleti, [vp welle, [vp e, [vp sogar s'gottleti,} \]
\[ [vp e, ässe]]]] \]
\[ \text{[vp welle, [vp e, [vp sogar s'gottleti,} \]
\[ [vp e, ässe]]]] \]

It is unclear why some speakers seem to disfavor the relative scope reading; similar examples of relative scope are widely accepted. Haegeman and van Riemsdijk (1986) observe that VPR leads to certain scope restrictions, which are not observed unless a quantified NP has been affected by VPR and inversion. Scope effects can also be observed in the following examples from West-Flemish (WF) and Züritütsch (ZT).

(117) WF
a. \[ \text{da Jan vee boeken thee willen lezen} \]
\[ \text{that Jan many books has wanted read} \]
\[ \text{(Q-NP<modal or modal<Q-NP)} \]

b. \[ \text{da Jan thee willen vee boeken lezen} \]
\[ \text{(modal<Q-NP)} \]

(118) ZT
a. \[ \text{das de Hans vili büecher hät welle lâs} \]
\[ \text{that the Hans many books has wanted read} \]
\[ \text{(Q-NP<modal or modal<Q-NP)} \]

b. \[ \text{das de Hans hät welle vili büecher lâs} \]
\[ \text{(modal<Q-NP)} \]

Both of the (a) examples in (117) and (118) are ambiguous. Under one reading, the quantified NP *many books* has scope over the modal *want* and in the other *want* has scope over *many books*. Interestingly, both of the (b) sentences exhibit only this second reading i.e., narrow scope of the Q-NP. VPR has created a phrase structure in which the modal c-commands the Q-NP, but not vice versa. In their definition of c-command Haegeman and van Riemsdijk follow Muysken (1982). According to this definition, it is required that the crucial node g which dominates both a (here *vili büecher*) and b (here *welle*) is either \(X^\text{max}\) or \(X^0\), but never \(X^0\) \((0<n<\text{max})\). Any newly created V counts as V\(^0\). This can be seen in the following phrase structure trees of (118a,b), which are the outputs of VR/inversion and VPR/inversion respectively.
The authors propose a rule for clause-bound scope phenomena, which they call "Unmarked Scope Rule" (USR). This rule makes use of ideas by Lars Hellan and Isabelle Haïk (see Haïk 1984) according to which scope bearing elements get a token index (left subscript) and a binder index (right subscript).

\[(119) \text{USR } (= \text{Haegeman and van Riemsdijk's (86))}
\]

\[a \ldots b \rightarrow a \ldots b \]

iff there is a D, D a dimension, such that \(a\) c-commands \(b\); where \(a\) and \(b\) are scope-bearing elements.

In (118b'), the first (maximal) projection (VP) dominating the quantified NP does not dominate the modal, but the first (maximal) projection (VP) dominating the modal also dominates the quantified NP. Unfortunately, the USR (together with the proposed definition of c-command) does not yield the desired result in the case of (118a). As one can see in (118a'), the Q-NP c-commands the modal, but the modal does not c-command the Q-NP. According to our own proposal the modal can raise up to the IP-level (= S-level) because it is not subject to the requirement of canonical government. The leftward orientation of the auxiliary "hat" excludes elements to its right side that are in need of a dynasty of governors for raising to IP-level. The difficult thing is to determine which elements are in need of such a dynasty and which are not. Obviously Case-assigned elements and secondary quantifiers are prevented from raising in LF, but there are other problems. According to Haegeman and van Riemsdijk, incorporated WH-items can get wide scope out of VPR-contexts, while incorporated sentential adverbs cannot. This is, of course, not exactly what we would expect because wh-items can be Case-marked NPs while sentential adverbs, given that they are neither Case-marked nor selected as obligatory constituents, should be free of directionality constraints.

Since standard German lacks VPR, I have to confine myself to some remarks about the scope of adverbs. When VR and inversion apply in German, an adverb may be shifted to the right of the finite verb i.e., occur on a branch to the right of its governor. My observation is that adverbs requiring IP-scope are typically banned in these contexts, but can sometimes be rescued by putting stress on the scope taking adverb. This is not always possible, however. For example "attitude" adverbs such as vielleicht ("perhaps") and sicherlich ("certainly") rarely get stressed, while time adverbs must always get stressed in this environment.

\[(120)\]

\[a. \text{ weil sie den Hans das Lied vielleicht! sicherlich! gestern haben singen hören} \]

\[b. \text{ weil sie den Hans das Lied haben *vielleicht! sicherlich! gestern singen hören.} \]

Obviously, stress is an important means for certain LF-sensitive elements to overcome barriers induced by the language-specific direction of government.

Haegeman and van Riemsdijk (1986) argue that QR alone cannot differentiate between the cases in which the assignment of wide scope is either permitted or forbidden. They therefore propose the USR as a device to assign relative scope. My feeling, however, is that once the directionality
parameter is fully applicable for issues of LF, additional devices like USR may become unnecessary. QR (or the assignment of absolute scope) would then be naturally constrained by bounding theory and certain additional assumptions about argument/non-argument status, Case-assignment, intonation, etc.

There are three points at which our investigation of V(P)R and inversion has yielded stable results: First, it was shown that V(P)R is constrained with respect to LF-movement in the same way as extraposition i.e., both of these superficially rather different constructions interrupt the formation of dynasties, as proposed in Koster (1987). Second, it was shown that V(P)R cannot be an instance of real syntactic movement involving traces; otherwise, a D-structure level of representation with proper dynasty formation would be available and lead to well-formedness in circumstances where the S-structure is clearly unacceptable. A third result is that inversion of the verbal complex is sensitive to aspects of LF. This rules out any account which ascribes inversion to the PF-level or to some stylistic component. That is, neither the T-model nor the L-model of van Riemsdijk and Williams (1981) (which is adopted by Haegeman and van Riemsdijk, 1986) can account for the bounding constraints induced by inversion. My conclusion is that inversion as an operation at PF does not exist. This leaves us with two possibilities: Either inversion applies before scope assignment or the inverted orders are base generated. I tend to believe that the second option is more promising. The details of such an account have to be left for future examination.

3.6 A Comparison with English

In this section I will show that a wide range of English data contrast sharply with the West-Germanic data, which have mainly concerned us here. While the equivalents of only and even are mostly unacceptable inside PPs in German, they are inoffensive in English.

(121) a. John finds even the sonatas by Beethoven boring
   b. John finds the sonatas even by Beethoven boring
   c. John finds the sonatas by even Beethoven boring

(122) a. *weil Hans sogar die Sonaten von Beethoven langweilig findet
   b. ?? weil Hans die Sonaten sogar von Beethoven langweilig findet
   c. *weil Hans die Sonaten von sogar Beethoven langweilig findet

The explanation for these differences is straightforward under our account. Inserting the particle in the governing domain of P leads at the level of LF to a violation of the CGH in German, but not in English. This is because in English P falls in the canonical direction of government by the verb. It is less clear what happens with NP as a bounding node. If the PP in (121b) and in (122b) fails to be governed by N i.e., if PP is adjoined to NP, we would predict the absence of a bounding violation and the weak effect in the German example would have to be accounted for some other way.

One of our major observations was that nur and related particles cannot be adjoined to extraposed complements in German. Under our account we would expect things to be different in English. The following data indicate that adjunction of only to the VP is preferred, although adjunction to CP is nevertheless a possible marked alternative.

(125) a. John only asked me whether the library would be closed (he didn't ask me about other buildings)
   b. John asked me only whether the library would be closed (…)

In (125b), only must be adjoined to the CP, inside which it selects its focus constituent. Since the CP is canonically governed the example is expected to be well-formed, which it is. Turning to complex NPs, however, it can be shown that subadjacency violations are present in both languages.

(126) a. John would report only the fact that Mary misbehaved
   b. *John would report the fact only that Mary misbehaved

(127) a. weil Hans nur die Tatsache daß sich Maria nicht nur gut bemüht berichten würde
   b. *weil Hans die Tatsache nur daß sich Maria nicht gut bemüht berichten würde

We can conclude from this that even the formation of a chain of uniformly oriented governors is not always sufficient to permit LF-raising. The com-
plex-NP-constraint seems to apply independently. But what about the possessive constructions examined in sections 3.2 and 3.3? As we have seen, German disfavors adjoining particles to a genitive NP inside an NP. English does not have a postnominal genitive or possessive and therefore it is impossible to directly compare the two constructions. However, when a PP is used, intrusion of the particle seems to be possible in English. This is shown in the following contrasts.

(128) a. *weil sie die Schuhe sogar der KINDER putzt
    since she the shoes even the children:gen polishes
    (=60b) from section 3.2
b. ?weil sie die Schuhe sogar von den KINDERN putzt
    of

c. She polishes the shoes even of the CHILDREN

We can tentatively say that the genitive NP in (128a) is governed by the N Schulze, and that therefore the NP is not canonically governed. The PP sogar von den Kindern in (128b), on the other hand, is adjoined to the NP die Schuhe. In this case, government ceases to play a role. Therefore, the genitive NP but not the PP is an island. This contrast also shows up when the possibilities for syntactic movement are examined.

(129) a. *Der Kinder/wessen, hat sie die Schuhe gepolstert
    the children/whose has she the shoes polished
b. ?Von den Kindern/von wem, hat sie die Schuhe gepolstert
    of the children/ of who

Since English uses postnominal PPs, the prediction is that the particles should be able to intrude. This prediction is correct, as shown in (130) below.

(130) a. The dean admits only children of RICH people to this university
b. The dean admits children only of RICH people to this university
c. Even children of RICH people sometimes fail their exams
d. Children even of RICH people sometimes fail their exams

Assuming that of-insertion in English results in PPs which are canonically governed, a purely direction based theory of bounding would predict that particles can occur before of-PPs. This prediction turns out to be wrong as shown in (131).

(131) a. Even the destruction of this small village was recorded by Plinius
b. *The destruction even of this small village was recorded by Plinius
c. The destruction of even this small village was recorded by Plinius

A theory in which it is separately stated that NP counts as a bounding node in English could account for (131b), but as shown in (131c) there is a residual problem, which was also found to characterize some German constructions. Namely, once the offending phrase falls into the domain of a canonical governor, the violation is drastically reduced or completely removed. I take this to be indicative of a general problem, which cannot be accounted for even within the most recent developments in bounding theory.

Let us now look at another category, namely APs. In section 3.3, it was shown that whenever the complement of A is not canonically governed, German does not tolerate particles inside APs. In English APs, the (PP-)complements are to the right of A. Given that the orientation of governors is to the right, particles should be allowed in this context. As (132b) and (133b) below indicate, this seems to be true.

(132) a. The composer was only proud of his OPERAS
b. The composer was proud only of his OPERAS
(133) a. Mary was even unaware of the fact that her husband was LEFTHANDED
b. Mary was unaware even of the fact that her husband was LEFTHANDED

Finally, let us turn to extraposition and other instances of rightward movement. As our investigation in section 3.5 has shown, rightward-shifted constituents are subject to severe restrictions in OV-languages like Dutch and German. I have argued that these restrictions can be derived quite simply from the directionality parameter: If right branches at S-structure cannot be related to D-structure left branches, rightward movement leads to positions that are — at most — governed, certainly not canonically governed. The observed island effects can then be explained, as well as the absence of pronominal adverbs in extraposed position and the absence of Heavy-NP-Shift in German and Dutch. For English, the situation is just the reverse: Rightward movement does not result in a destruction of the canon-
tical VO-branching pattern and therefore neither island effects nor problems with Case-assignment or the licensing of clausal complements should occur. The following examples demonstrate that our theory correctly predicts these facts. Take, for example, Heavy-NP-Shift.

(134) a. John invited Mary for dinner
   b. John invited for dinner a dynamic young actress

(135) a. weil Hans Maria zum Abendessen einlud
   b. *weil Hans zum Abendessen einlud eine dynamische junge Schauspielerin

If “rightward movement” does not leave traces i.e., if sentences like (134b) are base-generated, Case must be assigned to the heavy NP in a non-standard way. I assume that (134b) has a structure in which the adjacency requirement for Case assignment is violated, but which conforms to the requirement for canonical government.

(134b')

There is no reason to believe that V loses its power to canonically govern its complement after a PP has been adjoined to it. The only factor that must be taken into consideration, therefore, is the adjacency requirement i.e., it needs to be relaxed. Let us say therefore that adjacency can be violated under the condition that the complement is rhematic. What makes (135b) bad, then, is the fact that the verb’s orientation is ←. Any NP that is not itself in the domain of ← or related to ← via a trace will violate the Case Filter.

Heavy-NP-Shift is also a good example for demonstrating that a particle can travel along with an NP.

(136) a. John called [even MARY] up
   b. John called up [even his oldest friends from COLLEGE]

As should be obvious by now, German does not have an equivalent to the English construction, although extraposition of clauses and PPs is possible in both languages. Our expectation is that English allows for extrapo­sted particle+XP whereas German does not. The following sets of examples show that this expectation is fulfilled.

(137) a. John even asked me yesterday [whether I would lend him my TOOTHBRUSH]
   b. [Even whether I would lend him my TOOTHBRUSH] John asked me yesterday
   c. John asked me yesterday [even whether I would lend him my TOOTHBRUSH]

(138) a. The criminal will only admit to the judge [that he ROBBED the victim] (but not that he has KILLED him)
   b. [Only that he ROBBED the victim] will the criminal admit to the judge (…) 
   c. The criminal will admit to the judge [only that he ROBBED the victim] (…)

In the (a)-sentences the particle adjoins to a VP containing an extrapo­sed clause and this clause can be the focus of the particle. The (b)-sentences, which are admittedly highly marked, show that the particle can form a constituent with the clausal argument. And the (c)-sentences show that extraposition of particle+CP yields grammatical results in English. The reason for this is that extraposition leaves the quantified phrase on a right branch with respect to the governing verb. As we have seen, the situation is drastically different in German. In German, only (137a,b) and (138a,b) have grammatical correlates.
The same effect can be demonstrated for the extraposition of PP from NP. Consider the following English examples and their German correlates.

(139) a. Only women [with red hair] can apply for this job
   b. Women [only with red hair] can apply for this job
   c. Women can apply for this job [only with red hair]

(140) a. John would hire [even someone without a highschool diploma] for this job
   b. John would hire someone for this job [even without a highschool diploma]

(141) a. weil mich Hans gestern sogar gefragt hat [ob ich
   since me Hans yesterday even asked has whether I
   ihm meine zahnborste leihen wiirde]
   him my toothbrush borrow would
   b. [Sogar ob ich ihm meine zahnborste leihen wiirde] hat mich
   Hans gestern gefragt
   c. * weil mich Hans gestern gefragt hat [sogar ob ich ihm meine
   zahnborste leihen wiirde]

(142) a. weil der Kriminelle nur zugeben wird [daß er das
   since the criminal only admit will that he the
   Opfer ausgeraubt hat]
   victim robbed has
   b. [Nur daß er das Opfer ausgeraubt hat] wird der Kriminelle
   zugeben
   c. *weil der Kriminelle zugeben wird [nur daß er das Opfer
   ausgeraubt hat]

(143) a. weil sich auf diese Stelle nur Frauen [mit roten
   since(refl.) for this job only women with red
   Haaren] bewerben konnen.
   hair apply can
   b. *weil sich auf diese Stelle Frauen [nur mit roten Haaren]
   bewerben konnen
   c. *weil sich auf diese Stelle Frauen bewerben konnen [nur mit
   roten Haaren]

The (a)-sentences show NP+PP with the particle preceding the NP and the focus on the PP (or part of it). Only in English, however, can the particle be extraposed with the focussed PP. The examples marked with ? are slightly problematic, but we can assume that this derives from a weak subjacency violation induced by the presence of the NP. What can otherwise be seen is that English tolerates the extraposition of a quantified PP, whereas German does not. The only possible way of shifting the PP out in German is to leave the particle in front of the NP Frauen, as shown in (144) below.

(144) weil sich auf diese Stelle nur Frauen bewerben konnen [mit roten Haaren]

The phrase structure for (144) shows that nur can be adjoined to a constituent containing the extraposed PP.

(145) [IP/VP]

\[
\text{NP} \rightarrow \text{[IP/V]} \\
\text{[IP/V]} \rightarrow \text{[IP/VP]}
\]

In (145) nur is adjoined to an IP containing an unsaturated V. And as long as we assume that the extraposed PP is adjoined to IP, it is guaranteed that the particle can select this PP, or part of it, as its focus.38

This comparison between English and German has shown a remarkable difference with respect to the rightward movement of LF-sensitive elements. The difference can be derived from the independently motivated directionality parameter, which fixes the canonical pattern of phrase structure as right branching in English and left branching in German.
Let me add that the set of constructions constrained by this parameter is not confined to particles such as *only* and *even* and their counterparts in German, but also includes other elements e.g., scope sensitive coordinators such as *either...or, neither...nor*. While the entire *(n)either...(n)or* phrase can be moved to the right in English, this is never possible in German. As the following data show, the first member must remain in a position where it is canonically governed by the verb. While extraposition observes this trivially in English, it fails to do so in German.

\[\text{(146) a. } \text{John will either go out with his dog or with his cat} \]
\[\text{b. } \text{John will go out (tomorrow) either with his dog or with his cat} \]

\[\text{(147) a. weil Hans [entweder mit seinem hund oder mit seiner katz] spazierengehen will} \]
\[\text{cat walking wants} \]
\[\text{b. well Hans [entweder mit seinem hund] spazierengehen will} \]
\[\text{c. [Entweder mit seinem hund oder mit seiner katz] will Hans} \]
\[\text{spazierengehen} \]
\[\text{d. *weil Hans spazierengehen will [entweder mit seinem hund oder mit seiner katz]} \]

Example (147d) is only possible when the bracketed phrase is set off from the rest of the clause by prosodic means. German allows for this occasionally. This phenomenon is sometimes referred to as "Doppelpunkt-Intonation" because the clause, intonationally, appears to follow a colon. I am convinced that this phenomenon is not more than an indirect demonstration of the general picture according to which LF-sensitive items must remain to the left of the governing verb. In any case, the disjunctive PP must have access to the verbal projection in order to yield an LF in which the disjunction has (semantic) scope over the IP.

4. Conclusion

Starting from a criticism of Jacobs' (1983) syntactic account of German scalar (or quantificational) particles, I hope to have shown that most if not all of the problems pointed out by Jacobs can quite naturally be solved within a theory that calls upon principles of tree geometry and the directionality-of-government parameter. Jacobs correctly argued that particles cannot be adjoined to non-verbal projections because they must take semantic scope over the entire proposition. His mono-stratal categorial syntax, however, was not flexible enough to provide solutions for the surface linguistic facts. The most important of these facts is that particles adjoin to almost any major syntactic category with which they can form a single constituent. The present account can be seen as an attempt to provide a semantically plausible analysis, which nevertheless respects the distributional facts of the language.

It was observed that maximal projections that are not headed by V or I(NFL) e.g., NPs and most PPs, are islands for quantificational particles like *nur* ('only') in German. In terms of a level of Logical Form this means that the particle and its focus constituent cannot raise out of the domain in which they are generated. Semantic interpretation, however, requires that these elements obtain scope over the V/I-projection i.e., over IP (or at least VP). It was then shown that under certain conditions these islands could be "opened." This is always the case when another raising element in the S-structure tree crosses the island. I chose to express this crossing in terms of Kayne's (1983) Connectedness Theory. It was next shown that non-verbal categories with a leftward orientation of their governing head fail to be islands for particle/focus-raising in German and Dutch. Under the assumption that languages such as German and Dutch are parametrized for leftwards orientation of the governor, this fact follows naturally. I adopted Koster's (1987) theory of Global Harmony in order to capture this observation about canonical government. Koster argues in his work against a level of LF on the basis of the observation that LF-movement (quantifier-scope assignment) usually does not observe the same bounding constraints as the grammar of visible/audible "movement." It appears, however, that not all scope sensitive elements behave alike with respect to the bounding conditions of the grammar of movement; particles were shown to conform quite closely to the bounding conditions of the grammar of movement.

The final major finding was that in German, Dutch and various related dialects, rightward movement systematically leads to positions that are islands for the raising of the particle and its focus in LF. Such an analysis can, however, only be maintained, if rightward movement is differentiated from leftward movement. It was argued that an optimal differentiation can be achieved by assuming that rightward movement does not leave traces, whereas leftward movement does. Along with Koster, we have argued that
scope is co-determined by D-structure/A-positions. If in cases of rightward movement the D-structure/A-position were to be recovered via a trace, certain scope relations could be assigned and an explanation in terms of interpretive islands would fall apart. There is, moreover, increasing evidence for the absence of traces in operations such as extraposition. It is also becoming less apparent that traces play a role in the rearrangement of the verb-cluster in Germanic. Inverted verb-clusters, however, exhibit all the islandhood properties observed for extraposition. In general, rightward movement should be seen as an operation (probably the parser’s response to certain complexities that are a consequence of the grammar of OV-languages) leading to a violation of the canonical direction of government in German and Dutch. Of course, this is not the case in a language such as English. In English, rightward movement leads to positions that can be assumed to still be in the range of a rightward-looking governor; leftward movement, however, leaves a trace, which enables moved elements to get relocated whenever necessary; as was seen, in English rightward movement such as extraposition and NP/PP-shift simply does not lead to islands for the interpretation of only and even.

Notes

1. This is taken from Jacobs (1983: 40-42).

2. The superscripts in this notation refer to the valency of the \( V \)-category. \( V^1 \) means that \( V \) seeks three arguments, \( V^2 \) that \( V \) seeks two arguments, etc.


4. With the exception of durchschnittlich (‘mediocre’). We will return to this issue below.

5. It should be noted that there is a vast literature on these issues. The only work that links the semantic aspects to modern syntactic theory is, to my knowledge, Rooth (1985).

6. Another reason why this may be wrong is that there are arguments according to which the determiner is the head of the NP (see Fukui 1986).

7. See König (forthcoming), but also his remarks on p. 40.

8. See Hornstein and Weinberg (1981). Due to the word order of German, it would not be possible to simply resort to a process of reanalysis which converts \( V_{[\mathrm{np} P] \mathrm{NP}} \) into \( [\_V + P] \mathrm{NP} \). Obviously, the matter is far more abstract than a local operation like this would suggest.

9. In fact the PP is on a left branch with respect to the verb.

10. Pesetsky discusses some problems that his theory has with QR on pp. 683-687. See, however, the application of Pesetsky’s theory in May (1985). As May points out, intersecting paths are banned in English. One of his examples is the following contrast involving a quantified NP and a WH-item. Notice that the former is moved in LF, while the latter is moved in the syntax:

(i) What did everyone buy for Max?
(ii) *Who bought everything for Max?

The following simplified LFs show that the paths intersect in (ii), but not in (i):

\[ \begin{align*}
\text{(i')} & \quad \text{what, [everyone, e_{1} \ldots e_{2} \ldots]} \\
\text{(ii')} & \quad \text{who, [everything, e_{1} \ldots e_{2} \ldots]} \\
\end{align*} \]

As far as I can see, contrasts of this sort cannot be observed in German. This is reminiscent of the absence of superiority effects in this language.

Notice, however, that due to the “Scope Principle” and to adjunction to operator position, as assumed in May (1985), a LF-moved quantifier (\( n > 1 \)) can choose any relative scope without necessarily inducing violations of the PCC. Take for example Every student admires some professor with wide scope on the object-NP. May’s analysis suggests the following LF:

\[ \begin{align*}
\text{NP} & \quad \text{S2} \\
\text{NP} & \quad \text{S1} \\
\text{NP} & \quad \text{NP}_1 \\
\text{NP} & \quad \text{NP}_2 \\
\text{NP} & \quad \text{VP} \\
\text{some professor} & \quad \text{every student} \\
\text{e}_1 & \quad \text{admires} \\
\text{e}_2 & \\
\end{align*} \]

Considering the branching nodes through which the dependency has to be traced, the paths are: For 2: \( \{VP, S_1, S_2, NP_2\} \) and for 1: \( \{S_1, S_2, NP_2\} \). Thus, this reading is consistent with the PCC.

11. Only and even are chosen in these examples to arrive at pragmatically appropriate meanings. They could, in principle, also be exchanged.

12. This is less obvious in the example given, than in examples where nicht appears as term negation. Semantic interpretation needs an input in which nicht has scope over the projection of the verb.

13. König (forthcoming) suggests that so-called “additive” particles cannot be in the scope of negation for pragmatic reasons. Notice that even in English where not even is allowed, even must take wide scope.

14. Pesetsky’s theory crucially involves a path between INFL and COMP in order to derive the that-trace effect. In cases like that every student admires some professor, the INFL-COMP-path would always intersect with the quantifier-variable-paths in a way which violates the PCC. May has noticed that. He therefore has to stipulate that the INFL-COMP-path is only relevant at S-structure, but not at LF. See May (1985:139).
15. For further refinements, see Lineburger (1987) and related literature.

16. Notice that German has a lexical process of N-incorporation which produces verbs like kuchen-essen (cake eat), bier-trinken (beer drink). NPs cannot be incorporated. This is shown by the fact that N-incorporating verbs can be reclassified as N, as in sein Bier-trinken (his drinking of beer), whereas NP-objects have to stay outside the verb to be reclassified: *sein das Bier Trinken versus sein Trinken [des Biers]. The requirement seems to be that only pure lexical categories can be incorporated; that is, even non-maximal projections are not allowed to participate in the word formation process: *sein Kuchen-vom-Bäcker-essen (his eating of cake from a bakery), *sein Bier-aus-dem-Fass-trinken (his drinking of beer from the barrel). It is not entirely clear to me what the phrase structure of German genitive constructions is, but even if they were such that the genitive NP attaches to N to form an N', N-phrases like Haus [nur seines Vaters] ("house (of) only his father") could never be incorporated by a verb.

17. For instance, Longobardi (1985) or Bennis and Hoekstra (1985); see also Hawkerkort (1986), where some of the literature is critically evaluated and a "Relativized Connectedness Condition" is proposed.

18. A detailed discussion of Swedish transitive adjectives is provided in Platzack (1982). The Swedish data reported here (originally due to Platzack) are taken from chapter 4 of Koster (1987).

19. See Chomsky (1981, 163f). N was taken to be a lexical governor in cases like *They gave me a vase [PRO broken]. In this example, vase would govern the unprotected PRO of the adjunct small clause, violating the PRO-theorem. This is problematic in the light of well-formed examples like They gave me the vase [PRO broken], where it would be difficult to argue that the use of the definite article has an influence on the governor. Let me just mention that Chomsky's example can be accounted for without recourse to government by something like the Rhythm Rule of metrical phonology. See Bayer (1989) for more details.

20. Notice that there may be even a third factor involved which affects postpositional uses. For some unclear reason, postpositions in German do not seem to favor "long" NPs as their complements. Compare, for instance:

   (i) weil entlang des Flusses, der stark verschmutzt war, Kinder spielten
      since along the river which very polluted was children played
   (ii) ?? weil den Fluss, der stark verschmutzt war, entlang Kinder spielten
      Whatever the nature of this constraint may be, it must be kept in mind that it will most likely also apply to particles intervening between NP and postposition. In any case, the (b)-examples in (73) through (75) sound more natural when the focus bears heavy stress and the particle plus postposition attach to the NP in an elicitic fashion.

21. For expository reasons, I would like to give a rough idea of what these concepts refer to: A quantifier Q is increasing if for any quantified noun-phrase VP and a pair of VPs such that the denotation of VP1 is a subset of the denotation of VP2, [QP VP1] entails [QP VP2], while the reverse does not hold. Examples of increasing quantifiers are some, every, most, many, and also NPs such as definite NPs and proper names, which are normally taken to be quantifier-free. A quantifier is decreasing if the same holds as what is stated above, but [QP VP2] entails [QP VP1], while the reverse does not hold. Examples are no, few, neither, etc. The following examples should illustrate what is intended.

   (i) increasing
      a. If many men entered the race early, then many men entered the race
      b. *If many men entered the race, then many men entered the race early

   (ii) decreasing
      a. *If few linguists entered the race early, then few linguists entered the race
      b. If few linguists entered the race, then few linguists entered the race early

22. See also de Jong and Verkuyl (1994).

23. One should be aware that some of the allegedly well-formed conjunctions in Barwise and Cooper (1981:4.10) do not sound quite natural e.g., *No man and few women could lift this piano.

24. See, for example, Hoekstra (1984) where a new condition is proposed, the "Unlike Category Condition," which is intended to rule-out "Mistitled"-clauses in Dutch (and German). The UCC stipulates that no category of type [aV,f3N] may (canonically) govern a category of type [aV,f3N]. Under the assumption that S' is a projection of INFL and therefore of V, it follows that S' cannot remain in inextraposed position. Hoekstra's proposal, however, gives rise to a number of problems. German zu-infinitives i.e., clauses with an INFL are quite acceptable in inextraposed position, and even finite clauses are if they are short enough. Furthermore, if the UCC is intended as a universal, the handling of strict OV-languages like Japanese is unclear.

25. There is a psycholinguistic literature on extrapolation and other instances of rightward movement, which I cannot review here. A useful overview is found in Frazier (1985). Frazier criticizes theories that attempt to explain extrapolation in terms of changing a complex left-branching structure into a less complex right-branching structure. She proposes, instead, a measure of syntactic complexity in which the number of terminal nodes is divided by the number of non-terminal nodes in a phrase structure tree. Unfortunately, this measure predicts that intraposcd clauses should be easier to process than extraposcd ones, a prediction that in German lacks any intuitive appeal.

26. Another problem may be that node counting alone is not enough. Some of the research reported by Frazier use adjunct clauses, which are not subcategorized. It is therefore not surprising that their placement before or after the main clause shows little or no effect on the processing load.

27. See Cardinalielli (forthcoming). Curiously, Cardinalielli observes German data like (108c), but does not conclude that traces may legitimate such constructions. The same applies to Fanselow (1987:chapter 6).
28. We may be forced to assume that governed PPs have Case. This is shown in examples (i) and (ii), where stehen subcategorizes for a PP while rauchen does not.

(i) a. weil er hinter dem Haus geraucht hat
   since he behind the house smoked has
   (adjunct-PP)

b. weil er geraucht hat hinter dem Haus
   (adjunct-PP)

(ii) a. weil er hinter dem Haus gestanden ist
   since he behind the house stood has
   (governed PP)

b. weil er gestanden ist hinter dem Haus

29. Chomsky (1986) has introduced a notion of "8-government," which requires sisterhood between governor and governee. If this concept were to be called upon here, it would certainly need to be relaxed, as we will shortly see.

30. This is also the analysis of Kratzer (1984) and Reuland (1988).

31. There may be languages where I is a clitic and therefore quite independent of the verb. Klavans (1985) gives examples from Ngiyambaa, an Australian language, where the tense feature attaches to the verb, but the person and Case feature attach as clitics in second position to whatever category precedes it.

32. In a GPSG-framework, V would be a slash category which loses the slash as soon as the argument is found. Because GPSG presumably expresses leftward movement with the same device, the distinction that we want to derive is not available.

33. The situation is slightly more complicated because one can, in spoken German, observe sentences in which the pronominal adverb appears to the right of I.

(i) weil Hans gekämpft hat dafür [daß Nicaragua unabhängig bleibt]

In these cases, however, there is a very clear prosodic break between the PP and the extraposed CP, and the PP must not receive stress. This kind of requirement is absent in cases such as (105b). We can thus be quite sure that PP and CP do not form a constituent in rightward movement. On the other hand, the PP would fail to be canonically governed i.e., it would simply be governed. From these considerations it follows that the [PP+CP]-constituent is adjoined at a height where the VP is already "closed," (perhaps to the IP). My main point remains unaffected by these details.

34. See Löttscher (1978), den Besten and Edmondson (1983), and Haegeman and van Riemsdijk (1986). Haegeman and van Riemsdijk speak about Verb Projection Raising (VPR).

35. Of course, this issue is much more complex than it appears to be here, as shown in the work of Kohrt (1979), Edmondson (1980), den Besten and Edmondson (1983), and a number of other researchers.

36. One reason to assume adiunction of a quantifier-NP to VP is that in contexts of VP-deletion such as

(i) Some student admires every professor, but John doesn't Θ
   (ii) Some student admires every professor.

The non-ambiguity of (i) can be explained if the Q-NP every professor is adjoined to the deleted VP. See Sag (1976) and Williams (1977).

37. Notice that traces are otherwise essential for verb movement. If they were not available, it would be difficult to check at the S-structure of V2-sentences whether a given item is in the domain of a displaced verbal governor. Thus, the syntax of verbs presents another example for a difference between leftward and rightward movement.

38. Notice that in English the situation is different. The particle preceding the NP from which a PP (or a relative clause) is extraposed can take material from the extraposed phrase only if it is adjoined to the VP, but not if it is adjoined to the NP. The reason is obvious: If the particle adjoins to the NP, its syntactic domain is the NP and nothing else. This is shown in the following examples:

(i) John will [only] cut wood tomorrow [from BEECHES]!!
   (but not from ELMS)

(ii) John will cut [only] wood [from BEECHES]!! tomorrow (...)

(iii) *John will cut [only] wood tomorrow [from BEECHES]!!

(i) and (ii) are unproblematic because only adjoins to an NP in which it finds the PP from BEECHES as a focus constituent. Example (iii) is ruled out by the fact that the syntactic domain of only fails to include the focus constituent. I take this to be another piece of evidence against the presence of traces in extraposition. If there were a trace after wood in (iii), the sentence would not be so much worse than the "in situ" version given in (ii).

References


Frazier, L. 1985. “Syntactic Complexity.” In: Dowty, Karttunen and Zwicky (eds.)