

## A-bar Syntax

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# A-bar Syntax

## A Study in Movement Types

*by*

Gereon Müller

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## Preface

This monograph investigates several A-bar movement types within Principles and Parameters theory. The movement types that are primarily discussed are these: *wh*-movement at S-structure, scrambling, dative movement, *wh*-movement at LF, and topicalization. These kinds of A-bar movement behave similarly with respect to some properties, but differ substantially with respect to others. Given this state of affairs, the task is to develop a theory of movement that derives both the similarities and the dissimilarities. Under the assumption that there is but one general movement rule (Move- $\alpha$ ), similarities are straightforwardly accounted for; however, dissimilarities are not so readily explained. The approach pursued here is based on the observation that each A-bar movement type is characterized by a specific, invariant landing site: *Wh*-movement at S-structure is Move- $\alpha$  to a SpecC substitution position, scrambling is Move- $\alpha$  to a left-adjoined position, topicalization is Move- $\alpha$  to a SpecT substitution position, and so forth. The basic proposal then is that movement type asymmetries arise as a consequence of a Principle of Unambiguous Binding (PUB) that requires a variable to be bound unambiguously, i.e., from only one type of landing site, and thereby precludes various cases of 'improper movement.'

The book is based on my 1993 University of Tübingen dissertation, and I am grateful to a lot of people for help in various ways.

First and foremost, I would like to thank Wolfgang Sternefeld, in collaboration with whom the main ideas of this book (like the PUB) were developed (see Müller & Sternefeld (1993; 1994; 1994a)). As my teacher (first in Frankfurt/Main, then in Konstanz, and finally in Tübingen), he is primarily responsible for what I know about linguistics in general, and syntax in particular. His contribution is virtually immeasurable; and there cannot be any doubt that this book would not exist without him.

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# Chapter 1

## Introduction

### 1. Movement type asymmetries

The main goal of this book is to present a detailed investigation of a number of movement types, and especially, of certain asymmetries that exist between them. According to classic Generative Grammar (i.e., what has been called the “Standard Theory”), a particular *movement type* is characterized by a specific *movement rule*. For instance, *wh*-movement constructions are derived by a specific rule of *wh*-movement (or “question movement”); constructions involving topicalization are the result of the application of a specific rule of topicalization; the existence of free word order constructions can be traced back to a specific rule of scrambling, and so forth. Under this view, there is no inherent reason why movement types should behave alike with respect to a given property, or why they should differ. Thus, consider the contrast between the sentence pairs in (1) and (2):

- (1) a. (I wonder) *what* you are going to do
- b. \*(I wonder) you are going to do *what*
- (2) a. *John* I like
- b. I like *John*

The data in (1) show that *wh*-movement is obligatory in question clauses in English; on the other hand, the data in (2) suggest that topicalization is in principle optional in English. Accordingly, it was standardly assumed that the rule of *wh*-movement applies obligatorily in English, whereas the rule of topicalization applies optionally.

Similarly, it was already recognized by Ross (1967/1986) that scrambling in languages like German or Latin is limited to the minimal finite clause, cf. the following contrast from German:

- (3) a. daß Antje sagt [ daß *Hygrometer* niemand mag ]  
 that Antje says that hygrometers no-one likes  
 b. \*daß Antje *Hygrometer* sagt [ daß niemand mag ]  
 that Antje hygrometers says that no-one likes

On the rule-oriented approach to movement type asymmetries, the scrambling rule that was designed to account for free word order phenomena in languages like German was conceived of as an optional transformation that may permute constituents *within a single clause only*; in other words, the scrambling rule was simply accompanied by an additional condition that guarantees its clause-boundedness (cf. Ross (1967/1986: 51)). In general, in the Standard Theory rule-specific (or construction-specific) constraints were readily available as soon as different types of movement showed asymmetrical behaviour.

However, given the existence of different movement rules, similarities between different movement types could not be so straightforwardly explained. As a case in point, consider the constraint against extracting a category from a left branch of an NP in a language like German (Ross's (1967/1986: 127) Left Branch Condition, LBC). It turns out that *wh*-movement, topicalization, and scrambling are all restricted by the LBC in German. Thus, it is shown in (4-a) vs. (4-b) that *wh*-movement in German obeys the LBC:

- (4) a. Warum hast du [NP Fritzens Bücher ] gelesen ?  
 why have you Fritz<sub>gen</sub> books<sub>acc</sub> read  
 b. \*Wessen hast du [NP Bücher ] gelesen ?  
 whose<sub>gen</sub> have you books<sub>acc</sub> read

The same goes for topicalization in German, cf.:

- (5) a. Darum habe ich [NP Fritzens Bücher ] gelesen  
 therefore have I Fritz<sub>gen</sub> books<sub>acc</sub> read  
 b. \*Fritzens habe ich [NP Bücher ] gelesen  
 Fritz<sub>gen</sub> have I books<sub>acc</sub> read

Finally, the LBC restricts scrambling in German; although a full object NP can be scrambled in front of a subject in German, the left branch of an object NP cannot be:

- (6) a. daß [NP Fritzens Bücher ] niemand gelesen hat  
 that Fritz<sub>gen</sub> books<sub>acc</sub> no-one read has  
 b. \*daß Fritzens niemand [NP Bücher ] gelesen hat  
 that Fritz<sub>gen</sub> no-one books<sub>acc</sub> read has

Thus, *wh*-movement, topicalization, and scrambling all obey the LBC in German; but if these three movement types are tied to three genuinely different

movement rules, there is no a priori reason why this should be so. In the light of evidence like this, the approach pursued by Ross (1967/1986) was to assume that certain movement rules can be grouped together, and conditions like the LBC (or his island constraints) can be stated for a whole class of movement rules. The movement rules in the case at hand, e.g., all belong to the class of *chopping rules* (as opposed to *copying rules* such as left dislocation); under this view, it suffices to state that chopping rules obey the LBC. Clearly, however, a more explanatorily adequate approach would be to account for the fact that different movement types appear to obey identical constraints to a large extent by assuming that movement types like *wh*-movement, topicalization, scrambling, etc., all result from the application of a *single* movement rule, rather than of different movement rules belonging to one and the same class. This line of research is pursued in Chomsky (1973; 1977) (where it is convincingly argued that different movement types do indeed behave alike with respect to a substantial number of constraints), and has culminated in the radical hypothesis that there is but one movement rule, viz., the rule “Move- $\alpha$ ” (i.e., “Move anything anywhere”). This hypothesis is now generally adopted in the Principles and Parameters approach to syntax (cf. Chomsky (1981; 1982; 1986; 1986a) and Chomsky & Lasnik (1993)); and it is this approach that I will henceforth presuppose and adhere to throughout this book.

However, it seems that as soon as the similarity of movement types is emphasized by assuming them to be instances of one and the same movement rule, the problem arises of how to account for all the dissimilarities they exhibit – since now it is not possible anymore to invoke construction-specific constraints, asymmetrical behaviour of movement types must be explained in some other way. In some cases, an account of asymmetrical behaviour is straightforward. For instance, as far as the difference between *wh*-movement and topicalization with respect to obligatoriness is concerned, it is generally assumed (cf. Lasnik & Saito (1984; 1992), May (1985) and Rizzi (1991), among many others) that a C head marked [+wh] triggers S-structural filling of SpecC by a *wh*-phrase in a language like English, and thereby evokes the impression of obligatoriness in the case of *wh*-movement, whereas no such trigger exists for topicalization, so that this process is truly optional (cf. chapter 6 for further discussion). Under this view, the general rule Move- $\alpha$  is optional in principle, but sometimes it has to apply because certain positions (such as a SpecC position agreeing with a [+wh] C node in a language like English) must be filled at S-structure.

Accounts of other movement type asymmetries under the Move- $\alpha$  approach may be more involved. A relevant case that is discussed in some detail in Chomsky (1981) concerns the different behaviour of NP-movement (as in passive and raising constructions) on the one hand, and movement types such as *wh*-movement on the other. As an illustration of how movement types can

be distinguished in the Principles and Parameters approach to syntax, let me briefly dwell on this issue. As is shown in (7), *wh*-movement may apply long-distance in successive-cyclic fashion in a language like English, leaving a trace in the original extraction site and in the intermediate SpecC position.<sup>1</sup>

(7) What<sub>*i*</sub> do you think [<sub>CP</sub> t'<sub>*i*</sub> that she did t<sub>*i*</sub> ] ?

However, NP-movement may not take place from a finite clause in English. Compare (8-ab) (with clause-bound NP-movement in the passive construction (8-a) and NP-movement from an infinitival clause in the raising construction (8-b)) to (8-c) (with long-distance NP-movement from a finite clause, so-called "super-raising").

- (8) a. John<sub>*i*</sub> was kissed t<sub>*i*</sub>  
 b. John<sub>*i*</sub> seems [<sub>IP</sub> t<sub>*i*</sub> to be intelligent ]  
 c. \*John<sub>*i*</sub> seems [<sub>CP</sub> that it is likely [<sub>IP</sub> t<sub>*i*</sub> to win ]]

Thus, the question arises, Why is NP-movement much more local than other movement types, such as *wh*-movement, in English, given that both movements instantiate applications of one and the same movement rule, viz., Move- $\alpha$ ? The answer standardly given in the Principles and Parameters approach rests on the assumption that whereas the movement rule is the same in (7) and (8), the landing sites of movement are not uniform – the *wh*-phrase *what* in (7) ends up in a SpecC position, but the NP *John* in (8-a) through (8-c) occupies a subject position, viz., SpecI. Now, assuming that the SpecI position is a position where subjects (of transitive and unergative intransitive verbs) are base-generated in active sentences, and that a  $\Theta$ -role can be assigned to SpecI (cf. Chomsky (1981)), the SpecI position qualifies as an A-position (i.e., a position where a  $\Theta$ -role can be assigned), and NP-movement, consequently, is A-movement. No  $\Theta$ -role can ever be assigned to the SpecC position, however. Hence, this position qualifies as an A-bar position, and *wh*-movement is A-bar movement. Thus, the two movement types, although results of the application of one and the same movement rule, differ with respect to their status as A- or A-bar movement.

Of course, this per se does not yet account for the contrast between (7) and (8-c), but it paves the way for an explanation. Given the notion of local binding developed in Chomsky (1981: 184f), all the traces in (7) are locally A-bar bound, whereas the trace in (8-c) is locally A-bound. Crucially, now, traces that are locally A-bar bound count as *variables* and obey principle C of the binding theory, whereas traces that are locally A-bound are considered to be *anaphors* and, as such, obey principle A of the binding theory.<sup>2</sup> Assuming that variables fall under principle C, it follows that traces that are locally A-bar bound must not be A-bound from a higher position. The traces in (7) evidently are not A-bound at all, so that they meet the requirements of

the binding theory. On the other hand, anaphoric traces must be A-bound within their governing categories, according to principle A. The governing categories for the anaphoric traces in (8-ab) are the respective root clauses; hence, principle A is fulfilled here. However, the anaphoric trace  $t_i$  in (8-c) is A-bound from outside its governing category (which is the embedded CP), and therefore violates principle A.

Thus, at first sight it seems as though the observed contrast between *wh*-movement and NP-movement is resolved; but this conclusion would be premature because, as is well known, there is yet another derivation of sentences involving long-distance NP-movement, as in (8-c), that has to be excluded, viz., one where long NP-movement into the matrix SpecI position proceeds successive-cyclically (just like long *wh*-movement) via the embedded SpecC position. This derivation is shown in (9).

(9) \*John<sub>i</sub> seems [CP  $t'_i$  that it is likely [IP  $t_i$  to win ]]

Here, given a contextual classification of traces in terms of the notion of local binding,  $t_i$  cannot be classified as an anaphor anymore, simply because  $t_i$  is not locally A-bound, but rather locally A-bar bound by  $t'_i$  in the embedded SpecI position. Thus,  $t_i$  in (9), unlike  $t_i$  in (8-c), is a variable. (Note that this would not hold true under the intrinsic classification; see note 2.) As such, it obeys principle C, and hence must be A-free, which it is not (being A-bound by its chain antecedent *John* in the matrix SpecI position). Along these lines, all cases of successive-cyclic A-movement via an A-bar position (SpecC) can be ruled out by principle C of the binding theory as instances of *improper movement* (cf. May (1979) and Chomsky (1981: 195ff)).

In conclusion, the observed difference between *wh*-movement and NP-movement with respect to locality is accounted for without invoking construction-specific assumptions – basically, the asymmetry is traced back to the fact that *wh*-movement is A-bar movement, whereas NP-movement is A-movement, and traces of A-bar movement and traces of A-movement obey different principles of binding theory (principle C and principle A, respectively). If A-movement to SpecI is preceded by A-bar movement to SpecC (as in (9)), the initial trace will qualify as a variable, creating a principle C violation, and movement counts as “improper.”<sup>3</sup>

However, there are movement type asymmetries that cannot be explained along these lines. In particular, the improper movement approach developed in Chomsky (1981) fails when we encounter asymmetries between two types of A-bar movement. Recall, e.g., that long-distance scrambling is impossible in German (cf. the data in (3), which are repeated here as (10-ab)).

(10) a. daß Antje sagt [ daß *Hygrometer* niemand t mag ]  
 that Antje says that hygrometers no-one likes

- b. \*daß Antje Hygrometer sagt [ daß niemand t mag ]  
 that Antje hygrometers says that no-one likes

Successive-cyclic long-distance topicalization (cf. (11-a)) and successive-cyclic long-distance *wh*-movement (cf. (11-b)), in contrast, are possible in German.

- (11) a. *Hygrometer* sagt Antje [<sub>CP</sub> würde niemand t mögen ]  
 hygrometers says Antje would no-one like  
 b. *Was* sagt Antje [<sub>CP</sub> daß niemand t mag ] ?  
 what says Antje that no-one likes

Given that topicalization, *wh*-movement, and scrambling are all A-bar movement types, the strict clause-boundedness of scrambling in German cannot be deduced from the binding theory for traces in the same way as the clause-boundedness of NP-movement.<sup>4</sup> The question that arises, then, is this: How can movement type asymmetries be accounted for in cases where invoking binding theory does not seem to help? As a first step towards an answer, let me briefly sort out the components of a general theory of movement in the Principles and Parameters approach.

The theory of movement, under this approach, is essentially *modular*. For present purposes, it may suffice to differentiate between what one might dub three “subtheories” or “modules” of movement, as in (12).

- (12) a. a theory of locality conditions;  
 b. a theory of conditions on the moved item; and  
 c. a theory of improper movement.

The module (12-a) specifies locality conditions on movement. Most importantly, it requires that movement be *local* to a certain extent, in the sense that what at first sight appears to be a long-distance dependency between two positions in a movement chain may actually be composed of several smaller movement steps, due to constraints like the ECP or the Subjacency condition. The module (12-b), on the other hand, guarantees that some kinds of moved items behave differently from other kinds of moved items with respect to certain locality constraints. In particular, it appears that some categories may selectively violate certain locality constraints (with only weak ungrammaticality arising, or even without any decrease in grammaticality), whereas others may not. Most notably, violations of locality constraints in general tend to be somewhat weaker if the moved item is an object, and strict if the moved item is an adjunct. Finally, the theory of improper movement (12-c) says something about (a) the possible landing sites of movement in a given language, and (b) the possible intermediate positions that are used in the course of successive-cyclic movement. Viewed from a representational perspective, this module specifies what counts as a “proper,” i.e., well-formed, movement chain, and

what does not.

Returning now to the problem at hand, viz., how to account for movement type asymmetries, the first thing to note is that this problem can be properly addressed within a modular theory of movement where rule-specific assumptions are not an option only by taking into account the *interaction* of the sub-theories in (12). However, given that the “standard” versions of the Principles and Parameters approach developed in, for example, Chomsky (1986; 1986a) do not yet suffice to explain certain movement type asymmetries as they stand (like the contrast between scrambling and *wh*-movement/topicalization in German mentioned above), it seems that at least one of the three sub-theories of movement in (12) must be revised; a proper revision of one module of movement theory might then ideally allow one to keep the remaining two modules as simple as possible.

One might, for instance, try to develop a more elaborate theory of locality conditions that is sensitive to a distinction between movement types, and thus correctly predicts movement type asymmetries. Such an approach is pursued by Rizzi (1990). Rizzi proposes that a number of locality constraints can be reduced to the theory of “Relativized Minimality,” according to which an intervening item in a position of type X blocks movement only if that movement ends up in a higher position of the same type X. Thus, an intervening A-bar specifier blocks A-bar movement, but not other kinds of movement; an intervening category in an A-position blocks only A-movement; and an intervening X<sup>0</sup>-head blocks only head movement. It does not seem to be a priori implausible to pursue this approach further, and introduce still more fine-grained distinctions among movement types. For instance, one might try to differentiate between certain types of A-bar movement (like *wh*-movement, topicalization, and scrambling) for the purposes of Relativized Minimality (see section 3.3 of chapter 6 for some pertinent remarks).

Alternatively, one might want to modify the theory of conditions on moved items in such a way that movement type asymmetries can be accounted for. Something along these lines is suggested by Cinque (1990: 18 and 164) in the course of discussing an asymmetry between the movement types relativization and *wh*-movement. Thus, it has often been noted (cf., e.g., Rizzi (1982)) that in Italian, relativization may leave a *wh*-island easier than *wh*-movement. Cinque proposes that this asymmetry might be due to the fact that traces of items that have undergone relativization may be exempt from an antecedent-government requirement in cases where traces of *wh*-movement are not; then, given that *wh*-islands block antecedent-government (cf. chapter 2 below), the observed asymmetry between the two movement types follows.

Finally, movement type asymmetries might be accounted for by developing a more articulated theory of improper movement. This strategy is pursued in Müller & Sternefeld (1990; 1993), and it is this strategy that I will extensively

develop and justify in this book. As noted before, the theory of improper movement has to specify (a) possible landing sites of movement, and (b) possible intermediate positions in a movement chain (and this implies possible escape hatches). As concerns the first issue, the basic hypothesis to be pursued in this book is that different movement types often have different landing sites. In what follows, I will be primarily concerned with *wh*-movement at S-structure, scrambling, dative movement, *wh*-movement at LF, topicalization, and NP-movement, in languages like German. I assume that these movement types are to be regarded as strictly *formal* operations, lacking inherent function or meaning; and I will argue that all these movement types have different landing sites, as depicted in (13).<sup>5,6</sup>

(13)	<i>Movement Type</i>	<i>Landing Site</i>
a.	<i>Wh</i> -Movement at S-Structure	is Substitution in SpecC
b.	Scrambling	is Left-Adjunction to XP
c.	Dative Movement	is Substitution in Spec $\mu$
d.	<i>Wh</i> -Movement at LF	is Right-Adjunction to SpecC
e.	Topicalization	is Substitution in SpecT
f.	NP-Movement	is Substitution in SpecI

As an illustration of how different movement types end up in different positions on this approach, let us consider some examples from German, each of which exemplifies one movement type of (13). According to (13), *wh*-movement at S-structure in German is uniformly substitution in SpecC. This corresponds exactly to what is proposed by Chomsky (1986); relevant examples with root and embedded questions are given in (14):

- (14) a. [CP Wen<sub>i</sub> [C' [C hast ] du t<sub>i</sub> gesehen ]] ?  
           whom<sub>acc</sub>          have you seen
- b. (Ich weiß nicht) [CP wen<sub>i</sub> [C' C du t<sub>i</sub> gesehen hast ]]  
       I know not      whom<sub>acc</sub>      you seen have

As concerns scrambling, I follow Fanselow (1990) and Webelhuth (1992), among many others, in assuming that this movement type is to be analysed as left-adjunction to VP or IP in German. (Other languages may have more landing sites, fewer landing sites, or no landing site for scrambling at all.) Typical examples involving scrambling in German are given in (15) (with adjunction to VP in (15-a), and to IP in (15-b)).

- (15) a. daß der Fritz [VP das Buch<sub>i</sub> [VP dem Wolfgang t<sub>i</sub> geklaut  
           that ART Fritz<sub>nom</sub>      the book<sub>acc</sub>      ART Wolfgang<sub>dat</sub> stolen  
           hat ]]  
           has

- b. daß [IP dem Wolfgang<sub>i</sub> [IP der Fritz t<sub>i</sub> das Buch geklaut  
that ART Wolfgang<sub>dat</sub> ART Fritz<sub>nom</sub> the book<sub>acc</sub> stolen  
hat ]]  
has

In (15-a), a direct object is left-adjoined to VP in front of a dative-bearing indirect object; in (15-b), an indirect object is left-adjoined to IP in front of a subject.

However, I also assume (following essentially Larson (1988; 1990)) that an indirect object that bears dative Case in a language like German never occurs in situ, VP-internally – as indicated in (13), it has undergone dative movement (or “dative shift”) out of the VP to the specifier of  $\mu$ , where  $\mu$  is an empty verbal head that projects a *VP-shell* in double object constructions. Under this view, an indirect object can either be realized as a PP in a VP-internal position, as shown in (16-a), or it must undergo dative movement to Spec $\mu$  in order to receive structural dative Case; cf. (16-b).

- (16) a. daß der Fritz [VP Spec $\mu$  [VP [NP einen Brief ] [V' [PP an  
that ART Fritz<sub>nom</sub> a letter<sub>acc</sub> to  
den Vermieter ] geschickt ] ]  $\mu$  ] hat  
the landlord sent has
- b. daß der Fritz [VP [NP dem Vermieter ]<sub>i</sub> [VP [NP einen Brief ]  
that ART Fritz<sub>nom</sub> the landlord<sub>dat</sub> a letter<sub>acc</sub>  
[V' t<sub>i</sub> geschickt ] ]  $\mu$  ] hat  
sent has

A typical example involving *wh*-movement at LF in German is given in (17). (17-a) is an S-structure representation of a multiple question where one *wh*-phrase remains in situ; and (17-b) is the LF of (17-a), where *wh*-movement at LF has occurred.

- (17) a. [CP Wer<sub>i</sub> hat [IP t<sub>i</sub> was<sub>j</sub> behauptet ] ] ?  
who<sub>nom</sub> has what<sub>acc</sub> claimed
- b. [CP [SpecC [SpecC wer<sub>i</sub> ] was<sub>j</sub> ] [IP t<sub>i</sub> t<sub>j</sub> behauptet hat ]]  
who what claimed has

With respect to topicalization, I will deviate from standard practice and not analyse this movement type on a par with *wh*-movement (as, for instance, in Chomsky (1977) and den Besten (1983)), but (following Müller & Sternefeld (1990; 1993)) as substitution in SpecT. T is a functional verbal head that projects a TP which intervenes between CP and IP; T also acts as the landing site for V/2 movement in the Germanic languages under this view. Instances of topicalization in root and embedded clauses in German then typically look as in (18-a) and (18-b), respectively.

- (18) a. [CP C [TP [ Den Fritz ]<sub>i</sub> [T hat<sub>j</sub>] [IP keiner t<sub>i</sub> gesehen t<sub>j</sub> ]]]  
           ART Fritz<sub>acc</sub> has no-one<sub>nom</sub> seen
- b. Sie sagte [CP C [TP [ den Fritz ]<sub>i</sub> [T habe<sub>j</sub>] [IP keiner t<sub>i</sub>  
 she said ART Fritz<sub>acc</sub> has<sub>subj</sub> no-one<sub>nom</sub>  
 gesehen t<sub>j</sub> ]]]  
 seen

Finally, an example for NP-movement to SpecI in German is given in (19). As has often been noted (cf., e.g., Haider (1985) and Grewendorf (1989)), NP-movement is optional in German. Hence, movement to SpecI in passive constructions may or may not occur, as shown in (19-a) vs. (19-b).

- (19) a. daß [IP - [VP dem Peter [ das Buch ] gegeben ] wurde ]  
           that ART Peter<sub>dat</sub> the book<sub>nom</sub> given was
- b. daß [IP [ das Buch ]<sub>i</sub> [VP dem Peter t<sub>i</sub> gegeben ] wurde ]  
           that the book<sub>nom</sub> ART Peter<sub>dat</sub> given was

So far, so good. However, although I would like to contend that a differentiation between movement types in terms of a more articulated system of landing sites, as in (13), is a precondition for deriving movement type asymmetries by the theory of improper movement, this step alone clearly does not yet produce the intended results. It is crucial that something be said about intermediate positions in a movement chain.

As noted before, one such constraint on accessible intermediate positions in a movement chain can be derived from binding theory under the assumption that locally A-bar bound traces obey principle C, and locally A-bound traces obey principle A: Movement from an A-position to an A-bar position, and then to an A-position again (as in successive-cyclic derivations of super-raising constructions, cf. (9)) counts as “improper” because the initial trace in the embedded SpecI position is a variable (being locally A-bar bound by an intermediate trace in the embedded SpecC position), and hence violates principle C, given that it is also A-bound by its chain antecedent in the matrix SpecI position. But recall that this approach says nothing about whether or not a mingling of different types of A-bar movement is possible.<sup>7</sup>

In view of this, a more general approach to improper movement is adopted in Müller & Sternefeld (1990; 1993); a Principle of Unambiguous Binding (PUB) is proposed that bars the mixing up of different types of A-bar movement, and thus ultimately derives many otherwise unexplained movement type asymmetries. This principle can be formulated in a strictly representational way, as in (20).<sup>8</sup>

- (20) *Principle of Unambiguous Binding (PUB):*

A variable that is  $\alpha$ -bound must be  $\beta$ -free in the domain of the head

of its chain.

Suppose that  $\alpha$  and  $\beta$  in (20) refer to different types of positions (as they are listed in (13)); suppose further that “ $\alpha$ -bound” means “bound from a position of type  $\alpha$ ,” whereas “ $\beta$ -free” means “not bound from a position of type  $\beta$ .” The PUB then basically states that a variable (which we may define as a trace that is locally A-bar bound, for the time being – cf. however note 2) must be bound unambiguously in the domain of the head of its chain.<sup>9</sup> Thus, assume that a variable has a chain antecedent in a certain type of position. Then, the PUB states that if there are intermediate traces that intervene between the variable and its chain antecedent, these intermediate traces must occupy the same kind of position as the antecedent, and not some other kind of position. For instance, if *wh*-movement has occurred, so that, by (13), the chain antecedent of a variable occupies a SpecC position, the PUB requires that all intermediate traces of *wh*-movement (if there are any) also occupy a SpecC position, but not, e.g., a scrambling position (i.e., a left-adjoined position, according to (13)), or a topicalization position (a SpecT position, by (13)). Similarly, it follows from the PUB that a variable that has a chain antecedent in a scrambling (i.e., left-adjoined) position must not be simultaneously bound by intermediate traces in other kinds of positions. In particular, a scrambling trace must not be bound by an intermediate trace in a SpecC position; as I will argue in some detail in chapter 3, this precludes successive-cyclic extraction via SpecC in the course of long-distance scrambling in a language like German, and thus ultimately guarantees the clause-boundedness of scrambling in this language (cf. (10-b)).

Furthermore, it is evident that successive-cyclic derivations of super-raising via SpecC can now be excluded by the PUB without invoking the binding theory for traces. Consider again (9), repeated here as (21).

(21) \*John<sub>i</sub> seems [<sub>CP</sub> t'<sub>i</sub> that it is likely [<sub>IP</sub> t<sub>i</sub> to win ]]

Given that t<sub>i</sub> (being locally A-bar bound) qualifies as a variable in (21), it obeys the PUB, and consequently must be bound unambiguously within the domain of the head of its chain. The head of the NP-movement chain in (21) is of course *John*, which occupies the matrix SpecI position. Hence, the PUB requires that t<sub>i</sub> be bound only by items in SpecI positions; this requirement is not met in (21), however, because t'<sub>i</sub> binds t<sub>i</sub> from a SpecC position. Thus, it follows that A-bar movement may never be followed by A-movement.

However, note that the PUB does not rule out the reverse combination of A- and A-bar movement, with A-movement being followed by A-bar movement. Consider the examples (22-ab):

- (22) a. Who<sub>i</sub> [<sub>IP</sub> t'<sub>i</sub> was kissed t<sub>i</sub> ] ?  
 b. Who<sub>i</sub> [<sub>IP</sub> t'<sub>i</sub> seems [<sub>IP</sub> t<sub>i</sub> to be in the garden ] ] ?

In (22-a), NP-movement to SpecI in a passive construction precedes *wh*-movement to SpecC, and the result is apparently well formed. Similarly, in the raising construction (22-b), A-movement to SpecI is followed by A-bar movement to SpecC. In both cases,  $t_i$  is bound ambiguously. However,  $t_i$  does not have a local chain antecedent in an A-bar position, so that it does not qualify as a variable, and hence, cannot violate the PUB. The intermediate trace  $t'_i$ , on the other hand, which does qualify as a variable, is bound unambiguously in both (22-a) and (22-b).

In general, the PUB requires that traces which qualify as variables, and which have a chain antecedent in any of the positions recognized in (13), must not be bound by an intermediate trace in another kind of position. Accordingly, the guiding hypothesis of this book is that movement type asymmetries can be derived on the basis of an articulated theory of improper movement which comprises a fine-grained distinction of landing sites of movement, as in (13), and a principle requiring unambiguous binding of variables, viz., the PUB in (20). Ideally, the interaction of such a theory of improper movement with the theory of locality and the theory of conditions on moved items will then correctly predict movement type asymmetries in a given language.

## 2. Overview

I will proceed as follows. The following chapters 2 through 6 each focus on one specific movement type and highlight asymmetries between this movement type and others. Chapter 2 is a study of *wh*-movement at S-structure. This chapter also serves the purposes of introducing my central assumptions concerning the theory of conditions on moved items, and of developing in some detail a theory of locality that will basically (with some modifications) be maintained in the remainder of the book. Furthermore, some evidence in support of the PUB is presented.

Chapter 3 contains an extensive and cross-linguistic discussion of the properties of scrambling. I contend that scrambling is uniformly, i.e., across languages, to be analysed as an A-bar movement type that left-adjoins an XP to some other maximal projection; exactly what kind of maximal projection is a possible landing site for scrambling in a given language is argued to be subject to parametric variation – in some languages (like German or Korean) VP and IP are adjunction sites, in others (like Russian) VP, IP, NP and CP are possible landing sites for scrambling, and in yet other languages (like English) there is no landing site for scrambling available at all. Furthermore, I show that there are a number of substantial, and a priori unexpected, asymmetries between scrambling and other movement types, like *wh*-movement, in languages like German, Japanese, Korean, and Russian. These asymmetries can be derived by invoking (and hence strongly support) an articulated theory

of improper movement that is centred around (a) a fine-grained distinction of movement types according to their landing sites, as in (13), and (b) the PUB.

In chapter 4, I argue for the existence of yet another IP-internal movement type in languages like German, viz., dative movement. I develop a theory of double object constructions that is based on the hypothesis that the phenomenon of “dative shift” is to be analysed syntactically via Case-driven movement of an indirect object to the specifier of an empty verbal head  $\mu$ . Dative movement, although Case-driven, is shown to belong to the class of A-bar movements. Hence, it does not come as a surprise that the trace left by dative movement is in principle (in some languages) susceptible to PUB effects, i.e., there are cases where it seems as though dative movement may not interact with other types of movement.

Chapter 5 is concerned with the analysis of *wh*-movement at LF. In languages with overt *wh*-movement (like German or English), *wh*-movement at LF normally involves (right-) adjunction to SpecC (SpecC itself being already filled as a result of S-structure *wh*-movement). As is well known, *wh*-movement at LF differs from other movement types (particularly from *wh*-movement at S-structure) with respect to a number of properties. I argue that many of these asymmetries follow from the theories of locality and improper movement. For instance, I contend that *wh*-movement at LF, in contrast to overt *wh*-movement, may not affect *wh*-subjects or *wh*-adjuncts in languages like English because IP (even if it is transparent for S-structure movement) turns into a barrier at LF in *wh*-clauses in these languages. Furthermore, I contend that in languages where IP is not an LF barrier (such as German), *wh*-subjects and *wh*-adjuncts may undergo LF movement to a local SpecC-adjoined position; successive-cyclic LF movement of *wh*-subjects and *wh*-adjuncts to a SpecC-adjoined position, however, still violates the PUB, and thus involves improper movement.

Chapter 6 contains an investigation of topicalization in the Germanic languages. It is argued that topicalization differs substantially from both *wh*-movement and scrambling, and should best be analysed as movement to SpecT. Dissimilarities between topicalization and other movement types (with respect to the nature of the landing site, locality constraints, and licensing) are shown to be straightforwardly accountable for under the theory of improper movement adopted here, in particular by invoking the PUB.

Finally, in chapter 7, a conclusion is drawn.



## Chapter 2

# Wh-movement at S-structure

### 1. Introduction and overview

The main purpose of this chapter is to give an account of the basic locality properties of S-structure *wh*-movement in German. To this end, I develop a theory of barriers that centres on the notion of rigid minimality, and entirely dispenses with such notions as L-marking (cf. Chomsky (1986)) or selection (cf. Cinque (1990)). The basic hypothesis is that every maximal projection is a potential barrier for an item included in it; potential barrierhood of an XP can be voided in three different ways – either via adjunction to XP, or via movement to an escape hatch of XP (as in the case of successive-cyclic movement from clauses), or, finally, via non-distinctness of heads (the core case of which is incorporation, i.e., head movement, cf. Baker (1988)). The theory of barriers to be developed in this chapter will then be the basis for the discussion of other movement types in the following chapters. In particular, I will later take the rigid minimality approach to locality pursued in this chapter as given, and set out to account for apparent asymmetries between movement types with respect to locality conditions without giving up the idea that these locality conditions are never construction-specific. Rather, as was mentioned in chapter 1, I will try to derive movement type asymmetries by an articulated theory of improper movement that is based on (a) the idea that the landing sites of movement types may differ substantially, and (b) the PUB, according to which movement must proceed in a strictly unambiguous manner. Moreover, direct evidence for unambiguous binding will be provided in this chapter – it turns out that Chomsky’s (1986) claim that adjunction voids barrierhood (for which we will see substantial empirical confirmation in chapter 3) appears at first sight to make wrong predictions for the locality properties of S-structure *wh*-movement, because it illegitimately allows invisible adjunction to barriers; however, given the PUB, intermediate adjunction

in the course of *wh*-movement is prohibited as required.

I will proceed as follows. In section 2, I lay out my assumptions concerning the three basic subtheories of a general theory of movement, viz., (a) concerning conditions on the moved item (section 2.1); (b) concerning the theory of improper movement (section 2.2); and (c) concerning the theory of barriers (section 2.3). As regards conditions on the moved item, I adopt (a version of) the approach to the ECP developed by Lasnik & Saito (1984; 1992) and Chomsky (1986), according to which the ECP is an LF filter that rules out representations which include traces that are not properly governed. I assume that proper government is defined disjunctively – traces are properly governed if they are  $\Theta$ -governed *or* antecedent-governed. Furthermore, I postulate that the Subjacency condition and antecedent-government can be radically unified (cf. Cinque (1990) and Lasnik & Saito (1992)) – under this view, a trace is subjacent to its chain antecedent only when it is properly governed by it. In section 2.2, then, I turn to improper movement, and claim that *wh*-movement must not proceed via intermediate adjunction, contrary to what is assumed by Chomsky (1986) and others. In section 2.3, I develop a theory of minimality barriers. I assume that XP is a barrier for every category  $\alpha$  it includes, with two exceptions. First, if  $\alpha$  occupies an escape hatch in XP (where escape hatches are A-bar specifier positions), XP is not a barrier for  $\alpha$ . And second, XP ceases to be a barrier for  $\alpha$  if the head of XP is non-distinct from the next higher head. Following Baker (1988), I assume that non-distinctness is achieved by head movement at S-structure (overt incorporation) or head movement at LF (abstract incorporation) – the latter can already be read off S-structure via co-indexing. Furthermore, I suggest that there is a third way of achieving non-distinctness of heads, viz., “empty identification.” Two heads can undergo empty identification if one of them is radically empty (i.e., both phonologically and semantically empty).

In what follows, then, I show how the theory of minimality barriers developed in section 2.3 can derive many of the locality conditions for *wh*-movement that have been proposed in the literature since Ross (1967/1986). First (section 3), I address the barrierhood of XPs *in situ*, i.e., the barrierhood of XPs that have not themselves undergone movement. I argue that VP is never a barrier for movement; this follows from the hypothesis that V and I always undergo (overt or abstract) incorporation (section 3.1). In section 3.2, I address the barrierhood of IP, and show that both the general transparency of IP for movement, and the phenomenon of complementizer-trace effects, can be derived from the theory of barriers adopted here. In section 3.3, I turn to CP. In particular, I show how the *wh*-island constraint is derived. The issue of *wh*-extraction from NP is addressed in section 3.4. I argue that both structural and lexical restrictions for *wh*-extraction from NP can be accounted for under a rigid minimality approach to locality: The barrierhood of NP can only be

resolved via abstract incorporation in a language like German. Furthermore, it is shown that Left Branch Condition effects and Specified Subject Condition effects with extraction from NP can be derived.

In section 3.5, I turn to constraints on successive-cyclic *wh*-extraction from finite clauses in German. I propose that finite clauses are always dominated by an NP-shell; this derives the fact that long-distance movement of a *wh*-phrase is confined to direct object clauses embedded by bridge predicates. Infinitives, on the other hand, are in general much more transparent for movement than finite clauses in German (section 3.6). In particular, *wh*-extraction from subject infinitives is possible, and *wh*-extraction from object infinitives does not appear to depend on bridge verbs. This generalization is accounted for by the assumption that infinitives are in a way structurally “impoverished” – they are not dominated by NP-shells, and thus always permit successive-cyclic extraction in German.

In section 3.7, I turn to complex noun phrases, and try to derive standard CNPC effects (with complement clauses and relative clauses embedded in NPs) in the course of *wh*-extraction from the system developed so far. Section 3.8. then addresses *wh*-extraction from PP, i.e., P-stranding. I argue that *wh*-extraction from PP depends on abstract P incorporation into V. Turning next to the phenomenon commonly known as “subextraction” or *was-für* split, I argue that this process behaves like extraction from PP in all relevant respects (and not like extraction from NP or DP, as is sometimes assumed). I indicate how the subextraction facts can be derived from the theory of barriers adopted here, under the assumption that *was-für*-phrases are PPs, and not NPs. In section 3.9, the barrierhood of APs is investigated.

After discussing XPs in situ, I address the barrierhood of XPs in derived positions (section 4). It turns out that XPs which have themselves undergone movement, for instance, A-movement (section 4.1), scrambling (section 4.2), topicalization (section 4.3), or *wh*-movement (section 4.4), necessarily turn into barriers for elements that do not occupy an escape hatch in XP. This follows without further stipulation from the rigid minimality approach to barriers adopted here, ultimately because (abstract or overt) incorporation may never take place from adjoined positions and specifier positions. However, the prediction is that *wh*-extraction from a moved XP will still be possible if that XP has an escape hatch that is available for successive-cyclic extraction. It will be shown that this prediction is indeed borne out – *wh*-extraction from an infinitive in German is still possible after scrambling of the infinitive.

Finally, in section 5, I address the barrierhood of adjuncts. The head of an adjunct may never undergo incorporation because of the ECP. Therefore, adjuncts are invariably barriers. Furthermore, I will propose that finite adjunct clauses do not only exhibit an NP-shell (like finite argument clauses), but, in addition, also a PP-shell (section 5.1). This explains the strong ungrammati-

cality of examples involving *wh*-extraction from finite adjunct clauses, even if an argument has undergone movement. In contrast to that, *wh*-extraction of an argument from an infinitival adjunct clause is typically somewhat better; *wh*-extraction of an adjunct from an adjunct infinitive, on the other hand, is still impossible. It turns out that the relative transparency of (certain kinds of) infinitival adjunct clauses can be derived under the hypothesis that adjunct infinitives, like argument infinitives, lack an NP-shell, but (like finite adjunct clauses, and unlike argument infinitives) are still dominated by a PP-shell (section 5.2).

## 2. Proper government and subjacency

As noted in chapter 1, a general theory of movement in the Principles and Parameters approach consists of at least three different subtheories, as in (1).

- (1) a. a theory of locality conditions;
- b. a theory of conditions on the moved item; and
- c. a theory of improper movement.

In what follows, I will first briefly outline my basic assumptions concerning (1-b) and (1-c) (in section 2.1 and section 2.2, respectively); then, I develop a theory of locality (in section 2.3).

### 2.1. Conditions on the moved item

As far as (1-b) is concerned, the theory of movement has to guarantee that certain kinds of moved items behave differently from other kinds of moved items with respect to locality constraints. For example, *wh*-movement of an argument across a non-finite *wh*-island in English has an intermediate status, whereas *wh*-movement of an adjunct in the same configuration gives rise to severe ungrammaticality, as shown in (2) (cf. Chomsky (1986), among many others).

- (2) a. ??What<sub>i</sub> don't you know [<sub>CP</sub> how<sub>j</sub> PRO to fix t<sub>i</sub> t<sub>j</sub> ] ?
- b. \*How<sub>j</sub> don't you know [<sub>CP</sub> what<sub>i</sub> PRO to fix t<sub>i</sub> t<sub>j</sub> ] ?

Standardly, it is assumed that the embedded CP is a barrier for extraction in (2-ab) (due to filling of SpecC by a *wh*-phrase). A crossing of this CP barrier induces an ECP effect in the case of adjunct movement (as in (2-b)), and a Subjacency effect in the case of argument movement (as in (2-a)). Furthermore, it is generally postulated that Subjacency effects are weaker and more variable than ECP effects. More precisely, the contrast between (2-a) and (2-b) can be explained as follows. Suppose that the ECP is formulated

as a *disjunctive* condition, as in (3) (cf. Chomsky (1981; 1986) and Lasnik & Saito (1984; 1992)).

(3) *Empty Category Principle (ECP):*

Traces must be properly governed. A trace is properly governed iff it is

- a.  $\Theta$ -governed; or
- b. antecedent-governed.

The object trace  $t_i$ , then, is properly governed in both (2-a) and (2-b), because it is  $\Theta$ -governed by V.<sup>1</sup> (For the time being, let us follow Chomsky (1986) in assuming that  $\Theta$ -government does not involve the notion “government” at all, but rather is defined as assignment of a  $\Theta$ -role under sisterhood.) The adjunct trace  $t_j$ , however, is not  $\Theta$ -governed in (2-ab). Hence, it must be antecedent-governed in order to fulfill (3). Antecedent-government of  $t_j$  takes place in (2-a), but not in (2-b), because in the latter case a CP barrier intervenes which precludes antecedent-government, given the definition of government in (4).

(4) *Government:*

$\alpha$  governs  $\beta$  iff

- a.  $\alpha$  c-commands  $\beta$ ; and
- b. there is no barrier  $\gamma$  for  $\beta$  which excludes  $\alpha$ .

We say that  $\alpha$  *lexically governs*  $\beta$  iff  $\alpha$  governs  $\beta$ , and  $\alpha$  is an  $X^0$ -category; on the other hand,  $\alpha$  *antecedent-governs*  $\beta$  if  $\alpha$  governs  $\beta$ , and  $\alpha$  and  $\beta$  are co-indexed (more precisely, if  $\alpha$  is a chain-antecedent of  $\beta$ ). Given these assumptions, the ungrammaticality of (2-b) follows from the ECP – the adjunct trace is neither  $\Theta$ -governed, nor antecedent-governed.

Why, then, is (2-a) not perfect, but rather has an intermediate status? The answer commonly given is that (2-a) violates the Subjacency condition, which we may state as in (5) for the time being (but cf. section 3.2.1 below).

(5) *Subjacency Condition:*

A trace must be subjacent to its immediate chain predecessor at S-structure. A trace  $\beta$  is subjacent to its immediate chain predecessor  $\alpha$  iff

- a.  $\alpha$  c-commands  $\beta$ ; and
- b. there is no barrier  $\gamma$  for  $\beta$  which excludes  $\alpha$ .

According to (5), a trace is subjacent to its antecedent if and only if it is governed by its antecedent. Evidently, if CP is a barrier in (2-ab), the argument trace  $t_i$  in (2-a) is not subjacent to its chain antecedent *what*. Under this view, the difference between (2-a) and (2-b) is solely due to the fact that

a violation of condition (5) gives rise to less severe ill-formedness than a violation of condition (3).<sup>2</sup> Note furthermore that I will assume throughout this book that the Subjacency condition applies at S-structure, but not at LF (see chapter 5 for some discussion of this issue).

Consider now the following pair of sentences.

- (6) a. ??[ To whom ]<sub>i</sub> did you regret [<sub>CP</sub> t'<sub>i</sub> that you could not speak t<sub>i</sub> ] ?  
 b. \*How<sub>i</sub> did you regret [<sub>CP</sub> t'<sub>i</sub> that you behaved t<sub>i</sub> ] ?

In (6-a), long-distance extraction of a  $\Theta$ -governed argument has occurred from a clause which is embedded by a non-bridge verb (*regret*); the result has an intermediate status, which we may want to attribute to a weak Subjacency effect. On the other hand, adjunct movement from finite clauses embedded by non-bridge verbs is strongly ungrammatical, as shown in (6-b). The problem now is that the initial traces (t<sub>i</sub>) in both (6-a) and (6-b) are properly governed. The object trace t<sub>i</sub> in (6-a) is  $\Theta$ -governed; the adjunct trace t<sub>i</sub> in (6-b) is antecedent-governed by the intermediate trace t'<sub>i</sub> at LF (after complementizer deletion – see below), and hence properly governed. Thus, the distinction between  $\Theta$ -governed and non- $\Theta$ -governed traces does not yet suffice to fully account for the differences between argument and adjunct movement. In order to solve problems like this, Lasnik & Saito (1984; 1992) have developed (several varieties of) an articulated theory of proper government. I will assume the following version of the mechanism developed by Lasnik & Saito.

First, the ECP is conceived of as an LF filter which rules out certain LF representations containing traces, as in (7).

- (7) ECP:  
 \* ... t<sub>[- $\gamma$ ]</sub> ...

According to (7), traces which are marked [- $\gamma$ ] violate the ECP at LF. A trace is marked [+ $\gamma$ ] if it is properly governed ( $\Theta$ -governed or antecedent-governed), and marked [- $\gamma$ ] otherwise.  $\gamma$ -marking can only apply at a level of representation, not during the derivation. In other words,  $\gamma$ -marking applies either at S-structure, or at LF. A trace which is already  $\gamma$ -marked at one level cannot be  $\gamma$ -marked again at another level. The crucial difference between  $\gamma$ -marking of adjunct traces and  $\gamma$ -marking of argument traces, according to Lasnik & Saito (1984), is that  $\gamma$ -marking of adjunct traces occurs only at LF (irrespective of whether the adjunct trace is the result of S-structure movement or LF movement), whereas  $\gamma$ -marking of argument traces obligatorily occurs at the very level at which they come into existence – i.e., argument traces of S-structural movement are  $\gamma$ -marked at S-structure, and argument traces of LF movement are  $\gamma$ -marked at LF. This asymmetry has two main consequences.

First, it now follows that if a trace in a certain configuration cannot be antecedent-governed at S-structure, but can be antecedent-governed at LF, an adjunct trace should be licensed in this configuration, but an argument trace which is not  $\Theta$ -governed should not. Lasnik & Saito argue that just this asymmetry arises in complementizer-trace constructions. Compare (8-a) and (8-b) (adapted from Lasnik & Saito (1984: 255)).

- (8) a. \*Who<sub>i</sub> do you think [<sub>CP</sub> t'<sub>i</sub> that [<sub>IP</sub> t<sub>i</sub> left early ] ] ?  
 b. Why<sub>i</sub> do you think [<sub>CP</sub> t'<sub>i</sub> that [<sub>IP</sub> she left early t<sub>i</sub> ] ] ?

Suppose that the initial subject trace in SpecI in (8-a) is not antecedent-governed by t'<sub>i</sub> in the presence of a complementizer (see below). Since subject traces are also not  $\Theta$ -governed, t<sub>i</sub> in (8-a) receives the feature [- $\gamma$ ] at S-structure. Given that  $\gamma$ -marking may never apply to a  $\gamma$ -marked trace, (8-a) violates the ECP (7) at LF. Similarly, the initial adjunct trace t<sub>i</sub> in (8-b) is not properly governed at S-structure. But adjunct traces, by assumption, are  $\gamma$ -marked only at LF. On the way to LF, however, the complementizer *that*, being semantically empty, is deleted, so that antecedent-government of t<sub>i</sub> by the intermediate trace t'<sub>i</sub> can apply. Hence, t<sub>i</sub> in (8-b) receives the feature [+ $\gamma$ ] at LF, and the ECP is respected in this case. (On the lack of Subjacency effects in examples like (8-b), see below.) Thus, as concerns initial traces, the postulated argument/adjunct asymmetry with respect to the level where  $\gamma$ -marking takes place actually has the effect of providing an extra loophole for adjunct traces (of overt movement), but not for argument traces. The case is different with intermediate traces, though. This leads us to the second main consequence of the  $\gamma$ -marking approach to the ECP, and back to the examples in (6).

Lasnik & Saito (1984; 1992) assume that traces can freely be deleted if this does not contradict the demands of some other condition or principle. Deletion, like movement (and unlike  $\gamma$ -marking), is a derivational process that applies *between* levels, for instance, between D-structure and S-structure, i.e., on the way to S-structure; or between S-structure and LF, i.e., on the way to LF. Of course, initial traces of arguments or adjuncts may never be deleted – because of the  $\Theta$ -criterion and the Projection Principle in the case of arguments, and for reasons of semantic interpretation in the case of adjuncts. Intermediate traces of overt movement, in contrast, can in principle be deleted on the way to LF. With this assumption in mind, reconsider the examples in (6-ab), repeated here as (9-ab).

- (9) a. ??[ To whom ]<sub>i</sub> did you regret [<sub>CP</sub> t'<sub>i</sub> that you could not speak t<sub>i</sub> ] ?  
 b. \*How<sub>i</sub> did you regret [<sub>CP</sub> t'<sub>i</sub> that you behaved t<sub>i</sub> ] ?

The initial traces t<sub>i</sub> in (9-ab) are properly governed, as we have seen. But now suppose that complements of non-bridge predicates are barriers (this

will be derived below). Then, the intermediate traces  $t'_i$  in (9-ab) are not properly governed – they are neither  $\Theta$ -governed nor antecedent-governed. This already implies that both (9-a) and (9-b) involve a Subjacency violation at S-structure, given the definition in (5), which assimilates Subjacency to antecedent-government. Under the assumption that complements of non-bridge verbs are barriers at S-structure and at LF,  $t'_i$  in (9-ab) is not properly governed at any level. The intermediate trace in (9-a), being the trace of an argument, thus receives the feature  $[-\gamma]$  at S-structure. If this trace is still present at LF, an ECP violation is predicted for (9-a), contrary to fact. But, so Lasnik & Saito argue, this intermediate trace need not be present in (9-a); it may freely be deleted on the way to LF after having received the feature  $[-\gamma]$  at S-structure. Then, the LF representation of (9-a) does not contain a trace marked  $[-\gamma]$  anymore, and the ECP is respected. The case is different with adjunct movement in (9-b). Since  $\gamma$ -marking of adjunct traces takes place only at LF, and since  $t_i$  in (9-b) can be marked  $[-\gamma]$  only via antecedent-government by  $t'_i$  in the embedded SpecC position, the intermediate trace  $t'_i$  must be present at LF. But then it is not deletable, and, not being properly governed, violates the ECP at LF.

Trace deletion also accounts for the fact that subject movement behaves like object movement, and not like adjunct movement, as soon as the initial trace of a subject is antecedent-governed. Thus, recall from (8-a) that an initial subject trace which is not antecedent-governed at S-structure invariably induces an ECP violation – a complementizer-trace effect, in this case. As is well known (cf. Lasnik & Saito (1984: 256; 1992: 68)), complementizer-trace effects do not show up with subject movement if the complementizer does not immediately precede the initial trace, but rather occurs higher up in the tree, as in (10).

(10) Who<sub>i</sub> do you believe [<sub>CP</sub> t''<sub>i</sub> that Mary said [<sub>CP</sub> t'<sub>i</sub> C [<sub>IP</sub> t<sub>i</sub> left early ]]] ?

Here, in the absence of a complementizer,  $t_i$  can be antecedent-governed at S-structure by the local intermediate trace  $t'_i$  in the embedded SpecC position. This latter trace  $t'_i$  cannot be governed by its chain antecedent  $t''_i$ , because a complementizer intervenes that blocks antecedent-government (by assumption). Hence,  $t'_i$  receives the feature  $[-\gamma]$  at S-structure. However, this trace can be deleted on the way to LF. Thus, if we can ensure that an intervening complementizer blocks proper government via antecedent-government, but does not induce a Subjacency effect, (10) is correctly predicted to be well formed, whereas (8-a) is predicted to be ill formed.

Consider also the contrast in (11) (from Lasnik & Saito (1992: 63)):

(11) a. ?\*Who<sub>i</sub> do you wonder [<sub>CP</sub> whether John said [<sub>CP</sub> t'<sub>i</sub> [<sub>IP</sub> t<sub>i</sub> solved the problem ]]] ?

- b. \*How<sub>i</sub> do you wonder [<sub>CP</sub> whether John said [<sub>CP</sub> t'<sub>i</sub> [<sub>IP</sub> Mary solved the problem t<sub>i</sub> ]]] ?

In (11-a), a *wh*-subject has undergone long-distance movement, first in successive-cyclic fashion to the embedded SpecC position, and then in one swoop across a *wh*-island formed by *whether*. Here, t<sub>i</sub> is antecedent-governed by t'<sub>i</sub>. Given that *wh*-islands are barriers for antecedent-government, t'<sub>i</sub> receives the feature [- $\gamma$ ] at S-structure; however, this trace can be deleted on the way to LF, so that only a Subjacency violation occurs in (11-a). On the other hand, a similar construction involving adjunct movement, as in (11-b), is strongly ungrammatical. Since, by assumption,  $\gamma$ -marking of adjuncts takes place only at LF, t'<sub>i</sub> must be present at LF in (11-b) – otherwise, t<sub>i</sub> will not be properly governed. But if t'<sub>i</sub> is present at LF in (11-b), it receives the feature [- $\gamma$ ] (because of the *wh*-island barrier), and the sentence does not only violate Subjacency at S-structure, but also the ECP at LF.<sup>3</sup>

Summarizing so far, according to the approach developed by Lasnik & Saito (1984; 1992), asymmetries between different types of moved items with respect to locality constraints are recognized as argument/adjunct asymmetries on the one hand, and subject/non-subject asymmetries on the other. Under this view, argument/adjunct asymmetries arise because intermediate traces of arguments are in principle deletable on the way to LF, unlike intermediate traces of adjuncts. Subject traces behave differently from object traces because they are not  $\Theta$ -governed, and differently from adjunct traces because (a) intermediate traces of subjects can be deleted on the way to LF; and (b) subject traces are always  $\gamma$ -marked at the same level at which they have come into existence (i.e., S-structure, in the case of S-structural movement; and LF, in the case of LF movement). In what follows, I will basically adopt this approach to conditions on moved items; some modifications will be proposed in chapter 3 and chapter 5, though.<sup>4</sup>

## 2.2. Improper movement

In chapter 1, I have introduced the Principle of Unambiguous Binding (PUB), as the core of a theory of improper movement. This principle is repeated here in (12).

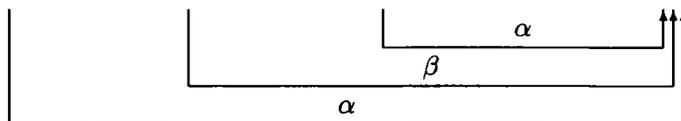
- (12) *Principle of Unambiguous Binding* (PUB):

A variable that is  $\alpha$ -bound must be  $\beta$ -free in the domain of the head of its chain.

Given that *wh*-movement at S-structure is uniformly to be identified with movement to SpecC (cf. Chomsky (1986)), the PUB requires that traces of overt *wh*-movement, i.e., variables which are bound from a SpecC position, must not be bound from any other type of position. In particular, the PUB

in (12) rules out *wh*-movement via intermediate adjunction to XP, as it has been proposed by Chomsky (1986), Baker (1988), Johnson (1988), Sportiche (1988), and Frampton (1990), among others. As a case in point, consider again an example involving successive-cyclic long-distance movement of an adjunct, as in (8-b), which is repeated here, with the relevant derivation, as (13).

(13) Why<sub>i</sub> do you [<sub>VP</sub> t'<sub>i</sub> [<sub>VP</sub> think [<sub>CP</sub> t'<sub>i</sub> that [<sub>IP</sub> she left early t<sub>i</sub> ]]]] ?



We have seen that (13) does not exhibit a complementizer-trace effect, which follows under the assumptions (a) that semantically empty complementizers like *that* can be deleted on the way to LF, and (b) that adjunct traces are  $\gamma$ -marked only at LF. However, given Chomsky's (1986) theory of barriers, a problem arises nonetheless in cases of long-distance movement of adjuncts. The reason is that VP qualifies as a minimality barrier in the framework of Chomsky (1986). The only way for the adjunct to circumvent the minimality barrier VP in a sentence like (13) then is to adjoin to it, as indicated. However, such a derivation clearly violates the requirement that variables be bound unambiguously; as shown in (13), the variable  $t_i$  is bound from two different types of positions at the same time – viz., on the one hand, by its chain antecedent *why* and the intermediate trace in the embedded clause ( $t'_i$ ), which both occupy SpecC positions; and, on the other hand, by the intermediate trace  $t'_i$  in the VP-adjoined position of the matrix clause, which occupies a scrambling position.

Thus, the PUB prohibits intermediate adjunction in the case of *wh*-movement. Therefore, it must be guaranteed that the theory of barriers and proper government does not exclude examples like (13) if intermediate adjunction of the *wh*-phrase to VP is not possible. In other words: We have to ensure that VP is not a barrier. We will see in section 3.1 that this result can be obtained straightforwardly.

Furthermore, there is evidence that allowing invisible intermediate adjunction to VP in the course of *wh*-movement has unwanted consequences even in the framework developed by Chomsky (1986). However, since most of the relevant counter-evidence against intermediate VP-adjunction depends on the formulation of Subjacency as a two-node condition (whereas I have assumed Subjacency to be a one-node condition, basically akin to proper government), I will not discuss the pertinent constructions in any detail here; cf. Müller (1989: 123ff), Cinque (1990: 40ff), Sternefeld (1991: 110ff), or Müller & Sternefeld (1992: sec. 2.2), among others. In this context, it may suffice to point out that

the availability of intermediate adjunction to VP makes wrong predictions for *wh*-movement from non-finite adjuncts in English (cf. Johnson (1988: 585ff)), and for long-distance *wh*-movement across two *wh*-islands in a language like Italian (cf. Rizzi (1982: 51)) – in both cases, intermediate *wh*-adjunction to VP nullifies a Subjacency violation (in a framework where Subjacency is a two-node condition), and ungrammatical examples are wrongly predicted to be well formed.

The question then arises, Is there any positive evidence that the PUB constrains *wh*-movement at S-structure, given an approach to Subjacency where crossing of one barrier already suffices to induce a Subjacency violation? We will see later that there is indeed direct evidence to this effect. For the time being, let us just assume the Unambiguous Binding requirement (12), and, accordingly, construct a theory of barriers which allows us to cover the basic locality properties of *wh*-movement without recourse to invisible intermediate adjunction.

### 2.3. Barriers

Two kinds of barriers have been proposed in the literature. On the one hand, there is the idea that XPs which are not “governed” (in a broader, non-formal sense) are barriers for government from outside. This idea can be traced back to the work of Cattell (1976) and Kayne (1984), and has been incorporated into the concept of “L-marking” by Chomsky (1986). Simplifying somewhat, Chomsky proposes that XPs which are not L-marked are barriers to government (where L-marking is defined as direct  $\Theta$ -marking by a lexical category). This concept of barrier has since been adopted in the main bulk of literature on the topic (cf., for instance, Uriagereka (1987), Johnson (1988), Sportiche (1988; 1989), Cinque (1990), Rizzi (1990), Chomsky & Lasnik (1993), and Manzini (1992), among many others), with some modifications. Most notably, Cinque (1990: 40ff) proposes that the notion “L-marking” is to be replaced by the more liberal notion of (direct or indirect) “selection,” which, for instance, implies that XPs which are selected, but do not receive a  $\Theta$ -role (like IP or VP), never qualify as barriers.

On the other hand, it has been suggested that a head inherently erects a barrier for elements that it “governs” (again, “government” is to be understood in a looser, non-formal sense). Thus, Chomsky (1986: 42ff) assumes that an  $X^0$ -category Z protects its phrase-structural complement YP from government from outside, in a structure like (14) (linear order being irrelevant here and in what follows, in abstract representations).

$$(14) \quad [_{ZP} \text{SpecZ} [_{Z'} Z \text{ YP} ]]$$

Here, we can say that Z' is a minimality barrier for YP. Elaborating on this

idea, Baker (1988) develops a theory of minimality barriers according to which an  $X^0$ -category  $Z$  does not necessarily erect its minimal projection as a barrier for its complement (i.e.,  $Z'$ , if Spec $Z$  exists, and  $ZP$ , if Spec $Z$  is absent), as in Chomsky's framework – rather, a head  $Z$  erects its maximal projection  $ZP$  as a barrier for certain items within  $ZP$  (more precisely, for items which are either selected by  $Z$ , or included in a  $WP$  that is selected by  $Z$ ).

Of course, the two approaches to barriers are not mutually incompatible. Indeed, Chomsky (1986) and Baker (1988) assume that both concepts of barrier (i.e., “barrier via lack of L-marking/selection” and “minimality barrier”) are valid at the same time. Similarly, it has proven possible to develop a coherent, unified notion of barrier which incorporates both the insight that non-selected categories are (potential) barriers, and the idea that a head erects a minimality barrier for a certain domain within its maximal projection; cf. in particular the definition of barrier in Sportiche (1988: 7; 1989: 44). Nevertheless, from a conceptual point of view, the two approaches are clearly distinct. The notion of “barrier via non-selection” is inherently “external,” whereas the notion of “minimality barrier” is inherently “internal.” Thus, consider (15).

(15) ...  $X$  ... [ $_{ZP}$  Spec $Z$  [ $_{Z'}$   $Z$   $YP$  ]] ...

Whether  $ZP$  is a barrier by lack of selection or not solely depends on external factors, such as the (structural or lexical) relationship of  $X$  and  $ZP$  (where  $X$  is the “closest” head), and has nothing to do with the internal structure of  $ZP$ . On the other hand, given a pure concept of minimality barriers, whether  $ZP$  is a minimality barrier for a certain  $ZP$ -internal item or not solely depends on the internal structure of  $ZP$ , and has nothing to do with external factors like the relationship between  $X$  and  $ZP$ .

Hence, from a conceptual point of view, it might be rewarding to try to dispense with one of the two concepts of barrier altogether. Indeed, in much recent literature, it is assumed that minimality barriers do not play a role in the theory of proper government and Subadjacency, and the concept of (non-) selection is adopted as the “exclusive” notion in the theory of barriers. In contrast to that, I will pursue the alternative approach in this book, and develop a theory of barriers that entirely dispenses with notions like “L-marking” or “selection.” Before I do that, however, two remarks are in order.

First, the rigid minimality theory of barriers to be outlined in what follows is necessarily sketchy and incomplete, and undoubtedly it contains several oversimplifications. Mainly for reasons of space and coherence, I cannot provide discussion of alternative approaches, extensively justify the concepts involved, or address possible problems and counter-evidence in much detail. For all that, the reader is referred to Müller (1989: 140ff; 1991: 169ff), Sternefeld (1990: 241ff; 1991: 174ff), and Müller & Sternefeld (1990: 8ff; 1994; 1995),

where the theory of minimality barriers adopted here is developed (on the basis of the approach taken in Baker (1988)).

Second, it should be kept in mind that, for most of what will be said about distinguishing movement types in the following chapters, it is actually not crucial that the rigid minimality approach to barriers developed here is adopted. The basic claim of this book, viz., that different types of A-bar movement may not interact, is largely independent of the specific theory of locality adopted. It just happens to be the case that the theory of minimality barriers developed in the literature cited in the last paragraph seems to fit some of the empirical evidence concerning the non-uniform behaviour of different A-bar movement types particularly well, and might be superior in the few cases where the different theories of locality (minimality vs. non-selection) actually make different predictions.<sup>5</sup>

That said, let me now start by introducing a fairly naive notion of (minimality) barrier, as in (16).

- (16) *Barrier* (first approximation):  
 For every  $\alpha$  included in XP, XP is a barrier iff  
 $\alpha$  does not occupy an escape hatch in XP.

The definition in (16) mainly states that every head X erects its maximal projection XP as a barrier for elements included in XP – this more or less corresponds to the basic insight that *all* maximal projections can be barriers for movement (cf. in particular Koster (1978; 1987)). Now, the question that immediately arises is, How can the barrierhood of an XP be resolved at all? According to (16), two possibilities arise. First, adjunction to an XP barrier will void barrierhood, because a category adjoined to XP is not included in XP (cf. Chomsky’s (1986) definition of inclusion). We can in general disregard this option in the case of *wh*-movement, because *wh*-movement may not proceed via an intermediate adjunction position due to the PUB (cf. the previous section). Second, the definition in (16) recognizes one exception as concerns the barrierhood of an XP for an item it includes – if some category occupies an escape hatch in XP, XP ceases to be a barrier. How, then, are escape hatches defined? Suppose that (17) holds.

- (17) *Escape Hatch*:  
 $\gamma$  is an escape hatch in XP iff  $\gamma$  is an A-bar specifier of XP.

This implies that *wh*-movement from XP is possible (more precisely, that XP is not a barrier that induces a Subjacency violation or an ECP effect in the course of *wh*-movement) if XP has an A-bar specifier, and *wh*-movement proceeds via this position.

Thus far, I have assumed a strictly “internal” notion of minimality barrier. As should be obvious, such a notion cannot yet be adequate, because it is by

far too restrictive (VP and IP, for instance, do not have A-bar specifiers, but do not in general block movement), and is unable to distinguish between XPs in, say, adjoined positions (which in general are barriers, see below) and XPs in complement positions (which often are not barriers). It is exactly these facts that the L-marking/selection approach to barriers covers. Thus, the notion of minimality barrier must be extended. A natural extension looks as in (16'), where clause (b) has been added to the definition in (16). (This clause is based on Baker (1988).)

(16') *Barrier* (final version):

For every  $\alpha$  included in XP, XP is a barrier iff (a) and (b) hold.

- a.  $\alpha$  does not occupy an escape hatch in XP.
- b. X is distinct from Y, where Y is the head of YP, and YP is the minimal maximal projection which does not exclude XP.

According to (16'-b), a maximal projection XP can be a barrier only if its head is distinct from the next higher head. The "next higher head" simply means the head of the next maximal projection above XP, i.e., the next projection of which at least one segment dominates XP. Thus, in (16''), in order to determine whether XP is a barrier (for an item that does not occupy an escape hatch in XP), we must find out whether X and Y are distinct.

- (16'') a. [YP [Y' [XP ... X ... ] Y ] ]  
 b. [YP [XP ... X ... ] [Y' ... Y ] ]  
 c. [YP [XP ... X ... ] [YP ... Y ... ] ]

(16''-ab) represent the normal cases – in (16''-a), XP is the complement of Y, and in (16''-b), XP is the specifier of Y. Both times, YP includes (hence, does not exclude) XP. In (16''-c), on the other hand, XP is adjoined to YP. Still, YP does not exclude XP, so that the barrierhood of XP depends on the distinctness of X and Y, and not some other (higher) head.

It remains to specify the conditions under which two heads are (non-) distinct. Following Baker (1988), let us maintain that non-distinctness of two heads X and Y can be achieved by incorporation (i.e., head movement) of X into Y. Suppose for the time being (but cf. chapter 5) that incorporation may apply either *overtly*, at S-structure, or *covertly*, at LF. In the case of covert (or *abstract*) incorporation, head movement at LF can be read off of S-structure by means of co-indexing; this co-indexing of heads creates non-distinctness, as shown in (18-a).<sup>6</sup> In the case of overt incorporation, a structure like (18-b) arises, where X is adjoined to Y; again, the heads of XP and YP do not count as distinct, as a result of head movement. Finally, suppose that there is a third way of achieving non-distinctness of heads, in addition to overt and covert incorporation, viz., *empty identification*. Let us say that two heads Y and X

are non-distinct if one of them is radically empty, i.e., both phonologically and semantically empty. Such a configuration is depicted in (18-c).

- (18) a. *Abstract Incorporation* (S-structure): ...  $Y_i$  [ ...  $X_i$  ... ] ...  
 b. *Overt Incorporation* (S-structure): ... [ $Y_i$   $Y_i$   $X_j$ ] ...  $t_j$  ...  
 c. *Empty Identification* (S-structure): ... [ $Y$  - ] ...  $X$  ...

If none of the options in (18) is available, two heads will count as distinct.

Given that head movement (at S-structure and at LF) leaves traces, the problem arises of how a trace of head movement can be properly governed so as to fulfill the ECP. Baker (1988) convincingly argues that  $X^0$ -traces cannot fulfill the ECP via  $\Theta$ -government. What remains, then, is that head traces must be antecedent-governed. However, head movement in general is to be analysed as adjunction, as shown in (18-b); and an adjoined head fails to c-command its trace, as shown in (19) (given the standard notion of c-command developed by Reinhart (1976) and Chomsky (1986), among others, in terms of the next branching node).

- (19) [ $Y_P$  [ $Y'$  [ $X_P$  ...  $t_i$  ... ] [ $Y_j$   $X_i$   $Y_j$  ]]]]

Here,  $XP$  is a complement of  $Y$  (as in (16''-a)), and the head  $X$  has undergone incorporation to  $Y$ , adjoining to this node. This clearly is the standard case of incorporation in the polysynthetic languages. But it is evident that  $X$  does not c-command its trace after adjunction to  $Y$  (the c-command domain of  $X$  being limited to nodes dominated by the upper segment of  $Y$ ). Thus, as noted by Baker (1988: 54ff & 449), the theory of command relations must ensure that  $X_i$  may antecedent-govern its trace  $t_i$  in a configuration like (19). For concreteness, suppose that antecedent-government is not defined via c-command, as in (4), but rather via the somewhat more liberal notion of p-command:

- (20) *Antecedent-Government*:  
 $\alpha$  antecedent-governs  $\beta$  iff  
 a.  $\alpha$  p-commands  $\beta$ .  
 b.  $\alpha$  and  $\beta$  are co-indexed.  
 c. There is no barrier for  $\beta$  which excludes  $\alpha$ .

The notion of p-command, then, looks as in (21) (cf. Müller & Sternefeld (1990: 11f)):

- (21) *P-Command* ('projection-command'):  
 $\alpha$  p-commands  $\beta$  iff (a) and (b) hold:  
 a. No segment of  $\alpha$  dominates  $\beta$ .

- b. If  $\gamma$  is the first projection such that all segments of  $\gamma$  dominate  $\alpha$ , then all segments of  $\gamma$  dominate  $\beta$ .

The first projection all segments of which dominate  $X_i$  in (19) is not  $Y_j$  (because  $X$  is *adjoined* to, hence not included in,  $Y$ ), but rather  $Y'$ . Therefore,  $X_i$  in (19) p-commands its trace. Then, given (20),  $X_i$  antecedent-governs its trace if no barrier intervenes. The only potential barrier, of course, is  $XP$ , the maximal projection of  $X$ . However, the head of  $XP$  and the head of  $YP$  are non-distinct after overt incorporation. Hence, (19) does not violate the ECP, as required.

Now, let me briefly summarize the main consequences of the theory of barriers, as it has been developed so far. All  $XP$ s are potential minimality barriers, blocking (antecedent-) government from outside. Basically, there are three ways of resolving barrierhood. First, adjunction to  $XP$  circumvents barrierhood. Second, if  $XP$  has an A-bar specifier, movement to that specifier circumvents barrierhood. And third,  $XP$  ceases to be a barrier if its head is non-distinct from the next head higher up the tree; non-distinctness is achieved via abstract or overt incorporation, and via empty identification. With this theory of barriers in mind, let us now turn to the data, and see how the basic island effects can be derived.<sup>7</sup>

### 3. Barriers in situ

#### 3.1. VP

In section 2.2, we have seen that VP in general must not be a barrier. Otherwise, successive-cyclic long-distance movement of an adjunct, as in (13) (repeated here as (22-a)) in English, or as in (22-b) in German, would result in an ECP violation, given the ban against intermediate adjunction to VP in the course of *wh*-movement.

- (22) a. Why<sub>i</sub> do you [<sub>VP</sub> think [<sub>CP</sub> t'<sub>i</sub> that [<sub>IP</sub> she left early t<sub>i</sub> ]]] ?  
 b. Ich weiß nicht [<sub>CP</sub> warum<sub>i</sub> du [<sub>VP</sub> meinst [<sub>CP</sub> t'<sub>i</sub> daß sie t<sub>i</sub>  
 I know not why you think that she  
 gekommen ist ]]]  
 come is

Similarly, we must ensure that VP is not a barrier even for short movement of a *wh*-object to the local SpecC position, as in (23-a) in English, or (23-b) in German.

- (23) a. I wonder [<sub>CP</sub> what<sub>i</sub> you [<sub>VP</sub> saw t<sub>i</sub> ]]

- b. Ich weiß nicht [<sub>CP</sub> wen<sub>i</sub> du [<sub>VP</sub> t<sub>i</sub> getroffen ] hast ]  
 I know not who you met have

If VP were a barrier for t<sub>i</sub> in (23-ab), we should expect a Subjacency violation (cf. the definition in (5)), contrary to fact.

The conclusion to be drawn from these data is that, contrary to Chomsky's (1986) claim, VP is never a barrier; this point is also emphasized by Cinque (1990: 40ff) and Lasnik & Saito (1992: 183f), among others. In the framework adopted here, VP transparency in languages like English or German follows if we assume that V is always non-distinct from I. Thus, suppose that there is always V-to-I incorporation in these languages, either overtly, at S-structure, or abstractly, at LF. The first option might be relevant for German (cf. Grewendorf (1990), among others); the second option arguably is chosen in English (cf. Emonds (1978), Lightfoot & Weinberg (1988), Pollock (1989), and Chomsky (1991)). For concreteness, suppose for the time being that in German, there is always raising of finite Vs to I at S-structure, whereas in English, I is lowered to the V position at S-structure, and then the whole complex raises to I at LF (cf. however chapter 4 below for a slightly different view with respect to English).<sup>8</sup> Furthermore, I assume that in sentences with periphrastic tenses, as in the German example (23-b), the auxiliary and the main verb are also co-indexed ("abstractly incorporated"), and hence non-distinct. The exact details of V-raising and V-lowering do not concern me here; it may suffice to state that V and I (or V and V, in cases of VP being embedded by V) count as non-distinct at S-structure and LF in languages like English and German, ultimately because verbs and verbal inflection must "come together" somehow.

That said, we can derive statement (24) as a theorem of the theory of barriers.

- (24) VP is never a barrier.

## 3.2. IP

### 3.2.1. Empty identification

In Chomsky (1986) it is assumed that IP in general cannot become a barrier. From this assumption it follows that movement from an IP-internal position to SpecC does not violate any locality principle (ECP or Subjacency). According to the definition of barrier assumed thus far (cf. (16')), however, IP can in principle become a barrier (for everything it includes, given that SpecI is an A-position, and not an A-bar position). Hence, if we want to derive the general transparency of IP for movement, it must be guaranteed that I and C are always non-distinct, in the same way that V and I are non-distinct. Indeed, the movement transparency of IP would follow if we were to assume, following

Stowell (1981) and Pesetsky (1982), that where I-to-C movement has not occurred at S-structure, it takes place at LF (i.e., I abstractly incorporates into C, which goes hand in hand with S-structural co-indexing). On the other hand, it is argued in Müller (1989; 1991) that assuming IP to be a potential barrier paves the way for a comparatively simple explanation of complementizer-trace effects (cf. Perlmutter (1971) and Chomsky & Lasnik (1977)) in a number of languages. Consider the well-known contrast between (25-a) and (25-b) in English.

- (25) a. \*Who<sub>i</sub> do you think [<sub>CP</sub> t'<sub>i</sub> that [<sub>IP</sub> t<sub>i</sub> left early ] ] ?  
 b. Who<sub>i</sub> do you think [<sub>CP</sub> t'<sub>i</sub> – [<sub>IP</sub> t<sub>i</sub> left early ] ] ?

(25-a) (= (8-a)) exemplifies the complementizer-trace effect. A subject has undergone successive-cyclic *wh*-movement to the matrix SpecC position; the initial trace in SpecI is separated from the intermediate trace in the embedded SpecC position by a complementizer *that*. Suppose now that I and C do not undergo abstract incorporation in English. Then, I and C are distinct in (25-a), and IP is a barrier for the initial subject trace t<sub>i</sub> in SpecI, thus precluding antecedent-government of t<sub>i</sub>. Since this trace is also not Θ-governed, it is marked [–γ] at S-structure, and hence violates the ECP at LF. In (25-b), on the other hand, a complementizer does not occur in the embedded clause. In this case, C is clearly phonologically empty; in addition, the C node of a declarative clause is also semantically empty.<sup>9</sup> But then, empty identification of I and C is possible at S-structure in (25-b) (cf. (18-c)), and I and C become non-distinct. Hence, the barrierhood of IP is resolved at S-structure in (25-b); t<sub>i</sub> can be antecedent-governed by the intermediate trace t'<sub>i</sub> in the embedded SpecC position, and the ECP is respected.

Now consider long-distance adjunct movement across a complementizer, as in the example (8-b), which is repeated here as (26-a).

- (26) a. Why<sub>i</sub> do you think [<sub>CP</sub> t'<sub>i</sub> that [<sub>IP</sub> she left early t<sub>i</sub> ] ] ?  
 b. Why<sub>i</sub> do you think [<sub>CP</sub> t'<sub>i</sub> – [<sub>IP</sub> she left early t<sub>i</sub> ] ] ?

As noted by Huang (1982), Lasnik & Saito (1984; 1992), Koopman & Sportiche (1985; 1986), and Chomsky (1986), among others, successive-cyclic movement of adjuncts does not exhibit complementizer-trace effects, and has exactly the same status as successive-cyclic adjunct movement across an empty C node, as in (26-b).<sup>10</sup> Since *that* can be deleted on the way to LF (being a semantically empty complementizer), empty identification of I and C becomes possible at LF, and, as a result, I is non-distinct from C at LF in both (26-a) and (26-b). Furthermore, since γ-marking of adjunct traces takes place only at LF, by assumption (cf. section 2.1), t<sub>i</sub> in (26-a) can be marked [+γ] at this level, and hence fulfills the ECP in exactly the same way as t<sub>i</sub> in (26-b). Thus, although t<sub>i</sub> in (26-a) is not antecedent-governed at S-structure,

it is antecedent-governed at LF, and that suffices for the ECP in the case of adjuncts.

Finally, let us address object movement across C, as in (27-ab) in English.

- (27) a. What<sub>i</sub> do you think [<sub>CP</sub> t'<sub>i</sub> that [<sub>IP</sub> she read t<sub>i</sub> ] ] ?  
 b. What<sub>i</sub> do you think [<sub>CP</sub> t'<sub>i</sub> – [<sub>IP</sub> she read t<sub>i</sub> ] ] ?

(27-b) again is unproblematic – the barrierhood of IP is resolved via empty identification, and t<sub>i</sub> can be antecedent-governed by t'<sub>i</sub> in the embedded SpecC position. An account of the well-formedness of (27-a) is somewhat more involved. First note that t<sub>i</sub> in (27-a) is  $\Theta$ -governed by *read*<sub>i</sub>; therefore, the ECP is fulfilled by t<sub>i</sub>. However, IP should still qualify as a barrier in (27-a), and given the notion of Subjacency defined in (5), we should expect a violation of the Subjacency condition in (27-a). Thus (27-a) should only have an intermediate status, contrary to fact. Incidentally, the same problem arises with adjunct movement in (26-a). In order to ensure that Subjacency is not violated in (26-a) and (27-a), it seems as though an additional stipulation is called for to the effect that IP can be a barrier for antecedent-government, but not for Subjacency.<sup>11</sup> Thus, I propose that the Subjacency condition (5) is to be modified as in (28), with “ $\gamma \neq \text{IP}$ ” added in clause (b).

(28) *Subjacency Condition:*

A trace must be subjacent to its immediate chain predecessor at S-structure. A trace  $\beta$  is subjacent to its immediate chain predecessor  $\alpha$  iff

- a.  $\alpha$  c-commands  $\beta$ ; and  
 b. there is no barrier  $\gamma$  ( $\gamma \neq \text{IP}$ ) for  $\beta$  which excludes  $\alpha$ .

If Subjacency is understood as in (28), we can derive that IP does not block adjunct movement in a configuration like (26-a), or object movement in a configuration like (27-a). More generally, crossing an IP barrier can now give rise only to an ECP effect, but never to a Subjacency violation. Note incidentally that we might also assume, as an alternative formulation to (28-b), that the Subjacency condition requires that there be no *bounding node* between a trace and its immediate chain predecessor, where an XP counts as a bounding node if and only if it is a barrier, and does not belong to the category IP. In this and the following chapters, I will freely switch between the two formulations, and often refer to “bounding nodes,” which then are to be understood in the sense just made precise (i.e., as non-IP barriers).

### 3.2.2. Incorporation

Given the assumptions made thus far, it follows that I-to-C movement resolves the barrierhood of IP in the same way that empty identification does – I and

C are non-distinct if I incorporates into C, i.e., if V/2 movement occurs.<sup>12</sup> With this in mind, consider typical examples of V/2 movement of subjects, adjuncts, and objects in a Germanic V/2 language like German, as in (29-a), (29-b), and (29-c), respectively.

- (29) a. [CP Wer<sub>i</sub> hat<sub>j</sub> [IP t<sub>i</sub> geschlafen t<sub>j</sub> ]] ?  
           who<sub>nom</sub> has               slept
- b. [CP Warum<sub>i</sub> bist<sub>j</sub> [IP du t<sub>i</sub> gekommen t<sub>j</sub> ]] ?  
           why       are       you    come
- c. [CP Wen<sub>i</sub> hast<sub>j</sub> [IP du t<sub>i</sub> gesehen t<sub>j</sub> ]] ?  
           whom<sub>acc</sub> have       you    seen

I-to-C movement has opened up the IP barrier, and in line with this, not only object movement, but also subject and adjunct movement across IP is possible in (29). Similarly, successive-cyclic long-distance movement of subjects, adjuncts, and objects from embedded V/2 clauses is possible in German; cf. the examples in (30).

- (30) a. Wer<sub>i</sub> meinst du [CP t'<sub>i</sub> hat<sub>j</sub> [IP t<sub>i</sub> ihn geküßt t<sub>j</sub> ]] ?  
           who<sub>nom</sub> think you       has       him kissed
- b. Warum<sub>i</sub> meinst du [CP t'<sub>i</sub> hat<sub>j</sub> [IP sie t<sub>i</sub> ihn geküßt t<sub>j</sub> ]] ?  
           why    think you       has    she   him kissed
- c. Wen<sub>i</sub> meinst du [CP t'<sub>i</sub> hat<sub>j</sub> [IP sie t<sub>i</sub> geküßt t<sub>j</sub> ]] ?  
           whom<sub>acc</sub> think you       has    she   kissed

Again, the government transparency of the embedded IP for subject and adjunct movement (just like that of the matrix IP) follows from the fact that V/2 movement, i.e., I-to-C movement, has taken place, thereby resolving the barrierhood of IP in (30).<sup>13</sup>

However, although these results are clearly desirable, this cannot yet be the whole story. It is shown in (31) that not only is it the case that German allows adjuncts and objects to cross a complementizer in the course of successive-cyclic movement, like English does (cf. (31-bc)); as noted by Haider (1983), long-distance movement of subjects also does not induce complementizer-trace effects (cf. (31-a)).<sup>14</sup>

- (31) a. Wer<sub>i</sub> meinst du [CP t'<sub>i</sub> daß [IP t<sub>i</sub> ihn geküßt hat ]] ?  
           who<sub>nom</sub> think you       that       him kissed has
- b. Warum<sub>i</sub> meinst du [CP t'<sub>i</sub> daß [IP sie t<sub>i</sub> ihn geküßt hat ]] ?  
           why    think you       that    she   him kissed has
- c. Wen<sub>i</sub> meinst du [CP t'<sub>i</sub> daß [IP sie t<sub>i</sub> geküßt hat ]] ?  
           whom<sub>acc</sub> think you       that    she   kissed has

If we do not want to make the assumption that subjects can be  $\Theta$ -governed by V in German (unlike in English), (31-a) clearly indicates that IP is not a barrier for antecedent-government in the presence of a complementizer in German.

As shown in (32), *wh*-movement across a complementizer is also possible for subjects (as it is for adjuncts and objects) in colloquial German if the complementizer agrees with the SpecC position that is the landing site of *wh*-movement.<sup>15</sup>

- (32) a. Ich weiß nicht [CP wer<sub>i</sub> daß [IP t<sub>i</sub> ihn geküßt hat ]]  
 I know not who<sub>nom</sub> that him kissed has
- b. Ich weiß nicht [CP warum<sub>i</sub> daß [IP sie t<sub>i</sub> ihn geküßt hat ]]  
 I know not why that she him kissed has
- c. Ich weiß nicht [CP wen<sub>i</sub> daß [IP sie t<sub>i</sub> geküßt hat ]]  
 I know not whom<sub>acc</sub> that she kissed has

Finally, even successive-cyclic *wh*-movement across a complementizer *daß* to a landing site which immediately precedes another *daß* in the matrix clause is possible in (colloquial) German. Cf.:

- (33) a. Ich weiß nicht [CP wer<sub>i</sub> daß [IP er gemeint hat [CP t'<sub>i</sub> daß [IP t<sub>i</sub> ihn geküßt hat ]]]]  
 I know not who<sub>nom</sub> that he said has that  
 him kissed has
- b. Ich weiß nicht [CP warum<sub>i</sub> daß [IP er gemeint hat [CP t'<sub>i</sub> daß [IP sie t<sub>i</sub> ihn geküßt hat ]]]]  
 I know not why that he said has that  
 she him kissed has
- c. Ich weiß nicht [CP wen<sub>i</sub> daß [IP er gemeint hat [CP t'<sub>i</sub> daß [IP sie t<sub>i</sub> geküßt hat ]]]]  
 I know not whom<sub>acc</sub> that he said has that  
 she kissed has

Thus, the data in (31) through (33) clearly suggest that IP is never a barrier in German. So far, we have seen two ways of eliminating IP barriers, viz., empty identification and overt incorporation. In the framework developed here, it clearly makes sense to assume that the German data (unlike the English ones) exhibit the third a priori conceivable option of circumventing a barrier via non-distinctness of heads, viz., abstract incorporation. In the case at hand, this means: S-structural co-indexing of I and C. Thus, let us assume that in German, but not in English, I and C can indeed be co-indexed at S-structure, whereby the barrierhood of IP is resolved, and subject movement across a

complementizer (just like adjunct or object movement) is – *ceteris paribus* – predicted to be well formed.

Although this approach appears to be descriptively correct, one might want to derive the option of abstract I-to-C incorporation in German (as opposed to, say, English) from independently motivated assumptions. Also, it would of course be nice to find independent corroborating evidence for the claim that I and C are co-indexed in a language like German, but not in a language like English. As concerns the latter issue, I would like to contend that the phenomenon of complementizer-agreement attested in (several dialects of) German eventually mirrors co-indexing of I and C – under this view, I features can be copied onto C (without overt I-to-C movement) only as a result of co-indexing of I and C.<sup>16</sup>

What remains, then, is to provide an explanation of the option of abstract I-to-C incorporation in languages like German. To this end, let us differentiate between two kinds of I and C nodes, viz., *strong* vs. *weak* I and C. Suppose that I is a strong functional category if and only if it licenses (argumental or expletive) *pro* in SpecI (cf. Rizzi (1986a), Kayne (1989)). On the other hand, let us assume that C is strong if and only if it triggers obligatory V/2 movement in a given language (cf. Koster (1986)). Finally, suppose that abstract incorporation of I and C, i.e., S-structural co-indexing of I and C, is possible only if I and C are *both* strong functional heads. Then, IP barriers can be resolved via abstract I-to-C incorporation only in languages which exhibit both (a) argumental or expletive *pro* in SpecI, and (b) obligatory V/2. German is just such a language (as is Dutch, cf. the last note) – C triggers V/2 in the absence of a complementizer, and I licenses expletive *pro* in its specifier (cf. Grewendorf (1989)). English, on the other hand, has neither *pro*-drop nor V/2 movement, and consequently fails to permit abstract I-to-C incorporation. Hence, IP remains a barrier in clauses with *that*.

Now consider a language like Swedish. In this language, complementizer-trace effects do occur with subject movement (cf. Platzack (1986; 1987), among others). This state of affairs implies that abstract incorporation of I into C is not possible. And indeed, whereas Swedish is a V/2 language (cf., for instance, Platzack (1986) and Vikner (1990)), *pro* is not licensed in SpecI (cf. Platzack (1987)). Hence, co-indexing of I and C is prohibited, and complementizer-trace effects occur.

Similarly, as observed by Comrie (1973) and Pesetsky (1981/82; 1982), Russian exhibits complementizer-trace effects with subject movement. In (34-ab), it is shown that *wh*-objects can undergo successive-cyclic movement across a complementizer *čtoby* in Russian, whereas *wh*-subjects cannot.<sup>17</sup>

- (34) a. [ Kakuju knigu ]<sub>i</sub> Maksim xotel [CP t'<sub>i</sub> čtoby [IP Maša  
 which book<sub>acc</sub> Maxim wanted that<sub>subj</sub> Masha  
 pročla t<sub>i</sub> ]] ?  
 read
- b. \*[ Kakaja kniga ]<sub>i</sub> Maksim xotel [CP t'<sub>i</sub> čtoby [IP t<sub>i</sub>  
 which book<sub>nom</sub> Maxim wanted that<sub>subj</sub>  
 očarovala Mašu ]] ?  
 fascinated Masha

This implies that IP is a barrier in (34). Again, no damaging consequences arise for object movement, as in (34-a) (because, by assumption, IP does not count as a bounding node for Subjacency); subject movement, as in (34-b), on the other hand, violates the ECP because t<sub>i</sub> in (34-b) is not antecedent-governed by the intermediate trace t'<sub>i</sub> in the embedded SpecC position due to the IP barrier. Note that subject movement becomes possible as soon as the complementizer is not present, and C is empty, as in (35).

- (35) Kto<sub>i</sub> ty` dumaes' [CP t'<sub>i</sub> - [IP t<sub>i</sub> ljubit Mašu ]] ?  
 who<sub>nom</sub> you think loves Masha

Here, empty identification of I and C is possible, as in the English example (25-b). Let us now see how the barrierhood of IP in sentences like (34-ab) can be derived in Russian. The first observation is that all kinds of *pro* (argumental and expletive) are licensed by I in this language (cf. Růžička (1986) and Müller (1988)).<sup>18</sup> But the second pertinent observation is that Russian is not a V/2 language; in particular, C may remain empty in declarative clauses, and does not trigger V/2 movement. Hence, whereas I is strong in Russian, C is weak, so that co-indexing of I and C is not available, and the barrierhood of IP is maintained.

Concluding so far, we can derive the following statement, as far as the barrierhood of IP is concerned:

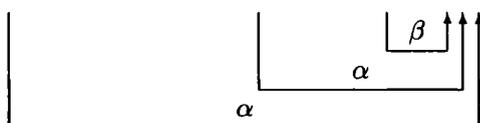
- (36) IP is a barrier for everything it includes unless I and C are non-distinct.

Non-distinctness of IP is achieved either via empty identification (C is phonologically and semantically empty), or via I-to-C movement at S-structure, or via co-indexing of I and C (i.e., abstract incorporation). The last strategy is available in languages like Dutch or German, where a close relationship of I and C is independently attested, but not in languages like English, Swedish, or Russian.

### 3.2.3. Unambiguous binding

Given that an IP barrier is responsible for the occurrence of complementizer-trace effects, and given that adjunction to an IP would resolve its barrierhood, we must ensure that *wh*-movement to SpecC may not use an IP-adjoined position as a loophole. (Recall that an IP-adjoined trace would antecedent-govern an IP-internal subject trace, so that an ECP violation could not be derived anymore.) Of course, as noted before, the prohibition against intermediate IP-adjunction in the course of *wh*-movement follows straightforwardly from the PUB. As a case in point, consider a derivation of the ungrammatical example (25-a) via intermediate IP-adjunction, as depicted in (37).

(37) \*Who<sub>i</sub> do you think [<sub>CP</sub> t<sub>i</sub>' that [<sub>IP</sub> t<sub>i</sub>' [<sub>IP</sub> t<sub>i</sub> left early ]]]?



Here, the initial trace  $t_i$  in SpecI is simultaneously  $\alpha$ -bound by its chain antecedent *who* (and by the intermediate trace  $t_i'$ ) from a SpecC position, and  $\beta$ -bound by the intermediate trace  $t_i'$  in IP-adjoined position. Hence, ambiguous binding occurs with the variable  $t_i$ , and the PUB is violated in (37). Thus, the PUB guarantees that IP barriers are always strict for *wh*-movement. Note incidentally that if the ultimate landing site of movement across an IP barrier were a left-adjunction site, as is the case with scrambling, we should expect intermediate adjunction to IP to be possible in principle, so that an IP barrier could be circumvented by scrambling, but not by *wh*-movement. In chapter 3, we will see that there is evidence that just this situation occurs in Russian. For the time being, however, let us leave it at that, and turn to the barrierhood of CP.

### 3.3. CP

According to the notion of barrier in (16'), CP is a barrier for every item included within it except for SpecC, which, being an A-bar specifier, is an escape hatch in CP. This accounts for the very option of successive-cyclic long-distance movement, as, for example, in (26-b), which is repeated here as (38).

(38) Why<sub>i</sub> do you think [<sub>CP</sub> t<sub>i</sub>' [<sub>C'</sub> she left early t<sub>i</sub> ] ] ?

Here, CP is not a minimality barrier for  $t_i'$ , although it is a barrier for everything included in C'. If SpecC is already occupied by some other category, it follows that long-distance movement of an XP may not apply successive-

cyclically via SpecC (the escape hatch of CP), but must proceed in one swoop, thereby crossing a CP barrier. In this way, the *wh*-island constraint is derived (cf. Baker (1988) and Sportiche (1988; 1989)). Thus, consider again the English examples in (2), repeated here in (39).

- (39) a. ??What<sub>i</sub> don't you know [CP how<sub>j</sub> PRO to fix t<sub>i</sub> t<sub>j</sub> ] ?  
 b. \*How<sub>j</sub> don't you know [CP what<sub>i</sub> PRO to fix t<sub>i</sub> t<sub>j</sub> ] ?

In (39-a), a direct object *what* has undergone long-distance movement in one swoop from a non-finite *wh*-island (SpecC being already filled by *how*). Since the object trace t<sub>i</sub> is  $\Theta$ -governed, an ECP violation does not arise in (39-a). However, CP is a barrier between *what* and t<sub>i</sub>, and this barrier induces a Subjacency effect (t<sub>i</sub> is not subjacent to *what*), which is responsible for the intermediate status of (39-a). A parallel case involving adjunct movement (as in (39-b)), however, is strongly ungrammatical, because the adjunct trace t<sub>j</sub> is not  $\Theta$ -governed, and therefore depends on antecedent-government by its chain antecedent (*how*). SpecC being filled by *what*, an intermediate adjunct trace cannot be created; hence, CP is a barrier between *how* and t<sub>j</sub>, and antecedent-government of t<sub>j</sub> is not available, which leads to an ECP effect in (39-b), in addition to a Subjacency violation.

As we have seen with examples like (11-ab) already, basically the same asymmetry shows up with extraction from finite *wh*-islands in English, as in (40) (cf. Chomsky (1986: 36f)).

- (40) a. ?\*[ To whom ]<sub>i</sub> did you wonder [CP what<sub>j</sub> John gave t<sub>j</sub> t<sub>i</sub> ] ?  
 b. \*How<sub>i</sub> did John tell you [CP what<sub>j</sub> he fixed t<sub>j</sub> t<sub>i</sub> ] ?

Again, adjunct *wh*-movement, as in (40-b), is absolutely impossible, and object *wh*-movement, as in (40-a), is somewhat better. However, even object *wh*-movement from a finite *wh*- is distinctly worse than object extraction from a non-finite *wh*-island, as indicated (cf. Chomsky (1986) and Frampton (1990) for this "tense effect"). For the time being, I disregard the contrast between (39-a) and (40-a); this issue will be taken up in chapter 6, though.<sup>19</sup>

Observe that this derivation of the *wh*-island constraint from the theory of barriers crucially depends on two assumptions. First, we must ensure that C is always non-distinct from the next higher head (which we may assume to be the embedding V for the time being, but see below). This follows given (a) that (abstract or overt) C incorporation is not an option, at least not in the languages currently under discussion, which exhibit the *wh*-island effect (cf. Baker (1988) for discussion of this issue); and (b) that the head which embeds CP is never phonologically and semantically empty. The second assumption we have to make is that intermediate adjunction to CP in the course of long-distance *wh*-movement is barred, just as intermediate adjunction to an IP barrier is barred (as argued in the previous section). Of course, the prohibi-

tion against intermediate CP-adjunction of a long-distance-moved *wh*-phrase follows straightforwardly from the PUB. (Again, the prediction arises that if the ultimate landing site of long-distance movement is an adjoined position, rather than SpecC, intermediate CP-adjunction should in principle be an option; and again, we will see in the following chapter that this prediction is borne out by scrambling data from Russian.)

Summarizing the findings of this section, we can state the following generalization concerning the barrierhood of CP.

- (41) CP is a barrier for everything included in C', but not for SpecC.

### 3.4. NP

#### 3.4.1. Structural and lexical factors

As is well known, extraction from NP depends on both structural and lexical factors in English and German. Consider the German data in (42) (cf., for instance, Fanselow (1987: ch. 2), Grewendorf (1989: ch. 2.8), Webelhuth (1987; 1988; 1992), and also Bach & Horn (1976) and Chomsky (1977) for English, and Koster (1987: ch. 4) for Dutch).

- (42) a. \* $[_{PP} \text{Über wen}]_i$  hat  $[_{NP} \text{ein Buch } t_i]$  den Wolfgang  
           about whom has a book<sub>nom</sub> ART Wolfgang<sub>acc</sub>  
           beeindruckt ?  
           impressed
- b. \* $[_{PP} \text{Über wen}]_i$  hat den Wolfgang  $[_{NP} \text{ein Buch } t_i]$   
           about whom has ART Wolfgang<sub>acc</sub> a book<sub>nom</sub>  
           beeindruckt ?  
           impressed
- c.  $[_{PP} \text{Über wen}]_i$  hat der Wolfgang  $[_{NP} \text{ein Buch } t_i]$   
           about whom has ART Wolfgang<sub>nom</sub> a book<sub>acc</sub>  
           geschrieben ?  
           written
- d. \* $[_{PP} \text{Über wen}]_i$  hat der Wolfgang  $[_{NP} \text{ein Buch } t_i]$   
           about whom has ART Wolfgang<sub>nom</sub> a book<sub>acc</sub>  
           geklaut ?  
           stolen

In (42-a) and (42-b), *wh*-movement of the PP *über wen* ('about whom') has applied from a nominative subject NP, and the result is ungrammatical. Observe that it does not appear to play a role whether the subject NP is separated from the verb by a direct object (as in (42-a)), or is actually adjacent to the verb (as in (42-b)). In (42-c), on the other hand, *wh*-movement from a direct

object NP has taken place, and the result is fine. Thus, there is a clear contrast between extraction from subject NPs and extraction from object NPs in languages like German, which strongly suggests a structural explanation. However, the ill-formedness of examples like (42-d) shows that extraction from direct object NPs also depends on the choice of the governing verb – whereas verbs like *schreiben* ('write'), as in (42-c), permit *wh*-extraction from an NP, verbs like *klauen* ('steal') apparently do not.

Let us now see how the paradigm in (42) can be accounted for under the assumptions made so far.<sup>20</sup> As a first step towards this, something must be said about the internal structure of NPs. Deviating from much recent literature, I assume that NPs like the ones in (42) have the D-structure depicted in (43), with DP as the specifier of NP (rather than NP as the complement of D, as proposed by Abney (1987) and others).<sup>21</sup>

- (43) [NP [DP ein ] [N' [N Buch ] [PP über wen ]]]  
           a                  book          about whom

Suppose furthermore that SpecN is an A-position. Then, NP does not have an escape hatch, and is a potential barrier for everything it includes. Consequently, the barrierhood of NP can only be resolved via adjunction to NP, or via non-distinctness of heads. As shown in (44), adjunction to NP is not an option for *wh*-movement.

- (44) \*<sub>[CP wh<sub>i</sub> ... [NP t'<sub>i</sub> [NP ... t<sub>i</sub> ... ]]]</sub>
- 

Here, the PUB is clearly violated. (Again, things might be different in the case of scrambling from NP. Cf. chapter 3.) This leaves non-distinctness of N and the next higher head as the only option for resolving the barrierhood of NP. As before, three possibilities must be considered, viz., (a) overt incorporation, (b) abstract incorporation, and (c) empty identification. We can disregard option (c) from the start; in the examples in (42), the next head above N in the tree is either V or I, and both heads are non-empty. Option (a) also is not available in languages like English or German. However, Baker (1988) has shown that exactly this happens in polysynthetic languages. He convincingly argues that the phenomenon of noun incorporation does indeed involve S-structural head movement of N to the higher head V. Interestingly, the distribution of overt noun incorporation basically mirrors that of extraction from NP (as in (42)) – overt noun incorporation may proceed from direct objects, but generally not from subjects; moreover, overt noun incorporation appears to be subject to lexical variation. Indeed, I would like to contend that the similarity of

distribution (of overt noun incorporation and extraction from NP) is due to the fact that in both cases, essentially the same phenomenon occurs, namely head movement. Thus, suppose that languages like English or German, where S-structural N incorporation does not occur, exhibit abstract N incorporation; i.e., the hypothesis is that extraction from NP depends on the availability of option (b) – incorporation at LF.

Now recall that incorporation leaves a trace that is subject to the ECP. In particular, it must be p-commanded by its antecedent, so as to be antecedent-governed. For convenience, the notion of p-command (21) is repeated here.

- (21) *P-Command* ('projection-command'):  
 $\alpha$  p-commands  $\beta$  iff (a) and (b) hold:
- a. No segment of  $\alpha$  dominates  $\beta$ .
  - b. If  $\gamma$  is the first projection such that all segments of  $\gamma$  dominate  $\alpha$ , then all segments of  $\gamma$  dominate  $\beta$ .

According to (21), an  $X^0$ -category X adjoined to another  $X^0$ -category Y can p-command (hence, antecedent-govern) its trace only if the trace is included in the complement of Y. This is the case in an example like (42-c), if we make the assumption that direct objects are base-generated under V', as sisters of V. The relevant S-structure and LF configurations then look as in (45-a) and (45-b), respectively.

- (45) a.  $[_{VP} [_{V'} [_{NP} \dots N_i \dots ] V_i ]]$  (S-structure)  
 b.  $[_{VP} [_{V'} [_{NP} \dots t \dots ] [_{V} N V ]]$  (LF)

At S-structure, N and V are co-indexed, as shown in (45-a). Hence, NP is not a barrier for items included in it. Since S-structural co-indexing of heads, by assumption, always indicates abstract incorporation, N movement to V must occur at LF, as shown in (45-b). This movement obviously does not cross a barrier (N and V being non-distinct); but in order to be legitimate, p-command must also take place, which it does in (45-b). Thus, we have derived that a direct object can be made transparent for S-structural extraction of a *wh*-phrase if its head may incorporate into the governing V at LF.

Now consider the case of subject NPs, as in (42-ab). First suppose that subject NPs (of transitive and unergative intransitive verbs) in languages like English and German always occupy SpecI at S-structure.<sup>22</sup> Then, again, the only way to remove barrierhood in such a configuration consists in co-indexing at S-structure, as depicted schematically in (46-a); and again, S-structural co-indexing of heads implies LF movement to the next higher head (which in this case is I), as shown in (46-b).

- (46) a.  $[_{IP} [_{NP} \dots N_i \dots ] [_{I'} \dots I_i ]]$  (S-structure)  
 b.  $[_{IP} [_{NP} \dots t \dots ] [_{I'} \dots [_{I} N I ]]]$  (LF)

However, in (46-b), N does not p-command its NP-internal trace, given the definition in (21) – the first projection all segments of which dominate N after LF adjunction to I is I'; but t, the trace of N, is not included in I' in (46-b). Hence, antecedent-government of t in (46-b) does not occur, and the resulting structure violates the ECP. In conclusion, the subject NP in (42-ab) blocks *wh*-extraction: If abstract noun incorporation does not occur, the barrierhood of NP cannot be resolved; then, if we make the additional assumption that N is not a proper ( $\Theta$ -) governor for an NP-internal trace (cf. Kayne (1984) and Fanselow (1987), among others), it follows that *wh*-extraction at S-structure violates the ECP (the *wh*-trace being the offending trace), and strong ungrammaticality arises.<sup>23</sup> On the other hand, if the barrierhood of a subject NP is resolved via co-indexing, the ECP is fulfilled as far as the *wh*-trace is concerned; however, in this case, the head trace that comes into existence at LF is not properly governed, and thus becomes the offending trace.

Let us now turn to lexical variation with *wh*-extraction from NPs, as in (42-c) vs. (42-d); the examples are repeated in (47).

- (47) a. [PP Über wen ]<sub>i</sub> hat der Wolfgang [NP ein Buch t<sub>i</sub> ]  
 about whom has ART Wolfgang<sub>nom</sub> a book<sub>acc</sub>  
 geschrieben ?  
 written
- b. \*[PP Über wen ]<sub>i</sub> hat der Wolfgang [NP ein Buch t<sub>i</sub> ]  
 about whom has ART Wolfgang<sub>nom</sub> a book<sub>acc</sub>  
 geklaut ?  
 stolen

So far, we have derived that the barrierhood of an object NP can in principle be resolved via (abstract) incorporation in languages like German (cf. (45-ab)). However, the contrast in (47) suggests that incorporation is not only *structurally* constrained, but also *lexically* constrained to a certain extent. Adopting the terminology introduced by Stechow (1992), we may say that verbs, for instance, *morphologically* select (or *m-select*) certain classes of nouns as a *lexical property*, giving rise to incorporation phenomena, just as they *categorially* select (or *c-select*; cf. Pesetsky (1982) and Chomsky (1986a)) NPs. Interestingly, there sometimes appears to be a mismatch between m-selection of an X<sup>0</sup>-category, and c-selection of an XP – these two types of selection do not necessarily go hand in hand; in particular, often there is c-selection of a maximal projection without m-selection of its head.

Thus, suppose that certain verbs (like *schreiben* ('write') in German) m-select the head of their c-selected NP complement, and optionally trigger N incorporation at LF; other verbs (like *klauen* ('steal') in German), in contrast, do not m-select the head of their c-selected NP complement, and, as a

consequence, fail to trigger abstract incorporation.<sup>24</sup> Hence, the NP in (47-b) remains a barrier, despite the *structural* option of abstract incorporation (i.e., co-indexing at S-structure), and consequently, *wh*-extraction from this NP induces an ECP violation (under the assumption that N does not  $\Theta$ -govern an NP-internal trace).

Given the account developed thus far, an interesting prediction arises. In general, the barrierhood of an NP should be resolvable only if the NP occupies a complement position, but not if the NP occupies a specifier position (due to the p-command requirement for traces). With this in mind, consider the German data in (48).

- (48) a. \* $[\text{Über wen}]_i$  hat der Verleger  $[\text{NP einem Buch } t_i]$  keine  
 about whom has the publisher<sub>nom</sub> a book<sub>dat</sub> no  
 Chance gegeben ?  
 chance<sub>acc</sub> given
- b. \*Worüber<sub>i</sub> hat man neulich  $[\text{NP einem Buch } t_i]$  einen  
 about-what has one<sub>nom</sub> recently a book<sub>dat</sub> an  
 Preis geschenkt/verliehen ?  
 award<sub>acc</sub> given/donated

Here, *wh*-extraction from an indirect object has occurred, and the result is ill formed. The question arises, then, of whether the prohibition against *wh*-extraction from indirect objects in examples like (48-ab) in German is due to lexical or structural factors. The well-formedness of examples like (49-ab) clearly shows that m-selection (i.e., lexical variation) does not play a role in (48) – the verbs in (48-ab) (viz., *geben* ('give') and *schenken* ('donate')) do permit *wh*-extraction from direct objects, as shown in (49).

- (49) a.  $[\text{Über wen}]_i$  hat keiner einer Frau  $[\text{NP ein Buch } t_i]$   
 about whom has no-one<sub>nom</sub> a woman<sub>dat</sub> a book<sub>acc</sub>  
 gegeben ?  
 given
- b. Worüber<sub>i</sub> hat man dir  $[\text{NP ein Buch } t_i]$  geschenkt ?  
 about-what has one<sub>nom</sub> you<sub>dat</sub> a book<sub>acc</sub> donated

Hence, the prohibition against extraction from an indirect object must be structural in nature. Indeed, if we assume that indirect objects are base-generated immediately under VP in SpecV (whereas direct objects are base-generated under V'), as in (50), it follows that abstract incorporation is not allowed – after LF adjunction of N to V, the N trace is not p-commanded by its antecedent, and hence not properly governed, more or less exactly as in the case of subject NPs (cf. (46-ab)).<sup>25</sup>

- (50) a. [VP [NP ... N<sub>i</sub> ... ] [V' ... V<sub>i</sub> ]] (S-structure)  
 b. [VP [NP ... t ... ] [V' ... [V N V ]]] (LF)

The assumption that dative-bearing indirect objects in German are base-generated in SpecV, and thus precede and asymmetrically c-command direct objects at D-structure, receives some independent confirmation from the evidence concerning unmarked word order (cf. Lenerz (1977), among others). However, certain facts about anaphoric binding and pronominal coreference in double object constructions in German suggest the reverse base order of direct and indirect object (such that direct objects asymmetrically c-command and precede indirect objects at D-structure; cf. Grewendorf (1984; 1988)). For the time being, I will ignore this apparent counter-evidence, and maintain the hypothesis that indirect objects are base-generated in SpecV, whereas direct objects are base-generated as complements of V; see chapter 4 for a detailed discussion of this issue.

Summarizing so far, I have argued that *wh*-extraction from NP depends on the option of abstract incorporation of N into V. This accounts for the fact that *wh*-extraction from subject and indirect object NPs is impossible throughout in a language like German (ultimately because noun incorporation may not proceed from specifier positions). Extraction from direct objects, on the other hand, is possible if the embedding verb has the lexically marked capability of (abstractly) incorporating a noun; this lexical property was tied to the notion of m-selection.<sup>26</sup>

### 3.4.2. LBC and SSC effects

In this subsection, I want to show that the approach to extraction from NP developed in the previous subsection naturally extends to Left Branch Condition (LBC) effects (cf. Ross (1967/1986)) and Specified Subject Condition (SSC) effects (cf. Chomsky (1973)), with *wh*-extraction from NP.

A typical LBC violation with *wh*-extraction from NP in German is exemplified by the following pair of examples.

- (51) a. \*Wessen<sub>i</sub> hast du [NP t<sub>i</sub> [N' Papiere über Benjamin ]]  
           whose<sub>gen</sub> have you<sub>nom</sub> papers<sub>acc</sub> about Benjamin  
           gelesen ?  
           read  
       b. [NP Wessen Papiere über Benjamin ]<sub>i</sub> hast du t<sub>i</sub> gelesen ?  
           whose<sub>gen</sub> papers<sub>acc</sub> about Benjamin have you<sub>nom</sub> read

As shown in (51-a), extraction of a prenominal genitive XP is strictly illicit in German, even though the governing verb would in principle permit abstract incorporation, and even though extraction takes place from a direct object.

Thus, pied piping (as in (51-b)) is required in order to produce a syntactically well-formed question.<sup>27</sup> The LBC directly accounts for the ungrammaticality of (51-a), since, according to this condition, “no NP which is the leftmost constituent of a larger NP can be reordered out of this NP by a transformational rule” (Ross (1967/1986: 127)). However, in the framework adopted here, it might be worth trying to derive LBC effects in the case of extraction from NP by independently motivated assumptions about abstract incorporation. Furthermore, upon closer scrutiny it turns out that the LBC is in fact not able to account for all cases of illicit extraction of a genitive NP from an NP in German. As a case in point, consider examples like (52-a) and (52-b) ((52-b) involves topicalization, rather than *wh*-movement, but this shall not concern us here).

- (52) a. \*{ Welcher Frau }<sub>i</sub> hast du [NP Papiere über Benjamin ]  
           which woman<sub>gen</sub> have you<sub>nom</sub> papers<sub>acc</sub> about Benjamin  
           gelesen ?  
           read
- b. \*{ Des Herrn Diedrichsen }<sub>i</sub> habe ich [NP Papiere über  
           ART Mr. Diedrichsen<sub>gen</sub> have I<sub>nom</sub> papers<sub>acc</sub> about  
           Benjamin ] gelesen  
           Benjamin read

The examples in (52) differ from (51-a) in that it is not clear that the moved item is “the leftmost constituent” of the NP at D-structure. Thus, *welcher Frau* in (52-a) and *des Herrn Diedrichsen* in (52-b) may in principle originate to the right of the head noun (in fact, these items may occur to the left of the head noun only in very formal varieties of German). This is shown in (53-ab).

- (53) a. Warum hast du [NP Papiere [ welcher Frau ] (über  
           why have you papers which woman<sub>gen</sub> about  
           Benjamin) ] gelesen ?  
           Benjamin read
- b. Ich habe [NP Papiere [ des Herrn Diedrichsen ] über  
           I have papers ART Mr. Diedrichsen<sub>gen</sub> about  
           Benjamin ] gelesen  
           Benjamin read

Thus, the extracted items in the ill-formed examples (51-a), (52-a), and (52-b) do not (necessarily) share the property of being base-generated on a left branch within NP; however, they share the property of bearing genitive Case. Hence, it might prove possible to reduce the ungrammaticality of (51-a) and (52-ab) to a violation of the Case Filter, as is indeed suggested in Chomsky (1986: 44). As a first step towards a Case-theoretic account of LBC (and

related) phenomena, let me state some assumptions about NP-internal assignment of structural genitive Case. In Chomsky (1981: 170; 1986a: 195) it is proposed that prenominal genitive Case is assigned not by N, but rather in a strictly configurational manner via a rule of "POSS-insertion" that assigns structural Case to an NP on the left branch of another NP. In contrast, suppose that N actually qualifies as an assigner of structural Case (prenominal genitive Case in English, and pre- or postnominal genitive Case in German).<sup>28</sup> Then, the ungrammaticality of examples such as (51-a) and (52-ab) follows straightforwardly if we can ensure that assignment of structural genitive Case by N and abstract N incorporation are incompatible. I will now show that this incompatibility does indeed exist.

To this end, consider more closely the effect of head movement on Case-assignment. A typical head movement chain has two members (given that head movement in general is adjunction, and given that head movement may never take place from an adjoined  $X^0$ -position, cf. Baker (1988)), and thus looks as in (54).

(54)  $\langle \alpha_1, \alpha_2 \rangle$

As noted by Chomsky (1986: 72), if  $\alpha_2$  is the trace of V-to-I movement, or if  $\alpha_2$  is the trace of I-to-C movement, then  $\alpha_2$  assigns Case despite incorporation of  $\alpha_1$  – in other words, after V-to-I movement, structural accusative Case can be assigned by the V-trace to a direct object, and similarly, V/2 movement (i.e., I-to-C movement) does not affect structural nominative Case-assignment by the I-trace to SpecI. In contrast to that, Baker (1988: 121) maintains that  $\alpha_2$  may not assign Case after incorporation – according to him, the trace of an incorporated item is inert in this respect. However, Baker is mainly concerned not with movement to functional categories like I or C, but rather with movement to lexical categories, in particular with movement of V, P, or N to V. Putting together the assumptions of Chomsky and Baker, the generalization that emerges is the following. Functional categories (like I and C) that act as landing sites of incorporation do not block Case-assignment by the trace  $\alpha_2$  after incorporation of  $\alpha_1$ . Lexical categories (like V) that act as landing sites of incorporation, however, appear to block Case-assignment by  $\alpha_2$  after incorporation of  $\alpha_1$ . Adapting some ideas of Pollock's (1989) concerning  $\Theta$ -assignment by lexical heads after head movement to the case at hand, I would like to propose the conditions in (55), which govern the relationship between head movement and Case-assignment.

(55) *Case Assignment in  $X^0$ -Chains:*

- a. In a (non-trivial)  $X^0$ -chain  $\langle \alpha_1, \alpha_2 \rangle$ , only  $\alpha_2$  can assign Case.
- b.  $\alpha_2$  has to inherit the capability of Case-assignment from  $\alpha_1$ .
- c. Functional  $X^0$ -categories as landing sites permit the inheritance

of this capability by  $\alpha_2$ ; lexical categories as landing sites do not permit the inheritance of this capability by  $\alpha_2$ .

The basic idea is that the information about the Case-assigning properties of an incorporation chain is always provided by the head of the  $X^0$ -chain, whereas the actual process of Case-assignment must be strictly local, i.e., regulated by the foot of an  $X^0$ -chain. Therefore, an  $X^0$ -trace must inherit all the relevant information about Case-assignment from its chain antecedent; this inheritance procedure is blocked if the chain antecedent is adjoined to a lexical category, and possible if the chain antecedent is adjoined to a functional category.

Consider briefly the effect of the assumptions in (55) on overt incorporation into a lexical category. According to (55-a), it follows that after incorporation, the head of an  $X^0$ -chain cannot assign Case anymore; given (55-b), the foot of the  $X^0$ -chain can now in principle assign Case, but it has to inherit the Case-assignment capability from the head of its chain. This transmission, however, is blocked, according to (55-c). Hence, it follows that after noun incorporation to V, as it is found in the polysynthetic languages, neither the adjoined N, nor its trace can assign Case to an NP-internal possessor NP anymore. The relevant configuration is schematically depicted in (56) (cf. Baker (1988: 76ff) for an extensive discussion).

(56) [VP [V N<sub>i</sub> V ] [NP<sub>1</sub> NP<sub>2</sub> [N' t<sub>i</sub> ... ]]]

Here,  $t_i$  cannot assign the Case controlled by  $N_i$  to  $NP_2$ , because  $N_i$  is adjoined to a lexical category (viz., V). Hence,  $NP_2$  either receives Case from somewhere else, or it violates the Case Filter. Now, Baker (1988: 96ff)) shows that the grammatical function changing process commonly known as "Possessor Raising" involves exactly the configuration in (56). In Possessor Raising constructions, a prenominal NP receives Case from the governing verb after noun incorporation; i.e., in (56), V may Case-govern  $NP_2$ , and assign structural objective Case to it (note that incorporation has opened up the NP barrier, so that NP is transparent for government from outside). Typically, however, V has only one structural Case to assign. Then, if  $NP_2$  is to receive this Case in (56), it must be guaranteed that  $NP_1$  does not need Case anymore – otherwise, Possessor Raising constructions will not occur. As argued by Baker, noun incorporation as in (56) may in some languages exempt  $NP_1$  from the Case Filter, so that structural Case does not have to be assigned to  $NP_1$ , and can freely be assigned to  $NP_2$  (which otherwise would remain Case-less). In other languages, however (so Baker argues), noun incorporation as in (56) does not free  $NP_1$  of the requirement of receiving structural Case. In such a language, then, Possessor Raising will not occur if V has only one structural Case to assign.

Furthermore, Baker (1988: 270) argues that abstract incorporation (in-

licated by co-indexing at S-structure) has exactly the same effect on Case-assignment – if abstract noun incorporation occurs (i.e., if a noun and a verb are co-indexed at S-structure), an NP-internal possessor NP cannot receive Case by N anymore, and must receive Case from outside, which is possible in principle, because the NP barrier has been resolved via non-distinctness of heads.<sup>29</sup> But again, the possessor NP can be assigned structural Case by the governing verb only if the complement NP of the verb does not have to receive Case. Baker argues that this situation does indeed occur in a language like Kinyarwanda; however, it is fairly obvious that abstract noun incorporation does not exempt an NP from the requirement of receiving Case in a language like German (or English, for that matter). Consider an example like (57).

- (57) Worüber<sub>i</sub> hast du [<sub>NP</sub> einen Roman t<sub>i</sub>] gelesen ?  
 about-what have you a<sub>acc</sub> novel read

In (57), *wh*-extraction from an NP has occurred. Given our assumptions so far, this implies that abstract noun incorporation has taken place. However, abstract incorporation does not exempt the NP from Case requirements, as is clearly indicated by the presence of morphological Case on the determiner *einen* ('a<sub>acc</sub>'). As concerns German, then, the following situation emerges in the case of extraction from NP. On the one hand, extraction from NP depends on abstract incorporation – otherwise the ECP is violated. On the other hand, however, abstract incorporation of N into the governing V precludes Case-assignment by N; in particular, N cannot assign (pre- or postnominal) genitive Case to an NP within its maximal projection anymore if N is co-indexed with V. And this means that the problem posed by examples such as (51-a) and (52-ab) in German is now resolved: Either abstract incorporation takes place; then, N cannot assign Case anymore, and extraction is possible for PPs (which do not obey the Case Filter), but not for NPs. Or, alternatively, N and V are not co-indexed; but then, any extraction from NP will invariably violate the ECP. In conclusion, we have derived that NP-internal assignment of structural genitive Case and the removal of the barrierhood of NP (via abstract N incorporation into V) are mutually exclusive operations, just as desired.

Thus, LBC effects with extraction from NP are directly explained in the framework assumed so far; let us now see whether SSC effects can also be accounted for along these lines. A typical example showing the blocking nature of NP-internal subjects in German looks as in (58).<sup>30</sup>

- (58) \*Worüber<sub>i</sub> hat er [<sub>NP</sub> Antjes Papiere t<sub>i</sub>] gelesen ?  
 about-what has he<sub>nom</sub> Antje<sub>gen</sub> papers<sub>acc</sub> read

We know that the governing verb *lesen* ('read') in principle permits abstract incorporation, since it m-selects N; also, the NP from which extraction has

taken place in (58) is a direct object. Moreover, the *wh*-moved category in (58) is a PP rather than an NP, so that there cannot be a Case Filter violation as far as the *wh*-moved item *worüber* in (58) is concerned. Nevertheless, I would like to contend that the interaction of the Case Filter and the ECP explains SSC effects as in (58) in more or less the same way as LBC effects. The relevant observation is that although the *wh*-moved item does not itself have to receive Case in (58), there still exists an NP-internal NP which depends on the assignment of structural genitive Case by N, viz., the “specified subject” NP *Antjes*. Now recall that we have just derived that NP-internal assignment of genitive Case and removal of the barrierhood of NP via abstract incorporation are incompatible. Therefore, a dilemma arises in (58) that is in all relevant respects identical to the dilemma in (51-a) and (52-ab). Either abstract incorporation occurs, with the consequences that *wh*-extraction of *worüber* does not violate the ECP, and that prenominal genitive Case cannot be assigned anymore, so that the NP *Antjes* violates the Case Filter; or abstract incorporation does not take place – then, Case assignment of N to the prenominal NP *Antjes* is possible, but *wh*-extraction of *worüber* invariably violates the ECP.

Note that this Case-theoretic explanation of SSC effects with extraction from NP does not depend on opacity-creating (i.e., to some extent semantically based) properties of a “specified subject.” Rather, the analysis given rests on purely formal notions – eventually, it is genitive Case and not “subjecthood” that bars movement. Hence, we expect the two approaches to make different predictions as soon as the subject of NP occurs in a PP, and not in an NP. If an account of (58) along the lines of the SSC is correct, an NP-internal PP subject should still block extraction; if, on the other hand, lack of Case assignment is responsible for the deviance of (58), an NP-internal PP subject should not block extraction (if no other condition is violated). It seems to me that data like (59) strongly corroborate the Case-theoretic approach adopted here; cf.:

- (59) *Worüber<sub>i</sub> hast du [NP Papiere [PP von Antje ] t<sub>i</sub> ] gelesen ?*  
 about-what have you<sub>nom</sub> papers<sub>acc</sub> of Antje read

Here, the PP *von Antje* is the subject of NP (assuming that Antje is the author of the papers); nevertheless, *wh*-extraction of *worüber* is possible. This follows from the Case-theoretic analysis of SSC effects with extraction from NP, but might be problematic for an account that ties the deviance of examples like (58) to a special blocking nature of NP-internal subjects.<sup>31</sup>

Although the analysis of extraction from NP in German presented here undoubtedly still leaves open a number of questions, I will leave it at that, and draw a preliminary conclusion.<sup>32</sup> Extraction from NP in German is possible only if (a) abstract incorporation may occur (i.e., if m-selection by the

embedding verb occurs, and if the NP occupies the complement position of V), and if (b) N does not have to assign structural genitive Case. Thus, we end up with the following generalization.

- (60) NP is a barrier for everything it includes unless N and V are made non-distinct via abstract incorporation; abstract incorporation is impossible if N is to assign Case.

### 3.5. NP-shells and finite complement clauses

Let us now turn to restrictions on successive-cyclic extraction from finite complement clauses. Consider first finite subject clauses. As is well known, successive-cyclic *wh*-extraction of an argument from this environment has an intermediate status in German, which we may want to attribute to a Subjacency violation. This is shown in (61-a) (cf., for instance, Fanselow (1987)). However, adjunct extraction is much worse than movement of an argument; cf. (61-b).<sup>33</sup>

- (61) a. ??Wen<sub>i</sub> hat es dich beeindruckt [CP t'<sub>i</sub> daß [IP der Fritz t<sub>i</sub>  
 who<sub>acc</sub> has it you<sub>acc</sub> impressed that ART Fritz<sub>nom</sub>  
 kennt ]] ?  
 knows
- b. \*Wie<sub>i</sub> hat (es) ihn geärgert [CP t'<sub>i</sub> [C' daß [IP man nur t<sub>i</sub> nach  
 how has (it) him<sub>acc</sub> annoyed that one only to  
 Graz kommen kann ]]] ?  
 Graz get is-able-to

Thus, the Subject Condition holds in full generality. Next consider indirect object clauses. Extraction from indirect object clauses is not easy to test in German, for it is unclear whether there are true indirect object clauses in this language. However, Cinque (1990) gives examples from Italian which, according to him, involve adjunct extraction from an indirect clausal complement. The result is ungrammatical, as is shown in (62):

- (62) \*La ragione [ per la quale ]<sub>i</sub> [VP vi informo [CP che me ne andro'  
 the reason why<sub>i</sub> you I-inform that I will leave  
 t<sub>i</sub> ]]  
 t<sub>i</sub>

It is at least worth noting that the German analogues are ungrammatical as well, whether they involve true indirect object clauses or not. Again, these data exhibit an argument/adjunct asymmetry:

- (63) a. ??Wen<sub>i</sub> hat man [VP die Anna gezwungen [CP t'<sub>i</sub> daß [IP sie  
 who<sub>acc</sub> has one<sub>nom</sub> ART Anna<sub>acc</sub> forced that she  
 t<sub>i</sub> heiratet ]]] ?  
 marries
- b. \*Warum<sub>i</sub> hat der Fritz [VP dich (darüber) informiert [CP  
 why has ART Fritz<sub>nom</sub> you<sub>acc</sub> about-that informed  
 t'<sub>i</sub> daß [IP er t<sub>i</sub> wieder arbeiten will ]]] ?  
 that he again work wants-to

Now consider extraction from direct object clauses in German. If the matrix predicate has bridge properties, extraction is fine (cf. (64-ab)); if it has not, extraction is more or less impossible (as in (65-ab)) – again an argument/adjunct asymmetry arises.

- (64) a. Wen<sub>i</sub> denken alle [CP t'<sub>i</sub> daß [IP sie t<sub>i</sub> nett finden ]] ?  
 who<sub>acc</sub> think all that they nice find
- b. Warum<sub>i</sub> meinst du [CP t'<sub>i</sub> daß [IP dies t<sub>i</sub> passiert ist ]] ?  
 why think you that this happened (is)
- (65) a. ??Wen<sub>i</sub> hat der Fritz geleugnet [CP t'<sub>i</sub> daß [IP er t<sub>i</sub> traf ]] ?  
 who<sub>acc</sub> has ART Fritz<sub>nom</sub> denied that he met
- b. \*Wie<sub>i</sub> wußte er [CP t'<sub>i</sub> [C' daß [IP man t<sub>i</sub> am schnellsten nach  
 how knew he that one most quickly to  
 Frankfurt käme ]]] ?  
 Frankfurt would-come

Thus, the interesting generalization emerges that extraction from finite clauses behaves very much like extraction from NPs – subject clauses and indirect object clauses are always islands, whereas extraction from direct object clauses depends on lexical properties of the embedding verb. This evidence admittedly is not yet accountable for under the assumptions made so far. Given that I have dispensed with the notion of “barrier by lack of L-marking/selection,” it is far from evident why, e.g., a CP occupying the subject position blocks movement. Although C may not undergo incorporation from this position, this should have no negative effect on extraction, because CP is not a barrier for an intermediate trace in SpecC in the first place.

The (near-) identical behaviour of NPs and finite clauses with respect to extraction, however, recalls ideas developed by Ross (1967/1986), Kiparsky & Kiparsky (1970), Chomsky (1973), and Perlmutter & Soames (1979), among others, where it is assumed that at least certain types of clauses should be analysed as having an NP-shell. Now suppose that this hypothesis is generalized as in (66):

(66) *The NP-Shell Hypothesis:*

All embedded finite clauses are NPs with a phonetically empty head.

Now, given that NP-shells, like regular NPs, do not have an escape hatch, it follows that finite subject clauses and indirect object clauses are barriers that can never be resolved by incorporation, as depicted in (67-a) and (67-b), respectively.

- (67) a. [IP [NP [N - ] [CP  $t'_i$  ... ] ] [I' I [VP V ] ] ]  
 b. [VP [NP [N - ] [CP  $t'_i$  ... ] ] [V' V ] ]

In both cases, the NP-shell occupies a specifier position (SpecI and SpecV, respectively); however, we have derived above that incorporation from specifier positions is not possible due to an ECP violation with the incorporation trace (which fails to be p-commanded, hence antecedent-governed, by its chain antecedent). Hence, the NP-shells in the examples in (61) through (63) are invariably barriers, and induce a Subjacency violation in cases of argument extraction, and an ECP effect in cases of adjunct movement.

NP-shells that dominate direct object clauses, on the other hand, allow incorporation of their head if the matrix verb has the lexical property to m-select the empty nominal head – the reason for this is that NP-shells in direct object positions are complements of V, so that p-command can be established after (abstract) noun incorporation. The relevant structural configuration is depicted in (68).

- (68) [VP [V' [NP [N - ] [CP  $t'_i$  ... ] ] V ] ]

From the current viewpoint, it makes sense to assume that bridge verbs are exactly those verbs that m-select the empty nominal head of their propositional complement. Therefore, only these verbs allow abstract noun incorporation, and are thus able to remove the NP barrier (since N and V become non-distinct at S-structure by co-indexing). In this way, the contrast between the sentences in (64) on the one hand, and those in (65) on the other, is ultimately reduced to a lexical property of the embedding verb, viz., its (in-) ability to m-select and thus incorporate the NP-shell. Under this view, verbs like *denken* and *meinen* ('think,' 'believe') m-select an empty nominal head (cf. (64-ab)), whereas verbs like *leugnen* ('deny') and *wissen* ('know') do not.<sup>34</sup> Since it seems rather difficult to contrive independent arguments for a structural difference between the clausal complements of bridge and non-bridge predicates, such a partially *lexical* approach looks like the most promising one.<sup>35</sup>

Of course, the NP-shell hypothesis requires independent justification. I will not attempt to provide this here; cf. Müller (1989) and Müller & Sternefeld (1995) for further arguments in support of NP-shells.<sup>36</sup> Let us now turn to successive-cyclic extraction from infinitives.

### 3.6. Infinitives

Infinitives are in general much more transparent for extraction than finite clauses (cf., e.g., Chomsky (1981: 303f)). As shown in (69), extraction of a *wh*-argument from an object infinitive does not depend on bridge properties of the matrix verb in German.

- (69) a. Was<sub>i</sub> hat der Frank [CP t'<sub>i</sub> [IP PRO t<sub>i</sub> zu reparieren ]]  
 what<sub>acc</sub> has ART Frank<sub>nom</sub> to fix  
 versucht ?  
 tried
- b. Was<sub>i</sub> hat der Frank [CP t'<sub>i</sub> [IP PRO t<sub>i</sub> zu reparieren ]]  
 what<sub>acc</sub> has ART Frank<sub>nom</sub> to fix  
 abgelehnt ?  
 rejected
- c. Was<sub>i</sub> hat der Frank [CP t'<sub>i</sub> [IP PRO t<sub>i</sub> repariert zu  
 what<sub>acc</sub> has ART Frank<sub>nom</sub> fixed to  
 haben ]] geaugnet ?  
 have denied

In (69-a), successive-cyclic *wh*-extraction of an argument occurs from an infinitive which is embedded by a matrix verb (*versuchen* ('try')) that permits a "coherent construction," and thus licenses even long-distance scrambling (which otherwise is impossible in German, cf. chapter 3). In other words, the context in (69-a) can independently be shown to be transparent for movement. In (69-b), on the other hand, the matrix verb *ablehnen* ('reject') does not permit a coherent construction; accordingly, long-distance scrambling is prohibited. Nevertheless, successive-cyclic *wh*-extraction is fine, as indicated. Finally, in (69-c), there is *wh*-extraction from an infinitive that is embedded by the verb *leugnen* ('deny'); *leugnen*, however, is not a bridge verb, as we have seen in the last section (recall the discussion of the examples in (64) and (65)) – still, *wh*-extraction in (69-c) apparently does not create an ill-formed structure.

Note also that *wh*-extraction of an adjunct may freely apply from infinitives in a successive-cyclic fashion in German. This is shown in (70).

- (70) Wie<sub>i</sub> hat der Frank [CP t'<sub>i</sub> [IP PRO t<sub>i</sub> das Fahrrad repariert zu  
 how has ART Frank<sub>nom</sub> the bicycle<sub>acc</sub> fixed to  
 haben ]] geaugnet ?  
 have denied

As indicated, (70) can be understood as a question concerning Frank's fixing of the bicycle, and not only as a question of how he denied his fixing of the

bicycle (in fact, the embedded reading is much more natural than the matrix reading).

Thus, *wh*-extraction from object infinitives in German evidently never crosses a barrier – otherwise we would expect a Subjacency violation with object movement in (69-c) (and perhaps also (69-b)), and an ECP effect with adjunct movement in (70). Interestingly, essentially the same situation arises with *wh*-extraction from subject infinitives in German. Consider the examples in (71).<sup>37</sup>

- (71) a. Was<sub>i</sub> hat [CP t'<sub>i</sub> [IP PRO t<sub>i</sub> zu beanstanden ]] sich nicht gehört ?  
 what has to complain of REFL not befitted
- b. Ich weiß nicht wen<sub>i</sub> [CP t'<sub>i</sub> [IP PRO t<sub>i</sub> gesehen zu haben ]] den  
 I know not who<sub>acc</sub> seen to have ART  
 Fritz beeindruckt hat  
 Fritz<sub>acc</sub> impressed has

In (71-ab), a *wh*-argument is extracted from a non-finite CP that occupies a subject position; the resulting constructions are fully well formed. Again, the same conclusion applies in the case of *wh*-movement of an adjunct from a subject infinitive in German. This is shown in (72).

- (72) Wie<sub>i</sub> würde [CP t'<sub>i</sub> [IP PRO t<sub>i</sub> ein Fahrrad zu reparieren ]] sich  
 how would a bicycle<sub>acc</sub> to fix REFL  
 nicht gehören ?  
 not benefit

In the framework adopted here, the obvious conclusion to be drawn from these facts is that infinitives are structurally impoverished in German, in the sense that an NP-shell is absent. Under this view, infinitives are bare CPs. As such, they are barriers for everything included in C'; however, they do not block successive-cyclic *wh*-extraction of arguments or adjuncts via SpecC. In particular, given the definition of barrier adopted so far, it follows that all bare CP infinitives are transparent for extraction via SpecC, irrespective of the actual position where the infinitive occurs (within the VP or in SpecI), and irrespective of whether or not the matrix verb has bridge properties.

Thus, the general non-barrierhood of infinitives in German strongly argues against a theory of barriers which is based on the notion of "selection" or "L-marking." Such a theory invariably fails to account for the contrast between subject NPs (and finite subject clauses) on the one hand, and subject infinitives on the other, with respect to movement transparency in German. However, this asymmetric behaviour does not pose an unsurmountable problem for the rigid minimality approach to barriers adopted here; on such an approach, the difference between (a) subject NPs (and finite subject clauses)

and (b) subject infinitives ultimately reduces to the fact that CPs do, and NPs do not, have an escape hatch for successive-cyclic *wh*-movement.<sup>38</sup>

### 3.7. CNPC effects

According to the Complex Noun Phrase Constraint (CNPC) introduced by Ross (1967/1986: 76), extraction from a clause that is dominated by an NP is illicit. Standardly, two types of CNPC effects are distinguished (cf. for instance Chomsky (1986: 34ff)), viz., complement clause effects and relative clause effects. I address the two issues in turn.

#### 3.7.1. Complement clauses

As observed by Lasnik & Saito (1984) and Chomsky (1986), among others, *wh*-extraction of an adjunct from a complement clause of a noun is strongly ungrammatical, cf.:

(73) \*How<sub>i</sub> did John announce [NP a [N' plan [CP t'<sub>i</sub> to fix the car t<sub>i</sub> ]]] ?

On the other hand, *wh*-extraction of an argument from the same environment typically induces a somewhat weaker violation in English, as is shown in (74).

(74) ?\*[ Which book ]<sub>i</sub> did John hear [NP a rumour [CP t'<sub>i</sub> that you had read t<sub>i</sub> ]] ?

How, then, can the complement case of the CNPC be derived from the theory of barriers? Chomsky (1986: 36) assumes that N' is a minimality barrier in (73) that strictly blocks adjunct movement in this configuration. (The adjunct trace t'<sub>i</sub> is not antecedent-governed by its chain antecedent, and hence violates the ECP at LF.) As concerns the intermediate status of (74), Chomsky proposes that CP is a "weak" barrier which produces a Subjacency violation in the case of argument extraction. However, CP is considered to be L-marked by Chomsky; therefore, he suggests that "nouns assign oblique Case and that this imposes an inherent barrier" (cf. also Lasnik & Saito (1992: 89)).

Pursuing a somewhat different approach, Kiss (1990) argues (following Stowell (1981)) that what at first sight looks like a complement clause of a noun in examples like (73) and (74) is actually an appositive clause, i.e., a non-argument. Then, CP in (73) and (74) is not  $\Theta$ -marked, and hence not L-marked. It thus qualifies as a barrier, and blocks adjunct extraction and argument extraction, by the ECP and the Subjacency condition, respectively. If this line of reasoning is correct, it looks as though a theory of barriers that crucially rests on the notion of L-marking (or selection) can account for data like (73) and (74) straightforwardly. In contrast, it may seem that the rigid minimality approach to barriers adopted here has problems in ruling out

these examples. By assumption, CP is not a barrier for an intermediate trace in SpecC; but then, if abstract N incorporation is available in (73) and (74), it is unclear where a barrier occurs.

However, upon closer scrutiny, things turn out not to be that simple. Fabricius-Hansen & Stechow (1989: 175ff) show that non-relative clauses embedded in an NP fall into two groups; some qualify as appositive constructions (as argued by Stowell and Kiss), whereas others are true arguments of the noun. Hence, given the L-marking/selection approach to barriers, we should expect the former ones to be barriers for *wh*-extraction, and the latter ones to be transparent. I will now show, on the basis of data from German, that this prediction is not borne out. According to Fabricius-Hansen & Stechow (1989), CP is an argument in (75-a), and an appositive clause in (75-b).<sup>39</sup>

- (75) a. ?\*[ Welches Buch ]<sub>i</sub> hast du [NP ein Gerücht [CP t'<sub>i</sub> daß er  
which book<sub>acc</sub> have you a rumour<sub>acc</sub> that he<sub>nom</sub>  
t<sub>i</sub> gelesen hat ]] gehört ?  
read has heard
- b. ?\*Wen<sub>i</sub> hast du [NP eine Eingebung [CP t'<sub>i</sub> daß du t<sub>i</sub> beleidigt  
who<sub>acc</sub> have you an inspiration<sub>acc</sub> that you offended  
haben könntest ]] gehabt ?  
have could had

As indicated, *wh*-extraction of an argument is fairly impossible in both cases. Still, *wh*-movement of an adjunct is even worse, as is shown in (76) and (77).

- (76) \*Warum<sub>i</sub> hast du [NP ein Gerücht [CP t'<sub>i</sub> daß er t<sub>i</sub> dieses Buch  
why have you a rumour<sub>acc</sub> that he this book  
gelesen hat ]] gehört ?  
read has heard
- (77) \*Wie<sub>i</sub> hast du [NP eine Eingebung [CP t'<sub>i</sub> daß du t<sub>i</sub> den Fritz  
how have you an inspiration<sub>acc</sub> that you ART Fritz  
beleidigt haben könntest ]] gehabt ?  
offended have could had

These data clearly suggest that it is not the status of CP as an argument or non-argument that is relevant in (73) through (77). Given this state of affairs, two possibilities arise. Either we could assume with Chomsky (1986) and Lasnik & Saito (1992) that "oblique Case-assignment by N" creates an exceptional CP barrier; or the rigid minimality approach to barriers is made to account for the "complement" cases of the CNPC after all. Here I will pursue the latter strategy, and will accordingly now attempt to show that indeed two barriers intervene between the intermediate traces in the embedded SpecC

positions and their respective antecedents in the matrix SpecC positions in (73) – (77).

Recall that according to the NP-shell hypothesis as formulated in (66), all embedded finite clauses are NPs with a phonetically empty head. Now, the bracketed CPs in (73) through (77) are of course embedded finite clauses. The null hypothesis therefore is that these clauses too are dominated by an NP-shell, as depicted schematically for (76) in (78).

(78)  $\alpha_i \dots [_{NP_1} \text{ein Gerücht } [_{NP_2} [_{N-} ] [_{CP} t'_i \text{ daß } \dots t_i \dots ]]]$

Here,  $NP_1$  is the lexical NP headed by the noun *Gerücht* ('rumour'), and  $NP_2$  is the NP-shell dominating the embedded CP from which *wh*-extraction has taken place. Given that languages like German or English never permit syntactic N-to-N incorporation,  $NP_2$  will invariably be a barrier for every item it includes (irrespective of whether or not  $NP_2$  occupies a complement position in  $NP_1$ ); in particular,  $NP_2$  is a barrier for an intermediate trace in the embedded SpecC position (for which CP is not a barrier). This gives us one barrier in CNPC constructions, which suffices to rule out adjunct extraction as in (73) in English, or (76) and (77) in German, by the ECP. However, argument extraction from finite clauses embedded in a complex NP, as in (74) and (75-ab) (in English and German, respectively), appears to be worse than one would expect if only a typical weak Subjacency violation were involved. Therefore, I will assume that there is, in addition, a general prohibition against incorporation of nouns which take clausal complements.<sup>40</sup> Then, the  $NP_1$  barrier cannot be resolved via abstract incorporation in the configuration in (78); consequently, extraction from finite clauses embedded by NPs always crosses two barriers, and thus induces severe ungrammaticality (a very strong Subjacency effect) even with argument movement, as in (74) and (75-ab).<sup>41</sup>

Thus, I would like to suggest that two NP barriers are responsible for the strong deviance of successive-cyclic *wh*-extraction of an argument, and the absolute ungrammaticality of *wh*-extraction of an adjunct from a complex NP that embeds a finite clause. Now recall that I have arrived at the conclusion that infinitives do not have an NP-shell in German (cf. the preceding section). Then, *wh*-extraction from a CNPC configuration with an infinitive should cross only one barrier (viz., the complex NP itself, given that abstract incorporation, i.e., co-indexing with the matrix verb, is not available), and hence have an intermediate status in the case of argument movement. This prediction is borne out; a relevant example is given in (79).

- (79) ??Was<sub>i</sub> hat der Mechaniker erneut [NP einen Versuch [CP t'<sub>i</sub> [IP  
 what<sub>acc</sub> has the mechanic again an attempt<sub>acc</sub>  
 PRO t<sub>i</sub> zu reparieren ]]] gemacht ?  
 to fix made

Here, the NP-shell is absent in the complex NP, and only the complex NP itself is a barrier between t'<sub>i</sub> and its chain antecedent *was* ('what'). Still, this barrier suffices to completely rule out adjunct extraction from an infinitive in a complex NP, as is required in the light of examples such as (80) in German (and possibly also (73) in English, depending on whether or not we assume that an NP-shell is present here; cf. note 38).

- (80) \*Wie<sub>i</sub> hat der Mechaniker erneut [NP einen Versuch [CP t'<sub>i</sub> [IP PRO  
 how has the mechanic again an attempt<sub>acc</sub>  
 t<sub>i</sub> den Drucker zu reparieren ]]] gemacht ?  
 the printer to fix made

Let us now turn to relative clauses in complex NPs.

### 3.7.2. Relative clauses

As is well known (cf., for example, Chomsky (1986: 34ff), Stechow & Sternefeld (1988: 372), and Lasnik & Saito (1992: 88)), NP-internal relative clauses are typically very strong islands for extraction, and strictly block argument and adjunct extraction without qualification. Consider the German examples in (81).

- (81) a. \*Wen<sub>i</sub> hast du [NP einen Artikel [CP der<sub>j</sub> t<sub>j</sub> t<sub>i</sub> beeindruckt hat ]]  
 who<sub>acc</sub> have you an article that impressed has  
 geschrieben ?  
 written
- b. \*Warum<sub>i</sub> hast du [NP einen Artikel [CP der<sub>j</sub> t<sub>j</sub> den Fritz t<sub>i</sub>  
 why have you an article that ART Fritz<sub>acc</sub>  
 nicht beeindruckt hat ]] geschrieben ?  
 not impressed has written

In relative clause CPs, the SpecC position is filled by the relative operator, which is *der* in (81-ab). Hence, CP is a barrier for long-distance movement, in contrast to what we have seen in the case of non-relative NP-internal clauses in the previous subsection. Furthermore, given the NP-shell hypothesis, it follows that the structure of the complex NPs in (81) is actually as in (82) (cf. (78)), with an NP-shell intervening between the lexical NP and the relative clause CP.

(82)  $\alpha_i \dots [_{NP_1} \text{einen Artikel } [_{NP_2} [_{N - } ] [_{CP} \text{der}_j t_j \dots t_i \dots ]]]$

In the previous subsection, I have arrived at the conclusion that nouns which take clausal complements may never incorporate. Extending this hypothesis, let us say that heads of all kinds of complex NPs (i.e., of NPs that contain clauses) fail to incorporate. In addition, I have assumed that there is no N-to-N incorporation at either S-structure or LF. Under these assumptions, the *wh*-moved items in (81-a) and (81-b) are actually separated from their traces  $t_i$  in the relative clause by three barriers (viz.,  $NP_1$ ,  $NP_2$ , and CP); this induces a straightforward ECP violation in the case of adjunct movement (as in (81-b)), and a *very* strong Subjacency violation, in effect indistinguishable from an ECP effect, in the case of argument movement (as in (81-a)). In conclusion, the strict bounding nature of NP-internal relative clauses in languages like German or English follows from the assumptions made so far.

Let us now leave the issue of extraction from NPs, CPs, and NP-shells, and enter the discussion of extraction from PP.

### 3.8. PP

#### 3.8.1. P-stranding

As is well known, full lexical NPs can never be *wh*-moved from a PP in Dutch and German; in other words, these languages do not exhibit the phenomenon of "preposition stranding." This is shown for German in (83).

- (83) a. \*[ Welchem Trick ]<sub>i</sub> hat sie das [ PP mit t<sub>i</sub> ] gemacht ?  
           which trick has she that with made
- b. \*[ Welchen Antrag ]<sub>i</sub> meinst du [ CP t'<sub>i</sub> daß keiner [ PP für t<sub>i</sub> ]  
           which petition think you that no-one for  
           gestimmt hat ] ?  
           voted has

However, a phenomenon often called "postposition stranding" exists in German and Dutch. For this process to apply, it is necessary that the P-complement to be extracted is an "R-pronoun" (as in *da-r-auf* ('there-on'), *wo-r-über* ('what-about')) (cf. van Riemsdijk (1978)). Some standard examples involving P-stranding in German are given in (84).

- (84) a. Da<sub>i</sub> habe ich noch gar nicht [ PP t<sub>i</sub> von ] gehört  
           that have I yet at-all not of heard
- b. Wo<sub>i</sub> meinst du [ CP t'<sub>i</sub> daß keiner [ PP t<sub>i</sub> für ] gestimmt hat ] ?  
           what think you that no-one for voted has

In (84-a), a [-wh] R-pronoun *da* is extracted from a PP headed by the postposition *von* ('of'), and in (84-b), a [+wh] R-pronoun *wo* has undergone successive-cyclic long-distance extraction from PP, stranding the postposition *für* ('for').<sup>42</sup>

In contrast to German and Dutch, a full lexical NP can be extracted from a PP in English and in the Scandinavian languages; cf. the following English example:

(85) Which candidate<sub>*i*</sub> have you voted [<sub>PP</sub> for *t<sub>i</sub>*] ?

As in German, however, extraction of a full lexical NP is not possible in French (cf. Kayne (1981), among others):

(86) \*Quel candidat<sub>*i*</sub> as-tu voté [<sub>PP</sub> pour *t<sub>i</sub>*] ?  
 which candidate have-you voted for

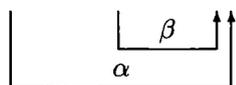
In the literature on extraction from PP, (at least) two strategies can be distinguished for handling these data. Bennis & Hoekstra (1984), Koster (1987), Grewendorf (1989), and Bayer (1990a; 1990b), all following essentially Kayne (1984), propose accounts that rely on *directionality of government* as the relevant factor that regulates extraction options. On the other hand, it has been argued by Kayne (1981), Hornstein & Weinberg (1981), and Fanselow (1983), among others, that *reanalysis* is crucial in determining extraction options in the case of PP. Here I will pursue the second strategy, with the notion of (structure-preserving) abstract incorporation replacing the notion of (non-structure-preserving) reanalysis.<sup>43</sup>

The basic claim of Kayne (1981) and Hornstein & Weinberg (1981) (adapted to contemporary terminology) is that PP is not a barrier for extraction only if P and V undergo reanalysis, i.e., form a "complex verb" in an abstract sense. Reanalysis is assumed to be possible if P and V assign Case in the same way. Since V assigns structural Case, this implies that P also has to assign structural Case. Thus, given that P assigns structural Case in English, reanalysis is an option, and extraction from PP hence possible in principle. On the other hand, given that P is not an assigner of structural Case in a language like French, reanalysis is impossible, and P-stranding is consequently not permitted in this language. This accounts for the contrast between (85) and (86). But what about the German data in (83) and (84)? The important insight of Fanselow (1983: 62ff) is that R-pronouns like *da* and *wo* in German do not have to receive Case (also see Bennis & Hoekstra (1984) for Dutch). If this is so, it follows that P does not have to assign Case in examples like (84-ab) in German, whereas P must assign Case in examples like (83-ab). Assuming that Case-assignment by P in German patterns with Case-assignment by P in French in that the Case assigned by P is not structural, the ungrammaticality of (83-ab) is derived in the same way as the ungrammaticality of (86)

in French. As concerns (84-ab) with extraction of an R-pronoun in German, Fanselow assumes that Kayne's (1981) constraint on reanalysis is to be modified in such a way that reanalysis of P and V is possible as long as P and V do not assign Case in a *different* way (which obviously they do not if P does not assign Case at all).

Let us now see how the basic features of such an approach can be integrated into the theory of extraction adopted here. First suppose that P, like N, is not a proper ( $\Theta$ -) governor. Under this assumption, a PP-internal trace must always be antecedent-governed by its chain-antecedent. Furthermore, suppose that SpecP does not qualify as an A-bar position, possibly because this position contains an implicit subject argument (as argued by Kolb & Thiersch (1991) and Stechow (1991)). Then, it follows that PP is a barrier for every trace it includes. Adjunction to PP in the course of *wh*-movement would suffice to circumvent this barrier, but this option is excluded by the PUB, as shown in (87).

(87) \* $[_{CP} wh_i \dots [_{PP} t'_i [_{PP} \dots t_i \dots ]]]$



Given this state of affairs, *wh*-extraction from PP is predicted to be possible only if the barrierhood of PP can be resolved. As with extraction from NP, we can disregard empty identification and overt incorporation from the start (a lexical V always being non-empty, and overt incorporation of (at least transitive) Ps obviously not being an option either in languages like German – cf. however appendix 2 of chapter 4 on overt incorporation of intransitive P categories). What remains, then, is abstract incorporation of P into V. In all the examples in (83) through (86), the PP is in a position very close to the verb; therefore we may conclude that (abstract) P incorporation into V would not violate the p-command requirement for head traces (ultimately, the ECP) in any of these examples. Interestingly, abstract P incorporation does not appear to be subject to lexical variation, in contrast to abstract N incorporation (see above); let us therefore assume that V always m-selects (hence, may abstractly incorporate) P if it c-selects PP. Why, then, is abstract incorporation apparently blocked in the German examples (83-ab) and the French example (86), but not in the German examples (84-ab) and the English example (85)?

Towards a solution, recall what has been said in section 3.4.2 about the relation between Case-assignment and (abstract or overt) N incorporation. I have assumed, following essentially Baker (1988), that after incorporation into a lexical category, the head trace cannot assign Case anymore. This means that after (abstract) P incorporation, the trace of P fails to assign Case to

a PP-internal NP. Now, in principle, the governing verb may assign Case to a PP-internal NP; and I would indeed like to contend that this option exists in English and in the Scandinavian languages. Thus, in an example like (85), which is repeated here as (88), abstract P incorporation may take place, thereby resolving the barrierhood of PP and permitting extraction. The *wh*-moved NP (more precisely, the trace of this NP) then cannot receive Case from P anymore; but it may receive Case from the matrix verb, and thus meets the requirements imposed by the Case Filter.

(88) Which candidate<sub>*i*</sub> have you voted [<sub>PP</sub> for t<sub>*i*</sub> ] ?

If, as a consequence of parametric variation, a matrix verb may *not* assign Case to a PP-internal NP (or its trace) after abstract P incorporation in a given language, we expect that *wh*-extraction from a PP becomes illicit due to a conspiracy of the Case Filter and the ECP (recall that I have argued that just this situation occurs with LBC and SSC effects in the case of extraction from NP in languages like English and German). Thus, suppose that in French and German (more generally, in those languages that do not allow P-stranding with full lexical NPs) V cannot assign Case to a PP-internal NP if abstract P incorporation takes place. Then, the ungrammaticality of the examples in (83) and (86) follows without further stipulation. Either P incorporation takes place, so that the PP barrier is resolved, and *wh*-extraction from PP does not violate the ECP; but then, the Case Filter is violated. Or, if P incorporation does not occur, the Case Filter is respected, but the ECP rules out *wh*-extraction because PP remains a barrier.

Finally, consider movement of an R-pronoun from a PP, as in the German examples (84-a) and (84-b), which are repeated here in (89).

(89) a. Da<sub>*i*</sub> habe ich noch gar nicht [<sub>PP</sub> t<sub>*i*</sub> von ] gehört  
           that have I yet at-all not of heard  
       b. Wo<sub>*i*</sub> meinst du [<sub>CP</sub> t'<sub>*i*</sub> daß keiner [<sub>PP</sub> t<sub>*i*</sub> für ] gestimmt hat ] ?  
           what think you that no-one for voted has

Given Fanselow's (1983) hypothesis that R-pronouns like *da* and *wo* in German do not have to receive Case, the well-formedness of (89-ab) now follows straightforwardly. Again, abstract P incorporation must take place, so as to resolve the PP barrier, and guarantee that the ECP is respected; and again, this implies (in a language like German) that a PP-internal NP cannot be Case-marked. However, the extracted items *da* and *wo* in (89-a) and (89-b), respectively, do not have to be Case-marked in the first place, by assumption. Hence, abstract incorporation cannot have a damaging effect on extraction of R-pronouns from PP.<sup>44</sup>

Summarizing so far, we arrive at the following generalization with respect to extraction from PP in languages like English, German, or French.<sup>45</sup>

- (90) PP is a barrier for everything it includes unless P and V are rendered non-distinct via abstract incorporation. Abstract incorporation is impossible if P is to assign Case; hence, only those items may be extracted from PP that do not have to receive Case at all (like R-pronouns in German and Dutch), or may receive Case from the governing verb (like NPs in English).

### 3.8.2. Subextraction

Let us now turn to the phenomenon of “subextraction” or “*was-für* split” in German and Dutch. As observed by den Besten (1981: 102f), subextraction of *was* (‘what’) is possible from direct objects, but not from indirect objects or subjects in German. The transparency of direct objects for subextraction is shown in (91).

- (91) a. [ Was für Briefe ]<sub>i</sub> hat der Fritz [NP den Leuten ] t<sub>i</sub>  
           what for letters<sub>acc</sub> has ART Fritz<sub>nom</sub> the people<sub>dat</sub>  
           geschickt ?  
           sent
- b. Was<sub>i</sub> hat der Fritz [NP den Leuten ] [ t<sub>i</sub> für Briefe ]  
           what has ART Fritz<sub>nom</sub> the people<sub>dat</sub> for letters<sub>acc</sub>  
           geschickt ?  
           sent

In (91-a), the whole *was-für*-phrase has undergone *wh*-movement; in (91-b), on the other hand, *was* alone has been “subextracted,” stranding *für Briefe* (‘for letters’) in situ. Subextraction is generally not an option in the case of subjects in a language like German, however; cf. (92-a) vs. (92-b):<sup>46</sup>

- (92) a. [ Was für Leute ]<sub>i</sub> haben t<sub>i</sub> dem Fritz einen Brief  
           what for people<sub>nom</sub> have ART Fritz<sub>dat</sub> a letter<sub>acc</sub>  
           geschickt ?  
           sent
- b. \*Was<sub>i</sub> haben [ t<sub>i</sub> für Leute ] [NP dem Fritz ] einen Brief  
           what have for people<sub>nom</sub> ART Fritz<sub>dat</sub> a letter<sub>acc</sub>  
           geschickt ?  
           sent

Finally, the islandhood of indirect objects for subextraction in German is shown in (93).

- (93) a. [ Was<sub>i</sub> für Leuten ]<sub>i</sub> hat der Fritz t<sub>i</sub> [NP Briefe ]  
 what for people<sub>dat</sub> has ART Fritz<sub>nom</sub> letters  
 geschickt ?  
 sent
- b. \*Was<sub>i</sub> hat der Fritz [ t<sub>i</sub> für Leuten ] [NP Briefe ] geschickt ?  
 what has ART Fritz<sub>nom</sub> for people<sub>dat</sub> letters sent

The conclusion drawn by den Besten (1981) in the light of this evidence is that subextraction of *was* is possible only if the whole *was-für*-phrase is governed by V. Clearly, then, what seems to be involved is the ECP; and indeed, Safir (1985: 208-209), Koster (1987: 245ff), and Riemsdijk (1989), among others, have suggested that government by V must percolate from the whole *was-für*-phrase to the trace of *was*, and thereby produces proper (lexical) government of this trace. In contrast to these approaches, Bennis (1983), Fanselow (1987: 60ff), and Grewendorf (1989: 31-34) propose that the examples in (92-b) and (93-b) are ungrammatical because a Subjacency violation occurs (with NP and IP being bounding nodes). The example in (91-b), under this view, is grammatical because a reanalysis rule has applied to the direct object; reanalysis takes *was* out of the *was-für*-phrase (without leaving a trace), so that the *was-für*-phrase cannot block extraction anymore. Now, if reanalysis really is involved in licensing subextraction, it might seem at first sight that the examples in (91) - (93) could be analysed along the lines of abstract noun incorporation, just as I have argued to be case with purported reanalysis phenomena in extraction from NP. I will now show that there is some evidence against such an approach.

Crucially, all of the analyses just sketched presuppose that *was-für*-phrases are NPs (or DPs), and, consequently, that *was-für* split behaves in important respects like other kinds of extraction from NP (DP). However, recall from section 3.4.1 that extraction from NP is not only restricted by structural factors, but is also subject to lexical variation in German. Thus, *wh*-extraction from a direct object is possible with certain governing verbs, and impossible with others. Consider again a relevant minimal pair, as in (94) (= (42-cd)).

- (94) a. [PP Über wen ]<sub>i</sub> hat der Wolfgang [NP ein Buch t<sub>i</sub> ]  
 about whom has ART Wolfgang<sub>nom</sub> a book<sub>acc</sub>  
 geschrieben ?  
 written
- b. \*[PP Über wen ]<sub>i</sub> hat der Wolfgang [NP ein Buch t<sub>i</sub> ]  
 about whom has ART Wolfgang<sub>nom</sub> a book<sub>acc</sub>  
 geklaut ?  
 stolen

If subextraction is to be analysed along the same lines as *wh*-extraction from NP, we should expect lexical variation to play a role. The data in (95-ab) show that this prediction is not borne out.

- (95) a. Was<sub>i</sub> hat der Wolfgang [ t<sub>i</sub> für ein Buch ] geschrieben ?  
 what has ART Wolfgang for a book<sub>acc</sub> written
- b. Was<sub>i</sub> hat der Wolfgang [ t<sub>i</sub> für ein Buch ] geklaut ?  
 what has ART Wolfgang for a book<sub>acc</sub> stolen

In (95-a), the governing verb permits extraction from NP (cf. (94-a)), and, in line with this, *was-für* split is possible. But the governing verb in (95-b) does not permit extraction from NP (cf. (94-b)) – however, *was-für* split is still possible nonetheless. Thus, the lack of lexical variation with subextraction clearly suggests that what is involved is not actually extraction from NP – otherwise, (95-b) should be ill formed. I would like to suggest, then, that subextraction is to be analysed as an instance of extraction from PP; in other words: *was-für* split involves P-stranding. Let me now tentatively develop an approach along these lines.

As a first step, suppose that *was-für*-phrases are to be analysed as PPs, rather than NPs, as shown in (96).

- (96) a. [PP was [P' für [NP ein Buch ]]]  
 what for a book
- b. [PP was [P' für [NP Bücher über die Liebe ]]]  
 what for books about the love

Now recall from the previous subsection that extraction from PP does not appear to be restricted by lexical factors – in general, the barrierhood of PP can always be resolved via abstract P incorporation if the PP is “close” enough to the verb, i.e., if p-command of the X<sup>0</sup>-trace takes place after incorporation (with the proviso made in note 45). This explains the lack of lexical variation with subextraction, as evidenced by the data in (95). Furthermore, it now follows that heads of *was-für*-phrases in direct object positions can abstractly incorporate into V, whereas heads of *was-für*-phrases in subject or indirect object positions cannot. This accounts for the data in (91) through (93). Note that I have argued that (abstract) incorporation of P and Case-assignment by (a trace of) P are incompatible in German. Accordingly, I would like to contend that the NP *was* in *was-für*-constructions does not have to receive Case, just like the R-pronouns *wo* and *da* in German.

Thus, the subextraction cases discussed so far are accounted for under the hypothesis that *was-für*-phrases have the structure depicted in (96). Moreover, it turns out that certain ungrammatical extractions from *was-für*-phrases can

be ruled out without further stipulation. Consider, for instance, German examples like those in (97) (cf. Corver (1991: 218)).

- (97) a. \*[ Was für ] hast du ein Buch gelesen ?  
           what for have you a book read  
       b. \*[ Was für ein ] hast du Buch gelesen ?  
           what for a have you book read

If the structure of *was-für*-phrases looks as in (96), neither *was für* in (97-a), nor *was für ein* in (97-b) are constituents; hence, these strings cannot undergo movement as a single item.

Still, this approach to subextraction phenomena, and in particular the assumption that *was-für*-phrases are PPs, rather than NPs, raises a number of substantial problems. For one thing, we must now admit the general possibility of PPs occurring in what otherwise are regarded as NP positions, such as SpecI. In this case, one might speculate that *was-für*-phrases may occur in NP positions despite formally being PPs, ultimately because the preposition *für* in these constructions is semantically completely empty, the idea being that *was-für*-phrases are PPs only in a very weak sense. Similar problems show up with respect to Case-assignment – obviously, the full lexical NP in *was-für*-phrases receives Case not by the preposition *für*, but rather from “outside” the PP, by I or the governing verb. Thus, again, the preposition *für* in these contexts must not count as an intervening category with respect to Case assignment. For concreteness, let us assume that I or V assigns Case to the whole *was-für*-PP; this Case then percolates to the complement of *für*. In conclusion, under the assumption that *was-für*-phrases are PPs, it must be guaranteed that the prepositional nature of *was-für*-phrases is in a way “invisible” for many grammatical processes, in particular as far as selection and Case-assignment are concerned.

Eventually, these problems might be taken as to indicate that *was-für*-phrases are NPs after all (and not PPs, as I have suggested). But then, in order to reconcile such an assumption with the fact that subextraction behaves like extraction from PP, and not from NP, in all relevant respects, one would be forced to assume that there is always PP-movement of *was für* to an “NP-external” position, such that P could legitimately incorporate into V (and abstract N incorporation would not be an issue). An analysis of subextraction along these lines, however, would necessitate some non-trivial changes in the theory of barriers, which are otherwise not needed, and would also probably be in conflict with the derivation of the strict islandhood of adjuncts, to which I will turn below. Therefore, I will not embark on this issue here, and simply presuppose that an approach to subextraction along the lines just indicated might be viable given some additional adjustments. That said, let me now turn to the barrierhood of AP.

### 3.9. AP

#### 3.9.1. Predicative APs vs. attributive APs

As shown in (98-ab), predicative APs embedded by *sein* ('be') are never barriers for *wh*-extraction in German.

- (98) a. Wem<sub>i</sub> ist keiner [AP t<sub>i</sub> treu ] gewesen ?  
           whom<sub>dat</sub> is no-one faithful been  
       b. Wessen<sub>i</sub> sind wir jetzt [AP t<sub>i</sub> überdrüssig ] ?  
           who<sub>gen</sub> are we now tired

On the other hand, an attributive AP that modifies a noun always blocks movement in German; cf.:

- (99) \*Wem<sub>i</sub> hast du [NP ein [AP t<sub>i</sub> leicht zugängliches ] Buch [ über  
           whom<sub>dat</sub> have you a easily accessible book<sub>acc</sub> about  
           die Liebe ]] gelesen ?  
           the love read

Suppose that AP, just like NP, VP, and PP, does not have an A-bar specifier position, and hence does not have an escape hatch. As was the case with other kinds of XPs, adjunction to AP is not an option in the course of *wh*-movement, because of the PUB. Under these assumptions, AP is a potential barrier for everything it includes; apparently, the barrierhood of AP can be voided in (98), but not in (99). Let us see why this should be so.

In (98-ab), AP is a complement of the copula verb *sein*; hence, abstract A-to-V incorporation is possible in principle (i.e., p-command of the A trace takes place after LF incorporation). Let us, in addition, assume that a copula verb always m-selects the head of the predicative XP it c-selects. Abstract A-to-V incorporation may then apply throughout, in cases like (98-ab), and AP is never a barrier in constructions like these. (Case-assignment by A to the trace of the *wh*-moved NP in (98-ab) is also not blocked because the landing site of abstract incorporation is a functional category.) Turning now to attributive APs, as in (99), let us assume, as seems natural, that APs that modify a noun do not occupy a complement position in NP. A possible structure of the NP in (99) could be (100), with N' recursion.

- (100) [NP ein [N' [AP t<sub>i</sub> leicht zugängliches ] [N' Buch [ über die Liebe ]]]]

To resolve barrierhood, abstract incorporation of A into the next higher head, i.e., into N, must take place. Under the notion of p-command assumed earlier, however, the trace of the adjective cannot satisfy the ECP at LF after A-to-N incorporation. Hence, the strict barrierhood of attributive APs follows. Again, the question arises of whether A is a proper ( $\Theta$ -) governor or not. If it

is, *wh*-extraction as in (99) should involve only a weak Subjacency violation; if it is not, a stronger ECP effect is predicted. The strong deviance of (99) clearly points to the latter hypothesis. Let us thus maintain that A is not a proper governor. More generally, then, the conclusion to be drawn is that only V serves as a proper  $\Theta$ -governor for a trace.

### 3.9.2. Small clause APs

Argumental small clause APs are transparent for *wh*-movement in German. This is shown in (101).

- (101) a. Ich finde [AP ihn blöd ]  
           I consider him stupid
- b. Wen<sub>i</sub> findest du [AP t<sub>i</sub> blöd ] ?  
           who consider you stupid

Here, the AP subject *ihn* in (101-a), and the trace of the *wh*-moved AP subject *wen* in (101-b), receive Case from the matrix verb via Exceptional Case Marking (ECM) (cf. also note 26). Abstracting away for the time being from the pertinent remarks on *was-für*-phrases in the previous section, Case-government of an NP by a matrix verb is possible only if no barrier intervenes. This already necessitates the removal of an AP barrier in (101). Of course, the well-formedness of the *wh*-extraction case (101-b) also indicates that AP is not a barrier in argumental small clause constructions. The non-barrierhood of argumental small clause APs does indeed follow directly in the system developed so far if we follow Stowell (1991a: 185ff) in assuming that there is always LF movement of the head of an argumental AP small clause to the governing matrix verb, i.e., abstract A-to-V incorporation, just as in the case of the copula construction in (98).

Attributive small clause APs, on the other hand, block *wh*-movement in languages like German. This is shown in (102).

- (102) a. Sie<sub>k</sub> hat [AP PRO<sub>k</sub> [ diesem Beschluß ] treu ] den Plan  
           she has this resolution<sub>dat</sub> faithful the plan  
           aufgegeben  
           given-up
- b. \*[ Welchem Beschluß ]<sub>i</sub> hat sie<sub>k</sub> [AP PRO<sub>k</sub> t<sub>i</sub> treu ] den  
           which resolution<sub>dat</sub> has she faithful the  
           Plan aufgegeben ?  
           plan given-up

The barrierhood of AP in (102-b) is derived if we assume that abstract incorporation is not an option here. Indeed, Stowell (1991a) argues that the head of an attributive small clause AP does not undergo head movement at LF, i.e.,

it fails to abstractly incorporate. (Note in passing that such an assumption is independently required in order to maintain that the empty pronominal PRO subject in the attributive AP is not governed from outside, in line with the demands imposed by the PRO theorem (cf. Chomsky (1981) or Chomsky & Lasnik (1993).) Given that attributive small clause APs as in (102-ab) do not occupy complement positions within VP, but rather are adjoined to VP, it follows that abstract A-to-V incorporation is excluded if we can derive that heads of structural adjuncts can never undergo incorporation, for principled reasons. Indeed, I will later show that abstract incorporation from an XP in an adjoined position invariably creates an ECP violation with the  $X^0$ -trace due to a lack of p-command. For the time being, it may suffice to note that AP in (102-b) is “too far away” from the verb for abstract incorporation to be legitimate.

Summarizing, the following generalization emerges as concerns the barrierhood of APs.

- (103) AP is a barrier for everything it includes unless A and V are made non-distinct via abstract incorporation. Hence, predicative APs (which show up in complement positions) are not barriers, whereas attributive APs (which do not occur in complement positions) are.

This concludes the discussion of the barrierhood of XPs *in situ*. Let us now see what consequences arise for the barrierhood of an XP if that XP itself has undergone movement.

## 4. Barriers in derived positions

In this section, I will discuss the effects of four different types of movement on the barrierhood of an XP, viz., (a) A-movement; (b) scrambling; (c) *wh*-movement; and (d) topicalization. We will see that the theory of barriers adopted here predicts that, on the one hand, movement of an XP that is a barrier *in situ* can never remove its barrierhood, and that, on the other hand, movement of an XP that is transparent in its *in-situ* position invariably turns XP into a barrier (for items that do not occupy an escape hatch in XP) – i.e., a so-called Freezing effect arises. It will emerge that this theoretical prediction is indeed empirically corroborated.

### 4.1. A-movement

German differs from English in that it does not exhibit obligatory A-movement of a THEME argument to the SpecI position in passive and unaccusative constructions – generally, the THEME argument may stay in the VP in the direct object position. Following Grewendorf (1989: ch. 3), let us assume that

this option is due to the availability of an empty expletive *pro* in German which occupies the SpecI position, and transmits nominative Case assigned by I (under specifier/head agreement) to a VP-internal NP via co-indexing. The two alternatives in German passive constructions are exemplified by the data in (104).

- (104) a. daß kein Geld<sub>i</sub> dem Arnim t<sub>i</sub> gegeben wird  
 that no money<sub>nom</sub> ART Arnim<sub>dat</sub> given PASS  
 b. daß <sup>i</sup>pro dem Arnim <sup>i</sup>kein Geld gegeben wird  
 that EXPL ART Arnim<sub>dat</sub> no money<sub>nom</sub> given PASS

Under this view, an empty expletive *pro* is not present in (104-a); hence, A-movement to SpecI occurs so as to satisfy the Case Filter. In (104-b), on the other hand, *pro* is present and may thus transmit nominative Case to the NP *kein Geld* ('no money') by virtue of co-indexing.

Given these two strategies in German passive and unaccusative constructions, an interesting prediction arises. A THEME NP in passive or unaccusative constructions that stays in situ within the VP (as in (104-b)) should in principle be able to remove its barrierhood via abstract incorporation (subject to lexical variation); a THEME NP that has undergone raising to SpecI (as in (104-a)), on the other hand, should invariably become a barrier, just like other structural subjects (due to the non-availability of p-command of the X<sup>0</sup>-trace after abstract incorporation). As noted by den Besten (1981: 102ff) and Grewendorf (1989: 42ff), this prediction is borne out. Consider first passive constructions, as in (105).<sup>47</sup>

- (105) a. Worüber<sub>i</sub> ist von keinem [NP ein Buch t<sub>i</sub>] gelesen worden ?  
 about-what is by no-one a book<sub>nom</sub> read been  
 b. \*Worüber<sub>i</sub> ist [NP ein Buch t<sub>i</sub>] von keinem gelesen  
 about-what is a book<sub>nom</sub> by no-one read  
 worden ?  
 been  
 c. \*Worüber<sub>i</sub> ist von keinem [NP ein Buch t<sub>i</sub>] geklaut  
 about-what is by no-one a book<sub>nom</sub> stolen  
 worden ?  
 been

In (105-a), the THEME NP remains in situ, and is transparent for *wh*-extraction; in (105-b), the THEME NP has undergone raising to SpecI, and turns into a barrier. As shown by (105-c), *wh*-extraction from in-situ THEME NPs in passive constructions in German is still susceptible to lexical factors – if the governing verb does not m-select N (hence, does not permit abstract N incorporation), the barrierhood of NP cannot be removed.

Essentially the same situation arises with unaccusative constructions in German, cf.:

- (106) a. Wogegen<sub>i</sub> ist dem Willi [NP ein gutes Argument t<sub>i</sub> ]  
 against-what is ART Willi<sub>dat</sub> a good argument<sub>nom</sub>  
 eingefallen ?  
 occurred-to
- b. \*Wogegen<sub>i</sub> ist [NP ein gutes Argument t<sub>i</sub> ] dem Willi  
 against-what is a good argument<sub>nom</sub> ART Willi<sub>dat</sub>  
 eingefallen ?  
 occurred-to
- c. \*Wogegen<sub>i</sub> ist dem Willi [NP eine kluge Bemerkung t<sub>i</sub> ]  
 against-what is ART Willi<sub>dat</sub> a smart remark<sub>nom</sub>  
 gelungen ?  
 succeeded

In (106-a), the THEME NP stays in situ, and receives Case via Case-transmission from the empty pronominal *pro* in SpecI. Here, *wh*-extraction is possible. However, in (106-b), the THEME NP has undergone movement to SpecI. In that position, it is invariably a barrier, and *wh*-extraction is illicit, as expected. Finally, (106-c) shows that *wh*-extraction from unaccusative subjects in situ in a language like German is subject to lexical variation – certain verbs permit extraction (like *einfallen* ('occur-to') in (106-a)), whereas others do not (like *gelingen* ('succeed') in (106-c)).

In conclusion, we have seen that A-movement creates barriers. Let us now turn to scrambling.

## 4.2. Scrambling

In chapter 3, I will argue in some detail that scrambling is to be analysed uniformly (i.e., across languages with varying degrees of free constituent order) as an S-structural A-bar movement type that left-adjoins some XP to another XP. The possible landing sites are subject to parameterization – in German, scrambling may land in either an IP- or VP-adjoined position. Under this assumption, a typical scrambling configuration looks as in (107) (with Y = V or I in German).

- (107) [YP [XP ... X ... ] [YP ... Y ... ]]

Suppose now that some category  $\alpha$  is included in XP in (107), and does not occupy an escape hatch in XP (either because XP does not have an escape hatch, or because this escape hatch is not accessible). Then, it follows that *wh*-extraction of  $\alpha$  from XP in (107) is possible only if X is made non-distinct

from Y, which is the next higher head above XP (recall the definition of barrier in (16')). Given that V and I, by definition, are not radically empty, the barrierhood of XP in (107) can only be resolved via (abstract or overt) incorporation of X into Y. However, under the assumption that antecedent-government requires p-command, it follows that X and Y can never become non-distinct via incorporation in (107) – after X-movement to Y, X does not p-command, and hence fails to antecedent-govern, its XP-internal trace, eventually because scrambled items are adjuncts, and adjuncts, like specifiers, are too far away from a head for incorporation. Thus, the prediction is that a scrambled item is always a barrier for an element it includes, unless this element occupies an escape hatch. I will now illustrate that this prediction does indeed appear to be empirically correct.

Consider first *wh*-extraction from direct object NPs. In (108), some acceptable examples involving *wh*-extraction from direct objects in situ in German are repeated (cf. (42-c) and (49-a)).

- (108) a. [PP Über wen ]<sub>i</sub> hat der Wolfgang letztes Jahr [NP ein  
           about whom has ART Wolfgang<sub>nom</sub> last year a  
           Buch t<sub>i</sub> ] geschrieben ?  
           book<sub>acc</sub> written
- b. [PP Über wen ]<sub>i</sub> hat keiner einer Frau [NP ein Buch  
           about whom has no-one<sub>nom</sub> a woman<sub>dat</sub> a book<sub>acc</sub>  
           t<sub>i</sub> ] gegeben ?  
           given

Interestingly, *wh*-extraction may not apply if the direct objects in (108) undergo scrambling to VP or IP, as in (109).

- (109) a. \*[PP Über wen ]<sub>i</sub> hat der Wolfgang [VP [NP ein Buch  
           about whom has ART Wolfgang<sub>nom</sub> a book<sub>acc</sub>  
           t<sub>i</sub> ]<sub>j</sub> [VP letztes Jahr t<sub>j</sub> geschrieben ]] ?  
           last year written
- b. \*[PP Über wen ]<sub>i</sub> hat [IP [NP ein Buch t<sub>i</sub> ]<sub>j</sub> [IP keiner einer  
           about whom has a book<sub>acc</sub> no-one a  
           Frau t<sub>j</sub> gegeben ]] ?  
           woman<sub>dat</sub> given

In (109-a), the direct object is scrambled to VP, in front of the adverb *letztes Jahr* ('last year'); in (109-b), the direct object is adjoined to IP, in front of the subject. In both cases, *wh*-extraction from NP leads to strong deviance, as one would expect under the assumption that abstract incorporation is not possible from adjoined positions – the barrierhood of the direct object NPs

in (109) then cannot be resolved, and an ECP violation arises with the trace left by *wh*-movement.<sup>48,49</sup>

Next consider the case of extraction from PP. Recall first that extraction of an R-pronoun from a PP in situ is possible in German, as shown in (110-ab) (= (84-ab)).

- (110) a. Da<sub>i</sub> habe ich noch gar nicht [PP t<sub>i</sub> von ] gehört  
 that have I yet at-all not of heard  
 b. Wo<sub>i</sub> meinst du [CP t'<sub>i</sub> daß keiner [PP t<sub>i</sub> für ] gestimmt hat ] ?  
 what think you that no-one for voted has

In these examples, the PP is close enough to the verb to permit abstract P incorporation. But now consider P-stranding in scrambled PPs, as in (111-ab).

- (111) a. \*Da<sub>i</sub> habe ich [PP t<sub>i</sub> von ]<sub>j</sub> noch gar nicht t<sub>j</sub> gehört  
 that have I of yet at-all not heard  
 b. \*Wo<sub>i</sub> meinst du [CP t'<sub>i</sub> daß [PP t<sub>i</sub> für ]<sub>j</sub> keiner t<sub>j</sub> gestimmt  
 what think you that for no-one voted  
 hat ] ?  
 has

In (111-a), the PP from which *da*-extraction has taken place has undergone scrambling to VP; in (111-b), the PP is adjoined to IP. In both cases, strong ungrammaticality arises. Again, this follows from the theory of barriers adopted here. PPs that are adjoined to VP or IP are invariably barriers because the P head cannot legitimately undergo abstract incorporation (into V or I) due to the *p*-command requirement for antecedent-government.

As a third illustration of how XPs that are transparent for movement in situ become barriers for movement after scrambling, consider the case of VP. Thus far, we have seen that VP does in general not block movement (cf. section 3.1). For reasons to be discussed in some detail in section 6 of chapter 3, predicative XPs (like VP) cannot undergo scrambling very well in German – predicate scrambling typically has an intermediate status, and requires a certain intonational pattern (so-called I-topicalization, cf. chapter 3) to be halfway acceptable. A relevant example is given in (112).

- (112) ??daß [VP Geschirr gespült ]<sub>j</sub> hier wohl noch nie jemand t<sub>j</sub> hat  
 that dishes washed here apparently never someone has

What is important, though, is that *wh*-extraction from a scrambled VP results in much stronger ungrammaticality, cf.:

- (113) \*Was<sub>i</sub> denkst du [CP t'<sub>i</sub> daß [VP t<sub>i</sub> gespült ]<sub>j</sub> hier wohl noch nie  
 what think you that washed here apparently never  
 jemand t<sub>j</sub> hat ] ?  
 someone has

Again, the barrierhood of scrambled VPs can be derived from the approach to locality developed here – abstract V incorporation into the governing V (*hat* ‘has’ in (113)) is impossible because of the p-command requirement for incorporation. This VP barrier suffices to derive a Subjacency violation in (113). However, the ECP is not violated in (113), given the disjunctive formulation of the ECP adopted here, the reason for this being that t<sub>i</sub> is properly (Θ-) governed by V in (113). Similarly, it seems to be impossible to derive a strong Subjacency effect with two bounding nodes being crossed, because, as we have seen, IP is never a barrier in German (moreover, IP does not even include t<sub>i</sub>, because VP is adjoined to IP). Nevertheless, (113) strikes me as fairly ungrammatical. In view of this, I would like to tentatively suggest that the strong deviance of examples like this one might be due to a combination of (a) the general deviance of predicate scrambling (as evidenced by (112)), and (b) a weak Subjacency violation. In other words, the idea is that the strong ungrammaticality of (113) can be traced back to the fact that two different kinds of violations of conditions on grammar, which per se are comparatively weak, simply add up, and thereby create strong deviance.

Given this proviso, standard Freezing effects with scrambling are accounted for. Notice, however, that an interesting consequence arises with scrambling of an XP that has an escape hatch. *Wh*-extraction from such an XP is predicted to be insensitive to the position occupied by XP; and a Freezing effect should not occur. The relevant test case is made up by infinitives. Recall from section 3.6 above that successive-cyclic *wh*-extraction may take place from object infinitives embedded by non-bridge predicates as well as from subject infinitives in German. I have accounted for this state of affairs by assuming that infinitives in German lack an NP-shell. CP, on the other hand, is a barrier only for elements that do not occupy its escape hatch (i.e., not for successive-cyclic movement via SpecC). From these assumptions, it follows that German infinitives should always be transparent for successive-cyclic movement, even if they have undergone scrambling. As noted by Grewendorf (1986; 1989), this is the case. Consider, for instance, the examples in (114-ab), which involve *wh*-extraction (of an argument and an adjunct, respectively) from an infinitive that is scrambled to IP.

- (114) a. Was<sub>i</sub> hat [IP [CP t'<sub>i</sub> PRO t<sub>i</sub> repariert zu haben ]<sub>j</sub> [IP der  
 what<sub>j</sub> has fixed to have ART  
 Frank t<sub>j</sub> geleugnet ] ] ?  
 Frank<sub>nom</sub> denied

- b. Ich weiß nicht [CP wie<sub>i</sub> C [IP [CP t'<sub>i</sub> PRO t<sub>i</sub> das Problem zu  
I know not how the problem to  
lösen ]<sub>j</sub> [IP die anderen t<sub>j</sub> versucht haben ]]]  
solve the others tried have

Similarly, as argued in some detail by Grewendorf (1986), it seems that the option of infinitive scrambling also lies at the heart of what has often been assumed to be an instance of clausal pied piping (for instance, by Riemsdijk (1985)) in German; cf.:

- (115) a. das Problem [CP das<sub>i</sub> [C' (wo) [IP keiner [CP t'<sub>i</sub> PRO t<sub>i</sub> zu  
the problem that REL-C no-one to  
lösen ] versuchen wird ]]]  
solve try will
- b. das Problem [CP das<sub>i</sub> [C' (wo) [IP [CP t'<sub>i</sub> PRO t<sub>i</sub> zu lösen ]<sub>j</sub>  
the problem that REL-C to solve  
[IP keiner t<sub>j</sub> versuchen wird ]]]]  
no-one try will

In (115-a), relativization has applied from an object infinitive in situ. In (115-b), on the other hand, the object infinitive has undergone scrambling to IP, and relative movement is possible nonetheless. Given that infinitives do not have an NP-shell, this result is accomplished directly – the infinitival CP is a barrier, but not for its A-bar specifier. Concluding so far, we have derived that a scrambled XP always blocks extraction, unless this XP has an escape hatch SpecX, so that extraction may proceed via this position.

### 4.3. Topicalization

Let us now consider the impact of topicalization on the barrierhood of constituents. As noted in Grewendorf (1988: 257) and Müller (1989: 193f), topicalized NPs are invariably barriers in German. Cf.:

- (116) a. \*[<sub>PP</sub> Über wen ]<sub>i</sub> meinst du [CP [NP ein Buch t<sub>i</sub> ]<sub>j</sub> hat t<sub>j</sub>  
about whom think you a book<sub>nom</sub> has  
den Wolfgang beeindruckt ] ?  
ART Wolfgang<sub>acc</sub> impressed
- b. \*[<sub>PP</sub> Über wen ]<sub>i</sub> meinst du [CP [NP ein Buch t<sub>i</sub> ]<sub>j</sub> hat  
about whom think you a book<sub>acc</sub> has  
der Wolfgang t<sub>j</sub> geklaut ] ?  
ART Wolfgang<sub>nom</sub> stolen

- c. \* $[_{PP} \text{Über wen}]_i$  meinst du  $[_{CP} [_{NP} \text{ein Buch } t_i]_j$  hat  
 about whom think you a book<sub>acc</sub> has  
 der Wolfgang  $t_j$  geschrieben ] ?  
 ART Wolfgang<sub>nom</sub> written

In (116-a), a subject NP has been topicalized (inducing V/2 movement); as indicated, *wh*-extraction from such a topicalized NP is strongly deviant. The same goes for *wh*-extraction from a topicalized direct object, the trace of which is governed by the verb *klaunen* ('steal'), as in (116-b). Recall, however, that *wh*-extraction from subject NPs and direct object NPs embedded by a verb like *klaunen* is also impossible if these categories appear in situ (cf. the examples in (42-ab) and (42-d) above). What is interesting, though, is that an NP that in principle (i.e., in situ) permits *wh*-extraction also turns into a barrier for *wh*-extraction after topicalization. This is shown in (116-c). Here the verb *schreiben* ('write') can in principle remove the barrierhood of the direct object NP via abstract incorporation of N (cf. (42-c)). However, after topicalization of the NP, abstract incorporation apparently is not an option anymore. Let us now see why this should be so.

For present purposes, it may suffice to assume, following standard practice, that topicalization in V/2 languages like German involves substitution in SpecC, and that V/2 movement is movement to C (see above). Then, the topicalized NPs in (116) occupy specifier positions; as we have seen, however, incorporation from specifier positions is not possible due to the p-command requirement for traces (of head movement, in this case). Therefore, all the examples in (116) involve an ECP violation – abstract N incorporation not being an option, the trace of the *wh*-moved PP is not antecedent-governed, hence not properly governed (recall that N is not a proper  $\Theta$ -governor) in any of the examples, and thus violates the ECP. (As noted before, I will in fact argue in chapter 6, following Müller & Sternefeld (1990; 1993), that topicalization is actually substitution in SpecT, rather than in SpecC. This qualification will not affect the conclusion just reached, though.)

Next consider *wh*-extraction from topicalized PPs. Again, the prediction is that even in those cases where *wh*-extraction from a PP in situ is possible, topicalization of the same PP creates an opaque domain for extraction. This prediction is borne out. As shown in (117-a) (cf. also (84-b)) vs. (117-b), P-stranding in German becomes impossible after topicalization of PP.

- (117) a.  $Wo_i$  meinst du  $[_{CP} t'_i$  hat keiner  $[_{PP} t_i$  für ] gestimmt ] ?  
 what think you has no-one for voted  
 b. \* $Wo_i$  meinst du  $[_{CP} [_{PP} t_i$  für ] $_j$  hat keiner  $t_j$  gestimmt ] ?  
 what think you for has no-one voted

Similarly, Postal (1972) has observed that topicalization of PP in English results in PP not being accessible for P-stranding anymore; cf. the contrast between PP-in-situ (as in (118-a)), and PP topicalization (as in (118-b)):

- (118) a. Who<sub>i</sub> do you think [<sub>CP</sub> t'<sub>i</sub> he will talk [<sub>PP</sub> to t<sub>i</sub> ] ] ?  
 b. \*Who<sub>i</sub> do you think [<sub>CP</sub> [<sub>PP</sub> to t<sub>i</sub> ]<sub>j</sub> he will talk t<sub>j</sub> ] ?

Again, let us assume for the purposes of the present discussion that the landing site of topicalization in English is a SpecC position (cf. however chapter 6, and the last note). Then, in (118-b), the PP occupies a derived specifier position from which abstract incorporation is not possible, and the ECP is violated after *wh*-extraction.<sup>50</sup>

Turning now to VP topicalization and AP topicalization, we see that the consequences for *wh*-extraction are basically the same. Thus, (119-a) instantiates the process of VP topicalization in German; and (119-b) shows that a topicalized VP blocks *wh*-extraction.

- (119) a. Ich denke [<sub>CP</sub> [<sub>VP</sub> Geschirr gespült ]<sub>j</sub> hat hier keiner t<sub>j</sub> ]  
 I think dishes washed has here no-one  
 b. \*Was<sub>i</sub> denkst du [<sub>CP</sub> [<sub>VP</sub> t<sub>i</sub> gespült ]<sub>j</sub> hat hier keiner t<sub>j</sub> ] ?  
 what think you washed has here no-one

The same contrast arises with respect to AP topicalization in German; this is documented in (120).

- (120) a. Fritz glaubt [<sub>CP</sub> [<sub>AP</sub> [ von ihren Kindern ] begeistert ]<sub>j</sub> sind  
 Fritz believes of their children enthusiastic are  
 alle Väter t<sub>j</sub> ]  
 all fathers  
 b. \*[ Von wem ]<sub>i</sub> glaubt Fritz [<sub>CP</sub> [<sub>AP</sub> t<sub>i</sub> begeistert ]<sub>j</sub> sind alle  
 of whom believes Fritz enthusiastic are all  
 Väter t<sub>j</sub> ] ?  
 fathers

Again, the head of the topicalized VP in (119-b) and the head of the topicalized AP in (120-b) cannot undergo abstract incorporation into the V/2 head because of the p-command requirement for antecedent-government. Therefore, VP and AP in (119-b) and (120-b), respectively, are barriers for the traces of *wh*-movement. This assumption suffices to rule out (120-b) as an ECP violation – recall that I have assumed that adjectives are not proper governors. However, by previous assumptions, t<sub>i</sub> in (119-b) is  $\Theta$ -governed, hence properly governed, by V. Thus, it seems that an ECP violation cannot be derived here. Still, the example is fairly ungrammatical, much more than we would expect it to be if only a weak Subjacency violation were involved (with the

topicalized VP as the only bounding node). Thus, in order to fully account for the strong deviance of (119-b), it seems that more must be said, just as was the case with *wh*-movement from a scrambled VP, as in (113). Now, as concerns (113), I have speculated that strong ungrammaticality results in the case of *wh*-extraction from a scrambled VP because VP scrambling per se is deviant. Such a way out, however, is not available in the case of (119-b) – simple VP topicalization, as in (119-a), is fully well formed. But in this case, unlike in the scrambling case, it might be worth looking for a second bounding node, which then creates a strong violation of Subjacency.

As it turns out, this result can be achieved straightforwardly – upon closer scrutiny, there *is* a second barrier that intervenes between  $t_i$  and its chain antecedent *was* ('what') in (119-b), viz., the embedded CP. Recall that CP is a barrier for every item it includes, unless this item occupies the SpecC position, which is the only escape hatch of CP. Clearly, what occupies SpecC in (119-b) is the topicalized VP, and not the *wh*-trace  $t_i$ . Therefore, both VP and CP are barriers for  $t_i$  in (119-b), and a strong violation of Subjacency is derived. Note that it now follows that in (almost) all of the ungrammatical examples involving *wh*-extraction from a topicalized item that have been discussed in this subsection so far, there are actually *two* barriers present – the topicalized XP itself, and the CP that immediately dominates the topicalized XP. This second barrier has no additional effect as concerns most examples, because they involve ECP violations with one barrier present already; however, given that CP is a barrier for a trace included in a topicalized XP, the technical problem that came up with (118-b) in English (cf. note 50) is solved straightforwardly – even if PP in (118-b) is not a barrier due to empty identification, CP still is, and this suffices to derive an ECP violation (recall that P is not a proper governor).

Finally, let us consider *wh*-extraction from topicalized clauses. Topicalized finite clauses block *wh*-extraction very strictly in German. To see this, compare (121-a) to (121-b).

- (121) a. Ich glaube [<sub>CP</sub> daß man den Fritz gesehen hat ] hat keiner  
           I believe that one ART Fritz<sub>acc</sub> seen has has no-one  
           gesagt  
           said
- b. \*Wen<sub>i</sub> glaubst du [<sub>CP</sub> t'<sub>i</sub> daß man t<sub>i</sub> gesehen hat ] hat keiner  
           who<sub>acc</sub> believe you that one seen has has no-one  
           gesagt ?  
           said

By assumption,  $t_i$  in (121-b) is properly  $\Theta$ -governed by V, and the intermediate trace can be deleted on the way to LF. Therefore, an ECP violation cannot arise in (121-b). Nevertheless, the sentence is fairly deviant, as indi-

cated. And indeed, upon closer inspection we see that a strong Subjacency violation, with two bounding nodes intervening between  $t'_i$  and the chain antecedent *wen* ('who'), can be derived. First, given the NP-shell hypothesis, what is topicalized in (121) is not really a bare CP, but rather an NP-shell dominating a CP. Since topicalization is specifier movement, the head of the NP-shell cannot undergo abstract incorporation, and, consequently, the barrierhood of the NP-shell cannot be removed. This gives us the first bounding node. Second, we have just seen that CP is a barrier for any item it includes if the latter does not occupy SpecC; obviously, the intermediate trace  $t'_i$  in (121-b) does not occupy the specifier of the embedded V/2 CP – this specifier position is already filled by the NP-shell (although  $t'_i$  does of course occupy the specifier of the topicalized CP). Hence, as depicted schematically in (122),  $CP_1$  and the NP-shell are both barriers and bounding nodes, and thereby create a strong Subjacency violation in (121-b).

(122)  $\alpha_i \dots [CP_1 [NP N [CP_2 t'_i \dots ] ] V/2 \dots ]$

The case is somewhat more complicated with topicalized infinitival clauses. In (123-a), an infinitive is topicalized. (123-b) shows that *wh*-extraction from such a topicalized infinitive is not possible.

- (123) a. Uli sagt  $[CP \text{ PRO einen Weißwein zu trinken } ]_j$  hat er nie  $t_j$   
 Uli says a white wine to drink has he never  
 versucht  
 tried
- b. ?\*Was<sub>i</sub> sagt Uli  $[CP t'_i \text{ PRO } t_i \text{ zu trinken } ]_j$  hat er nie  $t_j$   
 what<sub>acc</sub> says Uli to drink has he never  
 versucht ?  
 tried

Again, since a direct object is *wh*-extracted in (123-b), an ECP violation cannot be derived. Moreover, it turns out that not even a *strong* Subjacency violation can be derived in (123-b), under the assumptions made so far. Recall that I have argued that infinitival clauses do not have an NP-shell – this, among other things, accounts for the transparency of subject infinitives (cf. (71)) and scrambled infinitives (cf. (114)) for *wh*-movement in German. But if an NP-shell is absent in the topicalized infinitive in (123-b), the only barrier intervening between the intermediate trace  $t'_i$  and its antecedent *was* ('what') in (123-b) is the embedded V/2 CP itself. Hence, the theory developed so far predicts that (123-b) merely involves a comparatively weak Subjacency effect. However, it seems that (123-b) is worse than we would expect if only a crossing of one bounding node were involved. On the other hand, for some speakers at least, (123-b) is still somewhat better than *wh*-extraction from a finite

clause, as in (121-b). Here, I will have to leave the problem of deriving *strong* ungrammaticality in cases like (123-b) open; but I will tentatively assume that (123-b) indeed does not involve more than a weak Subjacency violation, and that it might not prove impossible to find additional intervening factors that are responsible for the fairly strong deviance observed.

#### 4.4. Wh-movement

As a last instance of Freezing effects, let us consider *wh*-movement. As shown in the German examples in (124), *wh*-moved items are always barriers for extraction.<sup>51</sup>

- (124) a. Ich sagte ihr [CP [NP welche Bücher über die Liebe ]<sub>j</sub> C er t<sub>j</sub>  
 I said her<sub>dat</sub> which books about the love he  
 geschrieben hat ]  
 written has
- b. \*Worüber<sub>i</sub> hast du gesagt [CP [NP welche Bücher t<sub>i</sub> ]<sub>j</sub> C er t<sub>j</sub>  
 about-what have you said which books<sub>acc</sub> he  
 geschrieben hat ] ?  
 written has
- c. \*Worüber<sub>i</sub> hast du gesagt [CP [NP welche Bücher t<sub>i</sub> ]<sub>j</sub> C er t<sub>j</sub>  
 about-what have you said which books<sub>acc</sub> he  
 geklaut hat ] ?  
 stolen has
- d. \*Worüber<sub>i</sub> hast du gesagt [CP [NP welche Bücher t<sub>i</sub> ]<sub>j</sub> C t<sub>j</sub>  
 about-what have you said which books<sub>nom</sub>  
 einen Preis gewonnen haben ] ?  
 an award<sub>acc</sub> won have

In (124-a), a direct object governed by the verb *schreiben* has undergone *wh*-movement to the local SpecC position. Recall that a verb like *schreiben* typically licenses extraction from a direct object NP in situ. However, after *wh*-movement to SpecC, *wh*-extraction from the direct object NP is not possible anymore (cf. (124-b)). Furthermore, and not surprisingly, *wh*-extraction from a *wh*-moved direct object that is selected by a verb which does not permit abstract incorporation with the NP in situ is also impossible (cf. (124-c)), and so is *wh*-extraction from a *wh*-moved subject NP (cf. (124-d)). Clearly, as before, the embedded CP is a barrier for t<sub>i</sub> in (124-bcd), because t<sub>i</sub> is included in CP, and does not occupy CP's escape hatch, which is SpecC (SpecC being filled by the whole *wh*-phrase that includes t<sub>i</sub>). Therefore, given that N is not a proper Θ-governor (cf. section 3.4), and given that an intermediate trace cannot be established between t<sub>i</sub> and its chain antecedent *worüber* ('about-

what') in (124-bcd), the strong deviance of the examples in (124-bcd) follows without further stipulation – in these cases, the ECP is violated, because  $t_i$  is not properly governed.

Exactly the same reasoning applies in the case of *wh*-movement of an AP in languages like German, cf.:

- (125) a. Womit<sub>i</sub> sagte sie [CP t'<sub>i</sub> daß sie [AP sehr zufrieden t<sub>i</sub> ]  
 with-what said she that she very content  
 wäre ] ?  
 would-be
- b.(?) Sie sagte ihm [CP [AP wie zufrieden damit ]<sub>j</sub> (daß) sie t<sub>j</sub>  
 she said him<sub>dat</sub> how content with-that that she  
 wäre ]  
 would-be
- c. \*Womit<sub>i</sub> sagte sie ihm [CP [AP wie zufrieden t<sub>i</sub> ]<sub>j</sub> sie t<sub>j</sub>  
 with-what said she him<sub>dat</sub> how content she  
 wäre ] ?  
 would-be

In (125-a), *wh*-extraction from a predicative AP in situ occurs; as we have seen, AP is not a barrier in this context due to the option of abstract incorporation, i.e., S-structural co-indexing (cf. section 3.9). As shown in (125-b), APs can act as *wh*-phrases in German – marginally for some speakers, and perfectly well for others.<sup>52</sup> However, extraction from a *wh*-moved AP is totally impossible, as evidenced by (125-c). Again, the strong ungrammaticality follows from the ECP, under the assumptions made so far (CP is a barrier for  $t_i$ , and  $t_i$  is not properly governed by A).

Thus far, we have seen that CP is a barrier for  $t_i$  in (124-bcd) and (125-c), blocking *wh*-extraction via the ECP. Let us now try to figure out whether the *wh*-moved XPs themselves are also barriers, as argued in the case of topicalized XPs (except for infinitives, i.e., bare CPs) in German in the previous section. In German, the *wh*-movement cases differ from the topicalization cases in that they do not involve agreement with a V/2 head.<sup>53</sup> Given this state of affairs, it appears that the barrierhood of *wh*-moved items in German does not follow as straightforwardly from the theory of barriers adopted here as the barrierhood of topicalized items in German. The reason for this is that, whereas (abstract or overt) incorporation from *wh*-moved XPs is still impossible, it seems that empty identification is not if a complementizer is absent in the embedded clause. As a case in point, consider more closely the relevant part of the structure of an ill-formed sentence like (124-b):

- (126) \* ... [CP [NP welche Bücher t<sub>i</sub> ]<sub>j</sub> [C' C ...

Suppose that C is empty, i.e., not filled by a complementizer *daß*. In order to find out whether or not NP is a barrier for  $t_i$  in (126), we have to find out whether or not N (= *Bücher* ('books')) is distinct from C (which is the next higher head, cf. the definition of barrier in (16')). Given that C is both semantically and phonologically empty at S-structure (on LF, cf. chapter 5), N and C should not count as distinct, and consequently, NP should not be a barrier in (126). More generally, *wh*-moved XPs, in this approach, should always cease to be barriers as soon as they agree with an empty complementizer (just like topicalized XPs that agree with an empty head, as in the English example (118-b), cf. note 50), even if the XP at hand would be a barrier in situ (for instance, because it occupies a subject position). The question then arises of whether this conclusion is tenable.

Indeed, as far as I can tell, there does not appear to be empirical counter-evidence to the claim that *wh*-moved items per se fail to be barriers if they agree with an empty C head. There is still one barrier present in extractions from *wh*-moved XPs (viz., CP), and this barrier always suffices to derive an ECP violation in case of *wh*-extraction from a *wh*-moved category. This is so because the heads of *wh*-phrases (like N or A) never appear to be proper  $\Theta$ -governors. In fact, I have recognized only one kind of proper  $\Theta$ -governor, viz., V. However, neither VPs nor clauses are possible *wh*-phrases in languages like German (or English) (cf. Lutz & Trissler (1992)); and only in the case of V-governed argument traces could the problem arise that two barriers are called for (i.e., the *wh*-moved XP in addition to the embedded CP) in order to derive strong ungrammaticality.

Notwithstanding the fact that it does not appear to have damaging consequences empirically, the general non-barrierhood of *wh*-moved XPs that agree with an empty C in German (and the non-barrierhood of topicalized XPs that agree with an empty head in English) still strikes me as conceptually unwanted. Thus, I would like to suggest for the time being that empty identification is actually to be viewed as an instance of abstract incorporation, such that empty identification signals head movement at LF. Under this assumption, all the data where empty identification was needed (cf. section 3.2.1 above) are still accounted for – in those cases, the barrierhood of IP is removed via empty identification of V and I, and V may of course in principle legitimately undergo head movement to I, because VP is a complement of I. On the other hand, now the barrierhood of *wh*-moved items (and topicalized items in English) may not be removed via empty identification anymore, because head movement into an empty C node would violate the p-command requirement for antecedent-government of the incorporation trace.

Concluding so far, we have seen that derived positions, in general, are islands. This Freezing effect follows from the fact that there is no movement to complement position (cf. Chomsky (1981)), complement positions being the

only types of positions from which (abstract or overt) incorporation may take place (see chapter 4, though, for some qualifications). Note that this result can be obtained not only in the rigid minimality approach to barriers adopted here, but also in the L-marking/selection approach to barriers – according to this latter approach, XPs in derived positions, in general, do not occupy L-marked (or selected) positions anymore (but cf. note 51), and hence turn into barriers (see Baltin (1984), Browning (1989; 1991), and Collins (1994)). However, we have seen that there is an exception to the rule of the thumb that says that XPs turn into barriers after movement – infinitives in German can undergo scrambling, and still permit *wh*-extraction (recall the data in (114) and (115)). This evidence, to my mind, clearly favours a rigid minimality approach to barriers over an approach in terms of L-marking or selection.

## 5. Adjunct barriers

Thus far, we have been able to entirely dispense with the notion of L-marking or selection in the theory of barriers, by exclusively relying on rigid minimality. It remains to be shown, however, that the general barrierhood of base-generated adjuncts can still be derived on this approach.<sup>54</sup>

### 5.1. Finite adjunct clauses

Note first that extraction from finite adjunct clauses always leads to strong ungrammaticality. Moreover, there does not seem to be a contrast between extraction of adjuncts and extraction of complements, contrary to what was the case with extraction from subject clauses, indirect object clauses, and direct object clauses which are not governed by a bridge verb. This is shown in (127).

- (127) a. \*Wie<sub>i</sub> hat der Fritz das Buch gelesen [CP ohne daß [IP  
           how has ART Fritz<sub>nom</sub> the book read without that  
           er es t<sub>i</sub> verstanden hat ]] ?  
           he it understood has
- b. \*Was<sub>i</sub> ist sie gefahren [CP nachdem [IP sie t<sub>i</sub> getrunken hat ]] ?  
           what<sub>i</sub> is she driven after she drunk has

Assuming that the structure of the embedded clauses in (127-ab) is as indicated, and that SpecC is inaccessible for *wh*-extraction in (127-ab), we can derive that CP is a minimality barrier for t<sub>i</sub> in these examples. This would suffice to derive an ECP violation in (127-a); (127-b), with argument extraction, however, is then predicted to involve only a weak Subjacency violation, which does not seem adequate. However, I have already argued before, in the

case of argument clauses, that finite clauses exhibit more structure than meets the eye, i.e., more than merely a bare CP (recall the NP-shell hypothesis). I would now like to contend that the same strategy (i.e., a partition of the top of the clausal system into more than one XP) also proves fruitful in deriving the strict barrierhood of finite adjuncts.

Note first that it is very unlikely that the heads of adjunct clauses are complementizers. In (slightly) substandard German, as well as in many other languages, what looks like the head of an adjunct clause is often optionally followed by a real complementizer *daß* ('that'). Consider the German adjunct clauses in (128):

- (128) a. [ nachdem [CP (daß) [IP dies jetzt passiert ist ]]]  
           after           that    this now happened is  
       b. [ während [CP (daß) [IP da eine Fete war ]]]  
           while           that    there a party was  
       c. [ indem [CP (daß) [IP du das tust]]]  
           in-that       that    you this do  
       d. [ bis [CP (daß) [IP der Tod euch scheidet ]]]  
           until       that    ART death you<sub>acc</sub> parts

Furthermore, an additional complementizer *daß* is even obligatory with certain types of finite adjunct clauses; cf. (129):

- (129) a. weil der Fritz kocht [ anstatt [CP [IP PRO zu schlafen ]]]  
           because ART Fritz cooks instead-of           to sleep  
       b. weil der Fritz kocht [ anstatt [CP [IP\*(daß) er schläft ]]]  
           because ART Fritz cooks instead-of           that he sleeps

The adjunct clause head *anstatt* ('instead-of') either embeds an infinitive, in which case C must remain empty (cf. (129-a)), or a finite CP, in which case C is necessarily filled (cf. (129-b)). (Incidentally, the same goes for the adjunct clause head *ohne* ('without'), as it occurs in (127-a).)

Actually, there is diachronic evidence that all finite adjunct clauses involve a "doubly-headed" structure in German. Lenerz (1984: 100ff) has pointed out that in Old High German, adjunct clauses were clearly decomposable into a preposition (-like element), belonging to the matrix clause, and an embedded genuine *daß*-clause, the two elements merging only later in the development of German. Further evidence for splitting the left periphery of adjunct clauses into a CP with a semantically empty complementizer as its head, and a higher XP the head of which contains the relevant semantic information (temporal, consecutive, causal, etc.) can be gained from French or Russian. The adverbial "conjunctions" *parce que*, *pour que*, *avant que*,

*pendant que* in French or *potomu čto* ('for this that' – 'because'), *zatem čtoby* ('in order to') in Russian all illustrate this point straightforwardly.

Thus, there is reason to assume that finite adjunct clauses are not bare CPs. Following ideas by Emonds (1985), Johnson (1988), and Larson (1990a), among others, I will assume that adjunct clauses are PPs. This is intuitively plausible, since often "adjunct complementizers" originally have been, and many of them still are, prepositions. We then obtain the following structure for adjunct clauses (linear order, again, is not important):

(130) [VP [VP V ... ] [PP P [CP SpecC C ...

I have derived above (in section 3.8) that PP is always a barrier for an item included in it, unless P undergoes abstract incorporation. Recall also that there is no incorporation from VP-adjuncts; hence, the barrierhood of a PP in adjoined position can never be resolved via incorporation. We have seen this already in the case of illicit *wh*-extraction from scrambled PPs (cf. the German examples in (111)). However, the same point can be made with simple (i.e., non-clausal) base-generated adjunct PPs in English, as in (131-a) (cf. Hornstein & Weinberg (1981) and Chomsky (1981: 292ff)), and with simple base-generated adjunct PPs in German, as in (131-b).

- (131) a. \*[ Which meal ]<sub>i</sub> did John speak to Bill [PP after t<sub>i</sub> ] ?  
 b. \*Wo<sub>i</sub> hat Maria [PP t<sub>i</sub> durch ] davon erfahren ?  
     what has Maria           through   of-that heard  
     "How has Maria heard of it?"

Returning to argument extraction from a clausal adjunct, as in (127-b), it now follows that movement crosses a PP-shell barrier, as indicated in (130). However, given that the PP-shell dominates a "regular" CP that may be headed by a complementizer *daß* in German, it is hard to see why SpecC should be exceptional in not allowing an intermediate trace. But if there is no principled reason for barring an intermediate trace in SpecC in the case of long-distance extraction of an argument from a finite adjunct clause, as in (127-b), we still can only derive a weak Subjacency violation (with the PP-shell as a bounding node) in this case.

This problem can be overcome as follows. Note that according to the NP-shell hypothesis (66), all embedded finite clauses are dominated by an NP-shell. Now, I have argued that adjunct clauses are PPs, with an empty P embedding a finite clause. But then, a finite complement clause of this empty P node has to be an NP-shell, too. Under this view, the structure of a finite adjunct clause is as in (132), with an NP-shell intervening between the PP-shell and the CP.

(132) ... [PP P [NP N [CP SpecC C [IP ...

Hence, even argument extraction from a finite adjunct clause, as in (127-b), crosses two barriers, and thus induces a strong violation of Subjacency. Note that again, there appears to be diachronic evidence in support of this analysis. In German, there are some preposition-like heads of adjuncts (such as *nach-dem* ('after-this'), *während(-dessen)* ('while-this'), *seit-dem* ('since-this')) where a nominal element is still present; as pointed out by Lenerz (1984), this was regularly the case with adjunct clauses in earlier stages of German. Hence, there might be independent reasons to assume that finite adjunct clauses do in fact contain three maximal projections above IP – a CP, an NP-shell, and a PP-shell.

### 5.2. Non-finite adjunct clauses

Above I have argued that non-finite complement clauses in German differ from finite complement clauses in that they do not have an NP-shell. This assumption proved sufficient to account for the general transparency of subject infinitives, infinitives embedded by non-bridge verbs, and infinitives in scrambling positions. The null hypothesis then clearly is that infinitival adjunct clauses also lack an NP-shell. On the other hand, adjunct infinitives still often have a lexical prepositional head. Taken together, this suggests that adjunct infinitives in German should be analysed not as in (132), and not as bare CPs, but as in (133), with a PP-shell dominating a CP.

(133) ... [PP P [CP SpecC C [IP ...

I will now show that an interaction of the theory of barriers adopted so far and the structure depicted in (133) does indeed (by and large) correctly account for the extraction properties of non-finite adjuncts in German.

Consider first *wh*-extraction from German adjunct infinitives that act as purpose clauses, as in (134).

- (134) a. ??Was<sub>i</sub> bist du gekommen [PP (um) [CP t'<sub>i</sub> [IP PRO t<sub>i</sub>  
           what are you come in-order-to  
           anzusehen ]]] ?  
           look-at
- b. \*Warum<sub>i</sub> bist du gekommen [PP (um) [CP t'<sub>i</sub> [IP t<sub>i</sub> den  
           why are you come in-order-to the  
           Messturm anzusehen ]]] ?  
           fair tower look-at

Object extraction as in (134-a) typically has an intermediate status that we may want to attribute to a weak Subjacency violation, i.e., the presence of one barrier. Given that (a) the PP-shell is a barrier in (114-a), which is not removable via incorporation (which follows from the p-command requirement

for antecedent-government); (b) an NP-shell is absent in adjunct infinitives in German; and (c) SpecC is available as an escape hatch in (134-a), it follows that PP is the only barrier intervening between  $t'_i$  and its chain antecedent *was* ('what') in (134-a), thereby inducing a weak Subjacency effect, but not an ECP violation ( $t'_i$  being deletable on the way to LF). The PP barrier, however, suffices to rule out adjunct movement (cf. (134-b)) by the ECP, since the adjunct trace  $t'_i$  is not LF-deletable. Thus, the data in (134) are accounted for.

As is well known, non-finite purpose clauses do in general appear to be more transparent for movement than other adjuncts (cf. Chomsky & Lasnik (1977), Emonds (1985), Chomsky (1986), and Jones (1986), among others). Thus, *wh*-extraction of an argument from an infinitival adjunct clause headed by *ohne* ('without') in German is often judged somewhat worse than *wh*-extraction of an argument from a purpose clause, as in (134-a). This is shown in (135-a). But still, adjunct extraction from the same environment is generally considered to be even more deviant, cf. (135-b). (In fact, sentences like (134-b) and (135-b) are simply incomprehensible for probably all speakers, with the intended reading according to which the *wh*-adjunct binds a variable in the embedded clause.)

- (135) a. ?\*Wen<sub>i</sub> bist du eingeschlafen [PP ohne [CP t'<sub>i</sub> [IP PRO t<sub>i</sub> gesehen  
           who are you fallen-asleep without seen  
           zu haben ]] ?  
           to have
- b. \*Warum<sub>i</sub> bist du eingeschlafen [PP ohne [CP t'<sub>i</sub> [IP PRO t<sub>i</sub>  
           why are you fallen-asleep without  
           wütend zu sein ]]] ?  
           angry to be

At present, I have no explanation for the contrast between (134-a) and (135-a). It seems that many intervening factors obscure the overall picture, some of which are not yet well understood (like, e.g., the choice of matrix predicate; the presence or absence of an overt adjunct head; the relevance of an appropriate context, etc.). Therefore, I will not dwell on this issue any longer, but simply conclude that the rigid minimality approach to the theory of barriers adopted in this chapter seems to be capable (at least in principle) of accounting for both the strict islandhood of finite adjunct clauses (for any kind of extraction), and the weak islandhood of (some) infinitival adjuncts. Undoubtedly, though, certain amendments will have to be made if more (and cross-linguistic) evidence is to be taken into account; but this is beyond the scope of this book.<sup>55</sup>

## 6. Conclusion

Let me draw a conclusion. I have tried to show that a rigid minimality approach to locality – based mainly on Baker’s (1988) concept of minimality barrier, and his notion of non-distinctness of heads – is sufficient to derive many classic locality constraints for *wh*-movement, and can be embedded in the theory of proper government and Subjacency developed by Lasnik & Saito (1984; 1992) and Chomsky (1986) without problems. Also, I have argued that introducing an additional notion like L-marking (Chomsky (1986)) or selection (Cinque (1990)) into the theory of barriers is unnecessary; cases where, at first sight, it looks as though the pure minimality approach fails, and an L-marking/selection approach makes correct predictions (like, e.g., the bridge constraint on successive-cyclic extraction from finite clauses, or the strict barrierhood of adjunct clauses), can be made to follow from the minimality theory by assuming a more articulated structure (cf. the postulation of NP-shells and PP-shells). What is more, we have seen that there are also cases where an approach in terms of L-marking/selection makes wrong predictions, in contrast to the rigid minimality theory adopted here; recall the case of successive-cyclic *wh*-movement from non-finite clauses in German (where the grammatical function or actual S-structural position of the infinitive did not appear to affect extraction options).

All in all, it seems to me that a pure theory of minimality barriers is at least worth pursuing, even if it relies on certain concepts and assumptions that might be considered problematic. Thus, although I am not sure whether or not explanations of constraints on movement that crucially rely on notions like abstract incorporation, NP-shells, and PP-shells, are obtained at too high a cost, I think that a pure minimality approach that is based on these notions paves the way for relatively straightforward explanation of the pertinent data, and is therefore justified as such; moreover, as concerns XP-shells, we will see in the following chapter (during the discussion of locality constraints for scrambling in Russian) that there does indeed appear to be some surprising evidence in support of the hypothesis that finite argument clauses are dominated by NP-shells, and that adjunct clauses are dominated by PP-shells. That said, let me stress again that much of what follows in the remainder of this book is actually independent of the specific explanations for locality constraints given in this chapter on the basis of a minimality approach to barriers; in general, what will be important is that a certain locality constraint exists, or that an XP acts as a barrier in a certain configuration, and not why exactly this is so.



# Chapter 3

## Scrambling

### 1. Introduction and overview

There is disagreement about the nature of the process that relates sentences like (1-a) and (1-b) in languages with (relatively) free word order like German:

- (1) a. daß seine Studentinnen den Fritz bewundern  
that his students<sub>nom</sub> ART Fritz<sub>acc</sub> admire
- b. daß den Fritz<sub>i</sub> seine Studentinnen t<sub>i</sub> bewundern  
        that ART Fritz<sub>acc</sub> his students<sub>nom</sub> admire

First, it is sometimes assumed that (1-b) is not derived from (1-a) syntactically (i.e., that  $t_i$  is not present in (1-b)); rather, both (1-a) and (1-b) are possible base-generated structures. Under this view, one is forced to assume either that there is no hierarchical difference between the arguments in cases like (1-a) and (1-b) at all (which implies an abandonment of Kayne's (1984) binary branching hypothesis), or that a lexical operation guarantees that verbs in German may project their arguments in different ways – in (1-a), then, the direct object (henceforth: DO) forms a constituent with the verb which excludes the subject, and the opposite holds for (1-b). Analyses of this kind have been proposed by Haider (1983; 1988a; 1993, and elsewhere), Bayer & Kornfilt (1994), and Neeleman (1994), among others. An obvious problem for a base-generation approach to free word order is that it clearly fails in cases like (2-ab):

- (2) a. daß Ellen [PP über Gisbert ]<sub>i</sub> mal wieder [NP ein Gerücht t<sub>i</sub> ] gehört  
        that Ellen about Gisbert again a rumour heard  
        hat  
        has

- b. daß  $da_i$  wieder der Fritz [<sub>PP</sub>  $t_i$  für ] zahlen mußte  
 that that again ART Fritz for pay had-to

In (2-a), a PP is extracted from an object NP, and adjoined to VP; in (2-b), an R-pronoun *da* is extracted from PP, and adjoined to IP, in front of the subject. Since these items clearly are not arguments of the verb, but rather arguments of N and P, respectively, an analysis in terms of movement seems unavoidable. But then, there is no reason not to derive (1-ab) in the same fashion, i.e., via a syntactic movement operation.

Given that examples like (1-b) and (2-ab) involve syntactic adjunction, i.e., “scrambling” (cf. Ross (1967/1986: 50ff)), the question arises of how this movement type relates to other, more established movement types. According to a number of researchers (e.g., Fanselow (1987; 1990; 1991a; 1992), Haider (1991a; 1991b), Moltmann (1990), Santorini (1990), Frey (1989), Frey & Tappe (1991)), scrambling is to be analysed on a par with movement in passive and raising constructions, i.e., it qualifies as an instance of A-movement. Webelhuth (1988; 1992) argues that scrambling must be analysed as a movement type which exhibits properties of both A- and A-bar movement, i.e., it is a “mixed” type of movement. Finally, the view exists that scrambling is an instance of A-bar movement proper (cf. Stechow & Sternefeld (1988), Geilfuß (1991), Vikner (1990; 1994), Wilder (1989), Grewendorf (1992), Saito (1985; 1989), Webelhuth (1987), Müller (1989), Sternefeld (1990; 1991), Müller & Sternefeld (1990; 1993; 1994), and Frank, Lee & Rambow (1992), among others).

My main goal in this chapter is to show that scrambling, despite some superficial evidence to the contrary, is a well-behaved A-bar movement process (like *wh*-movement or topicalization), which uniformly (i.e., across languages) consists of S-structural left-adjunction of an XP to another XP. Under this view, asymmetries between scrambling and other A-bar movement types (like, e.g., *wh*-movement) are solely due to independent factors, most notably the nature of the landing site and the PUB. Also, I contend that the fact that scrambling may have partially different properties across languages (e.g., German vs. Russian) should not lead one to the conclusion that scrambling in one language (say, German) is a movement type different from scrambling in another language (say, Russian) – such that, e.g., scrambling is A-movement in one case and A-bar movement in the other. First, such a step seems to be a priori unattractive for theoretical reasons; for why should one and the same type of position (i.e., an adjunction site of XP) qualify as an A-position in one language, and as an A-bar position in another, given that the projection of lexical items obeys general, language-invariant principles of X-bar theory? Moreover, I will argue that there is also empirical evidence to the effect that the landing sites of scrambling in languages as diverse as German, Russian, and Korean, viz., left-adjunction sites of XP, do indeed have the same prop-

erties, most notably that of being A-bar positions. The partially different behaviour of scrambling across languages (and, to some extent, even across dialects of a single language), then, can be shown to be mainly due to the different setting of a few parameters concerning, inter alia, the set of possible adjunction sites, and the level(s) where the PUB applies.

The chapter is organized as follows. In section 2, I address some basic properties of scrambling, viz., its optionality, its iterability, and the structure of chains formed by this operation. I argue that, despite some superficial evidence to the contrary, scrambling basically behaves exactly like other, well-established instances of A-bar movement, differences arising only due to the nature of the landing site.

In section 3, the landing sites of scrambling are considered in some more detail. I investigate the “standard” cases of scrambling, i.e., adjunction to VP and IP, and show that the approaches developed in the literature in order to account for the existence or lack of scrambling to VP and IP in a given language are inadequate. I propose, following Müller & Sternefeld (1990; 1993), to introduce an Adjunction Site Parameter, in order to handle cross-linguistic variation in scrambling options. Such a step receives independent justification as soon as the issue of adjunction to other XPs, like NP, CP, and PP, is considered.

In section 4, then, I address the locality properties of scrambling. I argue that the strict clause-boundedness of scrambling in German follows from the PUB, which precludes the use of SpecC as an escape hatch for scrambling. The existence of long-distance scrambling in languages like Russian, on the other hand, can also be accounted for without additional stipulations – in Russian, but not in German, NP and CP are possible adjunction sites for scrambling; hence, a CP (and an NP-shell) barrier may be circumvented via adjunction in this language. Additional evidence for the PUB is gained from the observations, (a) that long-distance scrambling in Russian is insensitive to whether or not SpecC is filled by a *wh*-phrase, and (b) that *wh*-movement may not use CP- or NP(-shell)-adjunction sites as escape hatches for long-distance movement, although these are available in principle. Finally, I turn to a discussion of long-distance scrambling in languages like Korean and Japanese, and argue that the *relative* transparency of finite clauses for scrambling (objects, but not adjuncts can undergo long-distance scrambling) follows from the fact that, although CP (and NP) are not possible adjunction sites in Korean and Japanese (as in German), scrambling traces may in principle be deleted on the way to LF in these languages (in contrast to German).

Another, at first sight unrelated, difference between German on the one hand, and Japanese, Korean and Russian on the other, is discussed in section 5 – German does not permit scrambling of operators (*wh*-phrases and focused phrases), whereas the other scrambling languages do. This is derived by as-

suming that the PUB applies at S-structure and LF in German, but only at S-structure in Korean, Japanese and Russian. I then attempt to show that the two differences between German on the one hand, and Korean, Japanese, and Russian on the other (with respect to trace deletion, and the level(s) where the PUB applies), do not have to be accounted for by introducing two separate parameters. Rather, a principle of *Full Representation* is proposed that forces the use of adjunction sites if this is possible, at the level(s) where the PUB applies. This, then, guarantees that there is trace deletion on the way to LF in scrambling chains in Korean, Japanese, and Russian (since the PUB does not apply at LF), but not in German.

The prohibition against operator scrambling in German is one instance of the categorial selectivity often attributed to this movement type. In section 6, I discuss other cases where it looks as though scrambling, in contrast to *wh*-movement or topicalization, is categorially selective. I argue that many cases of apparent categorial selectivity (like the ban against scrambling of predicates) may well follow from the PUB, and have to do with the strong tendency of certain categories to bear focus in derived positions. In line with this, in languages like Russian or Korean, where scrambling of focused elements is possible, scrambling is much less categorially selective (e.g., VPs and APs can in principle undergo scrambling). I tentatively conclude that other cases of purported categorial selectivity of scrambling can also be explained along these lines, so that scrambling, upon closer inspection, does not differ from *wh*-movement or topicalization in any interesting respect, as concerns categorial selectivity.

In section 7, I turn to the purported capability of scrambling to introduce new A-binding options in German. I show that this assumption brings many unwanted consequences, and that the reverse assumption, i.e., that scrambling is A-bar movement, makes the correct predictions in all cases, apart from one type of example where the A-movement approach appears to be empirically supported. Since this case involves a number of specific assumptions concerning the structure of VP in double object constructions, I postpone this problem until chapter 4, and simply claim that it does not affect the hypothesis that scrambling is A-bar movement.

Sections 8 and 9 investigate the phenomena of strong and weak crossover in their relationship to scrambling in German. The evidence from strong crossover is shown to straightforwardly support the A-bar movement approach to scrambling. As concerns weak crossover, it emerges that there are two German dialects. However, it turns out that in *both* dialects, scrambling patterns with *wh*-movement and topicalization; thus, the A-bar movement hypothesis is confirmed by all available data. However, in order to account for the parametric variation encountered, I introduce a modified version of Heim's (1989)

condition on bound variable pronouns, which I formulate as a filter, on a par with the view of the ECP as an LF filter in Lasnik & Saito (1984; 1992).

In section 10, I address the phenomenon of parasitic gaps. Since scrambling in German licenses parasitic gaps, like *wh*-movement or topicalization, but unlike raising, the case for scrambling as A-bar movement once more seems to be supported by the data – the standard assumption that parasitic gaps must not be A-bound accounts for this contrast. However, if another theory of parasitic gap licensing is assumed, things might be different. Thus, Fanselow (1991a) proposes, following Chomsky (1986), that constraints on chain formation are relevant for parasitic gap licensing, and not principle C, so that the question as to whether a movement type goes to an A- or A-bar position becomes irrelevant (rather, it is relevant whether a movement type is Case-driven or not). I discuss this approach, and ultimately reject it, because it can be shown that the theory of chain formation that it is based on cannot be sustained.

Finally, in section 11 I turn to the issue of reconstruction. I argue that this phenomenon is in principle independent of movement types, and thus neither supports nor undermines a particular classification of scrambling, as A- or A-bar movement.

## 2. Basic properties

First I want to discuss, on the basis of data from German, some basic properties of scrambling, and their bearing on the question of whether scrambling is A- or A-bar movement. More precisely, I am concerned with the optionality of scrambling (section 2.1), the iterability of scrambling (section 2.2), and the typical structure of scrambling chains (section 2.3).

### 2.1. Optionality

Possibly the most striking characteristic of scrambling is its optionality. In this feature, scrambling, at least at first sight, differs from other movement types. A-movement, e.g., is generally assumed to be obligatory:

- (3) a. that John<sub>i</sub> was kissed t<sub>i</sub>  
 b. \*that – was kissed John<sub>i</sub>

Similarly, *wh*-movement in languages like English or German appears to be obligatory:

- (4) a. Ich frage mich [CP wen<sub>i</sub> (daß) Jung-Goo t<sub>i</sub> geküßt hat ]  
 I ask myself who that Jung-Goo kissed has

- b. \*Ich frage mich [<sub>CP</sub> – (daß) Jung-Goo wen<sub>i</sub> geküßt hat ]  
 I ask myself that Jung-Goo who kissed has

The same goes for topicalization in languages like German:

- (5) a. Ich glaube [<sub>CP</sub> mich<sub>i</sub> hat mein Fahrrad t<sub>i</sub> immer gehaßt ]  
 I believe me<sub>acc</sub> has my bicycle<sub>nom</sub> always hated  
 b. \*Ich glaube [<sub>CP</sub> – hat mein Fahrrad mich<sub>i</sub> immer gehaßt ]  
 I believe has my bicycle<sub>acc</sub> me<sub>acc</sub> always hated

However, upon closer scrutiny it turns out that all these movement types are by no means “inherently obligatory.” According to Chomsky (1981), A-movement, e.g., occurs only in order to satisfy the requirements of Case theory. If there is another way for the DO to receive Case in a configuration like (3-b), movement to SpecI does not have to take place. Thus, in languages like Polish, Latin, Hebrew, Ukrainian, as well as in Northern Russian dialects, where there is no absorption of structural accusative Case in passive constructions, there is no A-movement either (cf. Baker, Johnson & Roberts (1989), among others). Similarly, in languages like German, A-movement to SpecI appears to be optional, because the DO in passive constructions may receive nominative Case in situ. If we follow Grewendorf (1989: ch. 3), A-movement in German passive constructions may or may not take place, as in (6-a) and (6-b), respectively – in the latter case, an empty expletive pronominal *pro* is inserted into the SpecI position that transmits nominative Case to the VP-internal object it is co-indexed with (cf. also chapter 2).

- (6) a. daß kein Geld<sub>i</sub> dem Arnim t<sub>i</sub> gegeben wird  
 that no money<sub>nom</sub> ART Arnim<sub>dat</sub> given PASS  
 b. daß <sup>i</sup>pro dem Arnim <sup>i</sup>kein Geld gegeben wird  
 that EXPL ART Arnim<sub>dat</sub> no money<sub>nom</sub> given PASS

In the same way, S-structural *wh*-movement appears to be optional in some languages. This holds, e.g., for matrix questions in French (cf. Aoun, Hornstein & Sportiche (1981) and Lasnik & Saito (1984; 1992)):

- (7) a. [<sub>CP</sub> Qui<sub>i</sub> as-tu vu t<sub>i</sub> ] ?  
 who have-you seen  
 b. [<sub>CP</sub> – Tu as vu qui<sub>i</sub> ] ?  
 you have seen who

Similarly, in multiple questions in languages like English, French, or German, only one *wh*-phrase undergoes overt movement to SpecC – S-structural *wh*-movement does not only fail to be obligatory for the other *wh*-phrase(s), it is even prohibited:

- (8) a. [<sub>CP</sub> Wann<sub>i</sub> hat der Frank t<sub>i</sub> was<sub>i</sub> repariert ] ?  
           when has ART Frank<sub>nom</sub> what fixed
- b. \* [<sub>CP</sub> Wann<sub>i</sub> was<sub>j</sub> hat der Frank t<sub>i</sub> t<sub>j</sub> repariert ] ?  
           when what has ART Frank<sub>nom</sub> fixed

Moreover, the phenomenon of “partial *wh*-movement” in languages like German (cf. van Riemsdijk (1983), Stechow & Sternefeld (1988: 350ff) and McDaniel (1989) for discussion) shows that there is optionality in *wh*-movement in a way that is similar to the optionality of A-movement encountered in (6):

- (9) a. Wen<sub>i</sub> meinst du [<sub>CP</sub> t<sub>i</sub>' daß Gisbert wirklich t<sub>i</sub> liebt ] ?  
           who think you that Gisbert really loves
- b. <sup>i</sup>Was meinst du [<sub>CP</sub> <sup>i</sup>wen<sub>i</sub> (daß) Gisbert wirklich t<sub>i</sub> liebt ] ?  
           [+wh] think you who that Gisbert really loves

(9-a) exhibits successive-cyclic *wh*-movement to the matrix SpecC position, which bears the feature [+wh]. Alternatively, *wh*-movement may stop in the intermediate SpecC position (which is marked [-wh]), if a co-indexed scope marker *was* is present in the matrix SpecC position. Thus, the presence of a scope marker *was* makes long *wh*-movement optional, just like the presence of an expletive *pro* in passive constructions makes A-movement optional. (Note however that the two elements differ in that a *wh*-scope marker *was* requires at least short *wh*-movement, i.e., movement of the *wh*-phrase to the next SpecC position.)

On the other hand, Reis & Rosengren (1988; 1992) argue that German exhibits the phenomenon of “*wh*-imperatives.” These constructions look as shown in (10-b), and are derived from structures like (10-a) by means of optional *wh*-movement:

- (10) a. [<sub>CP</sub> – Stell dir vor [<sub>CP</sub> wen<sub>i</sub> (daß) ich t<sub>i</sub> getroffen habe ]] !  
           imagine who that I met have
- b. [<sub>CP</sub> Wen<sub>i</sub> stell dir vor [<sub>CP</sub> t<sub>i</sub>' daß ich t<sub>i</sub> getroffen habe ]] !  
           who imagine that I met have

In a way, (10-b) is the reverse counterpart of (9-b). In (9-b), the *wh*-phrase fails to undergo *wh*-movement to the position it has to occupy at LF (i.e., the one marked [+wh]), whereas in (10-b), the *wh*-phrase first undergoes *wh*-movement to the position it has to occupy at LF (i.e., the SpecC position of the embedded clause, which bears the feature [+wh]), as in (10-a), and then optionally raises to the matrix SpecC position, which is clearly marked [-wh] – after all, the matrix clause is in the imperative mood, and (10-a) and (10-b) have the same meaning, viz., “Imagine who I met!” The conclusion to be drawn from all this is that where *wh*-movement gives the impression of being obligatory, this is due to specific requirements a [+wh] C node imposes on its

specifier, but not to inherent properties of *wh*-movement. Where a [+wh] C node does not require its specifier to be filled by a *wh*-phrase, as in French matrix questions (cf. (7)), or where there is an exceptional means to meet the requirements of a [+wh] C node in its SpecC position (as in partial *wh*-movement and *wh*-imperative constructions in German, cf. (9-b) and (10-b)), *wh*-movement is optional.

Similarly, an inherent reason does not appear to exist for the apparent obligatoriness of topicalization. Rather, topicalization in languages like German occurs because here, a left-peripheral functional head in finite declarative clauses (which we may identify with C for the time being, cf. however chapter 6 for a different view) may not remain empty and thus induces V/2 in the absence of a complementizer; simplifying somewhat, it seems that a V/2 head always requires its specifier to be filled, and this, then, generally induces topicalization. Two facts indicate that this view is indeed correct. First, an expletive *es* (the so-called “Vorfeld-*es*”) can be inserted in the SpecV/2 position in German, as an alternative to topicalization (cf. (5-b)):

- (11) Ich glaube [<sub>CP</sub> es hat mein Fahrrad mich<sub>i</sub> immer gehaßt ]  
 I believe EXPL has my bicycle<sub>nom</sub> me<sub>acc</sub> always hated

Second, in languages without obligatory V/2, like English, topicalization is optional throughout, as was remarked in chapter 1 already:

- (12) a. John gave a book to Mary<sub>i</sub>  
 b. To Mary<sub>i</sub> John gave a book t<sub>i</sub>

In English complementizer-less declarative clauses, C may remain empty. Hence, SpecC does not have to be filled via topicalization, and topicalization becomes optional.

Given this state of affairs, it follows that scrambling per se does not differ from other movement types like A-movement, *wh*-movement or topicalization with respect to obligatoriness/optionality. Rather, the only difference between scrambling and the other movement types is that scrambling is adjunction, and not movement to a specifier position. Hence, the intricate specifier/head relationship (which often appears to be responsible for what looks like obligatory movement) does not play a role, and scrambling can never be forced this way.

Another, albeit related, purported difference between scrambling and A-bar movement types like *wh*-movement or topicalization concerns the impact of semantics on movement. Thus, it is widely held that *wh*-movement and topicalization are instances of operator movement, whereas scrambling is non-operator movement, which assimilates it to A-movement, or at least distinguishes it from other types of A-bar movement (cf. Saito (1989) and Frank, Lee & Rambow (1992) for the latter view). But again, upon closer inspection it

emerges that a clear-cut distinction between scrambling on the one hand, and *wh*-movement and topicalization on the other, in terms of [ $\pm$ operator] movement, is not possible. As concerns *wh*-movement, Pesetsky (1987) and Berman (1991), among others, have convincingly argued that certain instances of *wh*-movement must not be analysed as movement of an operator, although the ultimate landing site is the specifier position of a C node with a *syntactic* [+wh] feature (cf. chapter 5 for further evidence that syntactic (S-structural) and semantic (LF) *wh*-features have to be distinguished from each other). Thus, *wh*-movement is not always operator movement.

Even more striking is the case of topicalization. According to Chomsky (1977) and much subsequent literature, topicalization is to be analysed as involving movement of an (empty) operator. However, if one takes a closer look at topicalization in, e.g., German, it soon becomes evident that there is no unique semantic operation which might correspond to the syntactic operation “topicalization.” As pointed out by Grewendorf (1989: 211), the landing site of topicalization in German (the “Vorfeld”) may, according to traditional German grammar, function either as an *Ausdrucksstelle* (focus position), or as an *Anschlussstelle* (topic position) – accordingly, topicalization of the object in (13) may be either an instance of focusing (as in (13-a), indicated by capital letters), or an instance of backgrounding (as in (13-b)), depending on contextual and other factors.

- (13) a. DEN CHEF<sub>i</sub> hat keiner t<sub>i</sub> gesehen  
           the boss has no-one seen  
       b. Den Chef<sub>i</sub> hat KEINER t<sub>i</sub> gesehen

The picture that emerges, then, is this: Scrambling, (S-structural) *wh*-movement, topicalization, etc. are all formal *syntactic* operations, and, as such, inherently “blind” to the semantic properties (e.g., the feature [ $\pm$ operator]) of the moved item – these properties become relevant only at LF, and trigger movement at that level.<sup>1</sup>

Finally, it should be noted that the optionality in the application of scrambling poses a severe problem for theories where movement always has to be forced by some independent factor, most notably, Chomsky’s (1991; 1993) theory of economy principles. Scrambling in general appears to be “unmotivated,” and this has led some researchers to the conclusion that the very existence of scrambling, as a syntactic operation, is a mystery (cf., for instance, Haider (1991a: 7)). In view of this situation, two solutions suggest themselves on the basis of the tenet that optional movement rules do not exist. First, one might argue that scrambling eventually is not optional, but rather forced by semantic considerations (cf., e.g., Moltmann (1990), de Hoop (1992), Diesing (1992), and Buring (1993)). But it seems to me that such an approach is too restrictive – the differences between scrambled and “base”

orders in the middle field in most cases appear to be pragmatic in nature, and generally do not affect semantics, i.e., truth conditions.

A second, more drastic solution would be to conclude that scrambling, as a syntactic operation, does not exist; free word order, then, must be base-generated (cf. Fanselow (1992a)). However, there is evidence in abundance (some of which will be presented in the ensuing sections of this chapter) to the effect that scrambling exists as a syntactic movement rule which leaves a trace. And assuming a base-generation approach also deprives one of the possibility of having a maximally simple and elegant theory of syntactic projection of lexical units at D-structure – e.g., it clearly requires the abandonment of Baker’s (1988) Uniformity of Theta Assignment Hypothesis (UTAH). (1-a) and (1-b), e.g., have the same truth conditions and count as thematic paraphrases. By the UTAH, these sentences have identical D-structures, and are “transformationally related.” The projection of the verb in (1-ab), then, can be assumed to be uniform according to a (partial) thematic hierarchy “AGENT > THEME.” Given the base-generation approach, however, the verb in (1-a) does not project in the same way as the verb in (1-b). Moreover, it now becomes very difficult to differentiate between unmarked and marked word orders, since all possible orders are base-generated ones. Finally, recall that there are examples of scrambling (like those in (2)), which cannot be derived without movement in any case.

Thus, since an alternative to the idea that scrambling is an optional movement rule does not suggest itself in any obvious way, and, furthermore, since we have seen that in principle *all* S-structural movement rules can be optional, I will not adopt Chomsky’s (1991; 1993) approach according to which all movement is forced by some independent (quasi-morphological) factor – rather, I would like to maintain that unforced movement exists, and that it is by no means as unusual as one might expect (cf. Müller & Sternefeld (1994a) for further discussion of this issue).

## 2.2. Iterability

A remarkable property of scrambling (i.e., S-structural left-adjunction to XP) is that it can be iterated:

- (14) daß [IP Ellen<sub>i</sub> [IP [NP die Gerüchte über Ina ]<sub>j</sub> [IP keiner t<sub>i</sub>  
 that Ellen<sub>dat</sub> the rumours<sub>acc</sub> about Ina no-one<sub>nom</sub>  
 t<sub>j</sub> geglaubt hat ]]]  
 believed has

In languages like German, this distinguishes scrambling from other A-bar movement types like *wh*-movement or topicalization. But this difference clearly is reducible to the fact that scrambling is an adjunction operation, whereas *wh*-

movement and topicalization involve substitution in specifier positions. Given that specifiers are unique in German, it follows that *wh*-movement and topicalization may not be iterated. Note, however, that it looks as though there are indeed cases of iterated *wh*-movement and iterated topicalization in other languages where specifiers are not unique (or (right-) adjunction to a specifier is possible). Thus, Rudin (1988) suggests that multiple *wh*-movement to SpecC exists in Bulgarian (cf. chapter 5 below for discussion), and languages like Japanese or Korean exhibit the phenomenon of multiple topicalization (which behaves differently from multiple scrambling, e.g. with respect to agreement with I; cf. Saito (1985) and Fukui (1986a), among others). In conclusion, this property of scrambling in German is accounted for, and does not set it apart from other A-bar movement types in any interesting way.

### 2.3. The structure of scrambling chains

If one looks more closely at the kind of chain formed by scrambling, it turns out that it fits into the scheme developed by Chomsky (1981) without further amendments. According to Chomsky (1981; 1986), A-chains have the following properties: The first member of an A-chain occupies a position characterized by the features [+Case, - $\Theta$ ], and the final member of an A-chain is in a [-Case, + $\Theta$ ] position.<sup>2</sup> In A-bar chains, on the other hand, the first member occupies a [-Case, - $\Theta$ ] position, and the final member, a [+Case, + $\Theta$ ] position (unless a non-trivial A-chain is part of the A-bar chain). As noted by Stechow & Sternefeld (1988) and Webelhuth (1992), among others, scrambling chains clearly pattern with A-bar chains, and not with A-chains in this respect – scrambling does not appear to be Case-driven, and it ends up in a position where a  $\Theta$ -role can never be assigned. Moreover, A-chains typically only involve NPs. Scrambling chains, however, may be headed by non-NPs, as in (15):<sup>3</sup>

- (15) a. daß [PP an Fritz ]<sub>i</sub> alle Frauen Liebesbriefe t<sub>i</sub> schicken wollen  
           that to Fritz all women love letters send want-to
- b. daß alle Frauen [PP an Fritz ]<sub>i</sub> Liebesbriefe t<sub>i</sub> schicken wollen  
           that all women to Fritz love letters send want-to
- c. Damals ging [PP für sie ]<sub>i</sub> der Peter t<sub>i</sub> durchs Feuer  
           then went for her ART Peter through-the fire

Hence, if one wants to maintain that scrambling is an instance of A-movement, this seems to require a modification of the theory of A-chains, which is indeed more or less tacitly assumed by the proponents of an A-movement approach to scrambling.

So far, we have seen that the basic properties of scrambling argue in favour of its being a well-behaved A-bar movement type, just like *wh*-movement or

topicalization. In the following sections, I want to discuss some more intricate issues. The ultimate conclusions, though, will be the same.

### 3. Adjunction sites

In this section, I want to address the questions of what are possible adjunction sites for scrambling, and why some languages exhibit scrambling, and others do not. In section 3.1, I am concerned with what one might call the “standard cases” of scrambling, i.e., adjunctions to VP and IP. I discuss several accounts given in the literature for the lack of scrambling in languages like English, and argue that none of them is adequate. In section 3.2, then, more scrambling data are taken into account, involving adjunction to CP and to NP. Following Müller & Sternefeld (1990; 1993), an Adjunction Site Parameter is introduced which explains the variation observed.

#### 3.1. Adjunction to VP and IP

##### 3.1.1. The data

In German, scrambling may adjoin XPs to either VP (as in (16)), or IP (cf. (17) or (1)).<sup>4</sup>

- (16) a. daß der Fritz [VP dem Wolfgang das Buch geklaut hat ]  
 that ART Fritz<sub>nom</sub> ART Wolfgang<sub>dat</sub> the book<sub>acc</sub> stolen has
- b. daß der Fritz [VP das Buch<sub>i</sub> [VP dem Wolfgang t<sub>i</sub>  
 that ART Fritz<sub>nom</sub> the book<sub>acc</sub> ART Wolfgang<sub>dat</sub>  
 geklaut hat ]]  
 stolen has
- (17) a. daß [IP dem Wolfgang<sub>i</sub> [IP der Fritz t<sub>i</sub> das Buch geklaut  
 that ART Wolfgang<sub>dat</sub> ART Fritz<sub>nom</sub> the book<sub>acc</sub> stolen  
 hat ]]  
 has
- b. daß [IP das Buch<sub>i</sub> [IP der Fritz [VP dem Wolfgang t<sub>i</sub>  
 that the book<sub>acc</sub> ART Fritz<sub>nom</sub> ART Wolfgang<sub>dat</sub>  
 geklaut hat ]]]  
 stolen has
- c. daß [IP das Buch<sub>i</sub> [IP dem Wolfgang<sub>j</sub> [IP der Fritz t<sub>j</sub> t<sub>i</sub>  
 that the book<sub>acc</sub> ART Wolfgang<sub>dat</sub> ART Fritz<sub>nom</sub>  
 geklaut hat ]]]  
 stolen has

- d. daß [IP dem Wolfgang<sub>j</sub> [IP das Buch<sub>i</sub> [IP der Fritz t<sub>j</sub> t<sub>i</sub>  
that ART Wolfgang<sub>dat</sub> the book<sub>acc</sub> ART Fritz<sub>nom</sub>  
geklaut hat ]]]  
stolen has

Similarly, Japanese allows adjunction to VP, as in (18), and IP, as in (19). (The data are from Fukui (1988: 257); cf. also, among others, Hoji (1987: 180) and Saito (1987: 302).)

- (18) a. Mary-ga [VP John-ni so-no hon-o watasita ]  
Mary<sub>nom</sub> John<sub>dat</sub> that book<sub>acc</sub> handed  
b. Mary-ga [VP so-no hon-o<sub>j</sub> [VP John-ni t<sub>j</sub> watasita ]]  
Mary<sub>nom</sub> that book<sub>acc</sub> John<sub>dat</sub> handed
- (19) a. [IP John-ni<sub>i</sub> [IP Mary-ga t<sub>i</sub> so-no hon-o watasita ]]  
John<sub>dat</sub> Mary<sub>nom</sub> that book<sub>acc</sub> handed  
b. [IP So-no hon-o<sub>j</sub> [IP Mary-ga John-ni t<sub>j</sub> watasita ]]  
that book<sub>acc</sub> Mary<sub>nom</sub> John<sub>dat</sub> handed  
c. [IP So-no hon-o<sub>j</sub> [IP John-ni<sub>i</sub> [IP Mary-ga t<sub>i</sub> t<sub>j</sub> watasita ]]]  
that book<sub>acc</sub> John<sub>dat</sub> Mary<sub>nom</sub> handed  
d. [IP John-ni<sub>i</sub> [IP so-no hon-o<sub>j</sub> [IP Mary-ga t<sub>i</sub> t<sub>j</sub> watasita ]]]  
John<sub>dat</sub> that book<sub>acc</sub> Mary<sub>nom</sub> handed

VP and IP are also possible adjunction sites in Korean, as shown in (20) and (21), respectively (cf., e.g., H.H. Lee (1992: 93ff)):

- (20) a. Ch'ölsu-ka [VP Sunhi-eke i ch'aek-ül chu-öss-ta ]  
Ch'ölsu<sub>nom</sub> Sunhi<sub>dat</sub> this book<sub>acc</sub> gave  
b. Ch'ölsu-ka [VP i ch'aek-ül<sub>i</sub> [VP Sunhi-eke t<sub>i</sub> chu-öss-ta ]]  
Ch'ölsu<sub>nom</sub> this book<sub>acc</sub> Sunhi<sub>dat</sub> gave
- (21) a. [IP Ch'ölsu-ka i ch'aek-ül ilk-öss-ta ]  
Ch'ölsu<sub>nom</sub> this book<sub>acc</sub> read  
b. [IP I ch'aek-ül<sub>i</sub> [IP Ch'ölsu-ka t<sub>i</sub> ilk-öss-ta ]]  
this book<sub>acc</sub> Ch'ölsu<sub>nom</sub> read

On the other hand, languages like English (Swedish, Danish, French, Italian, etc.) do not freely permit S-structural left-adjunction to VP:

- (22) a. John has given Mary a book  
b. \*John has given a book<sub>i</sub> Mary t<sub>i</sub>  
c. \*John has Mary<sub>i</sub> given t<sub>i</sub> a book  
d. \*John has Mary<sub>i</sub> a book<sub>j</sub> given t<sub>i</sub> t<sub>j</sub>

As concerns IP, Baltin (1982), Rochemont (1989), Lasnik & Saito (1989; 1992) and others have indeed claimed that embedded topicalization as in (23) should be analysed as adjunction to IP, i.e., given the strictly structural characterization of the notion I have adopted, as scrambling (cf. (23-a)). However, in chapter 6 I will argue, following Müller & Sternefeld (1990; 1993), that embedded topicalization in English is not to be analysed as an adjunction operation, but rather as movement into the specifier of a clausal functional head T (which bears verbal features), as in (23-b).<sup>5</sup>

- (23) a. I think that [<sub>IP</sub> [<sub>PP</sub> to Tom ]<sub>i</sub> [<sub>IP</sub> Mary gave a book t<sub>i</sub> ]]  
 b. I think that [<sub>TP</sub> [<sub>PP</sub> to Tom ]<sub>i</sub> T [<sub>IP</sub> Mary gave a book t<sub>i</sub> ]]

If this is so, embedded topicalization in English receives an account very much akin to topicalization in the Germanic V/2 languages, and we can maintain that English does not allow scrambling to IP. In line with this, I will assume that examples like (24-ab) present decisive evidence; here an analysis in terms of topicalization is not possible (cf. the previous note), and the only conceivable analysis involves scrambling, i.e., adjunction to IP – which apparently is not an option in English.

- (24) a. \* [<sub>IP</sub> To Tom<sub>i</sub> [<sub>IP</sub> a book<sub>j</sub> [<sub>IP</sub> Mary gave t<sub>j</sub> t<sub>i</sub> ]]]  
 b. \*Why did [<sub>IP</sub> a book<sub>i</sub> [<sub>IP</sub> Mary give t<sub>i</sub> to Tom ]] ?

The question that then arises is how this difference between “scrambling” languages like German and “non-scrambling” languages like English can be derived. To this end, I will now discuss a number of accounts that have been given in the literature. There, attempts are made to find correlations between the option of adjunction to VP and IP, and another, independently motivated property of a “scrambling” language, such as directionality, *pro*-drop, or Case morphology.

### 3.1.2. Directionality

If one looks at the Germanic languages, it turns out that the option of adjunction to VP or IP seems to correlate with the government direction of the verb. The Germanic SOV languages (like German or, in a less degree (see below), Dutch) exhibit scrambling phenomena, whereas the SVO languages (e.g., English, Danish, Swedish, Icelandic) do not allow adjunction to VP or IP. Hence, it does not come as a surprise that a number of researchers have tried to tie the option of left-adjunction to VP and IP to a leftward government direction of V and I.

Webelhuth (1987: 2; 1988: 295) develops a theory of chains according to which members of scrambling chains are licensed only if they are left-adjointed to XPs the head of which governs to the left. This condition is ultimately

derived by invoking the notion of *predication* – scrambling chains must meet a predication condition, and predication is assumed to be universally leftward (i.e., subjects precede their predicates). Thus, it follows that left-adjunction is possible in German to either VP or IP, but not to PP, NP or CP (since these latter XPs have heads which govern to the right); moreover, scrambling is predicted to be impossible throughout in languages with a strictly rightward government orientation like English or Danish.

Related analyses in terms of directionality are also presented by Reuland & Kosmeijer (1988), Haider (1991a; 1991b), Fanselow (1991a; 1992) and Frey & Tappe (1991), the main difference to Webelhuth's proposal being that *Case government*, rather than *predication* is supposed to be the crucial factor determining the availability of adjunction sites for scrambling. Thus, Reuland & Kosmeijer (1988: 91) state that "an argument may not scramble out of the domain of its governor." Furthermore, they assume that government of V is exclusively to the left in languages like Dutch or German. Then, if V can also govern an IP-adjoined position (possibly after V-to-I movement) (alternatively: if the VP-internal subject hypothesis is adopted, which would obviate adjunction to IP), the contrast between the Germanic SVO and SOV languages with respect to scrambling can be accounted for – in English, for instance, an NP argument which undergoes left-adjunction to VP (or IP) leaves the domain of its governor, which has rightward orientation.

Clearly, however, one would like to know the reason why exactly an argument may not scramble out of the domain of its governor. This issue is addressed by Haider (1991b: 16ff), Fanselow (1991a: 2ff; 1992: 4) and Frey & Tappe (1991: 33ff), whose proposals can be viewed as extensions of Reuland & Kosmeijer's theory. In these works, it is unanimously assumed that scrambling of an argument may only go into a position which is (more or less) indistinguishable from its base position; under this view, scrambling positions (conceived of as left-adjunction sites of VP only, in accordance with the VP-internal subject hypothesis) are (possible) "linking positions." In particular, it follows from this requirement that an NP may only adjoin to VP if Case can be assigned to that position, just as it can be assigned VP-internally. This is accomplished in German – here, V governs to the left and can thus assign Case to an NP left-adjoined to VP, given a straightforward modification of the notion "m-command" to the effect that V m-commands (ultimately, governs) VP-adjuncts. The theory also appears to yield the correct results for left-adjunction to VP in English; this should be impossible because V in English has a rightward orientation of government, and the left-adjunction site of VP does not qualify as a possible linking position for arguments of the verb.<sup>6</sup>

Yet another directionality-based approach to scrambling is developed by Koster (1988: 3ff). He states that NPs may left-adjoin to VP only in case

V governs to the left (as in Dutch and German), whereas NPs may right-adjoin to VP only in case V governs to the right (this situation, according to Koster, occurs in Spanish). By hypothesis, the English V governs leftward in its base position, but then obligatorily undergoes movement to a functional head position in front of the VP, from where it governs VP-internal NPs to the right (cf. also chapter 4 on this “residual SOV structure” of English). As a consequence, V in English governs its arguments bi-directionally, and builds a “Cage” (p. 6) for (either left-, or right-) adjunction of NPs to VP. Thus, the rigid word order of English as compared to Dutch or German is explained.

All these analyses may successfully account for the existence of scrambling to VP (or IP) in languages like German, and the lack thereof in languages like English. However, I believe that the directionality-based approaches to scrambling suffer from a number of drawbacks, some of which are specific to the particular analysis, and at least one of which is very general in nature. As regards the (conceptual or empirical) analysis-specific problems, I would like to mention only a few. Recall, for instance, that Webelhuth’s (1987; 1988) analysis crucially relies on the notion of predication. But it seems to me to be fairly unclear why scrambling should have anything to do with that. With respect to the approaches of Reuland & Kosmeijer (1988), Haider (1991a; 1991b), Fanselow (1991a; 1992), and Frey & Tappe (1991), note that their analyses in terms of (Case-) government produce the correct results only for NP arguments, but not for, e.g., argumental or non-argumental PPs. Consider again (15-abc), repeated here in (25):

- (25) a. daß [<sub>PP</sub> an Fritz ]<sub>i</sub> alle Frauen Liebesbriefe t<sub>i</sub> schicken wollen  
           that    to Fritz   all women love letters   send    want-to
- b. daß alle Frauen [<sub>PP</sub> an Fritz ]<sub>i</sub> Liebesbriefe t<sub>i</sub> schicken wollen  
           that all women    to Fritz   love letters   send    want-to
- c. Damals ging [<sub>PP</sub> für sie ]<sub>i</sub> der Peter t<sub>i</sub> durchs        Feuer  
           then    went       for her   ART Peter   through-the fire

If the option of scrambling to VP (or IP) is closely tied to the availability of Case-government of that position, it is unclear what differentiates between illicit PP adjunction to VP (IP) in English, and possible PP adjunction to VP (IP) in German, as in (25). In other words, if the feature that turns an adjunction site of, e.g., VP into a linking position for NPs in German, but not in English, is Case, then what kind of feature has the same effect for PPs in German, but not in English? This problem is indeed acknowledged by Fanselow (1992: 4) and Frey & Tappe (1991: 34), but their solutions are tentative and not particularly convincing.<sup>7</sup>

Apart from specific problems like these, which probably can be overcome eventually in one way or another, there is a more severe empirical shortcoming of the directionality-based approaches to scrambling. It simply does not ap-

pear to be true that SVO languages do not allow S-structural left-adjunction to VP or IP. This becomes evident as soon as one considers non-Germanic languages with free word order. Russian is a case in point. According to all available evidence, Russian is an SVO language, i.e., it exemplifies rightward government of V, as indicated in (26-a) (cf., e.g., Pesetsky (1982) or Krylova & Chavronina (1976)). Nonetheless, scrambling to VP (as in (26-b)) or IP (as in (26-c)) is possible throughout. Cf.:

- (26) a. (čto) Ivan ljubil Mašu  
           that Ivan<sub>nom</sub> loved Masha<sub>acc</sub>
- b. (čto) Ivan [VP Mašu<sub>i</sub> [VP ljubil t<sub>i</sub> ]]  
           that Ivan<sub>nom</sub> Masha<sub>acc</sub> loved
- c. (čto) [IP Mašu<sub>i</sub> [IP Ivan [VP ljubil t<sub>i</sub> ]]]  
           that Masha<sub>acc</sub> Ivan<sub>nom</sub> loved

As mentioned in section 1, it seems inappropriate on conceptual grounds to treat left-adjunction to XP in Russian differently from scrambling in German. Hence, given that adjunction to VP or IP in German and Russian is the same phenomenon, the directionality-based approaches to scrambling must be abandoned.

### 3.1.3. Licensing of *pro*

Koster (1986) observes that English, French and the Scandinavian languages on the one hand, and German and Dutch on the other, also differ with respect to another syntactic property, in addition to scrambling – whereas the former languages do not permit *pro* in SpecI, German and Dutch are “semi”-*pro*-drop languages in the sense that expletive *pro* is licensed in SpecI. To capture this apparent correlation, Koster devises a theory of “strong” and “weak” I and C nodes; recall that we have already encountered these notions in chapter 2, in connection with the complementizer-trace effect. The basic idea is that English, French and the Scandinavian languages have strong I, whereas Dutch or German have weak I. Strong I (quite unexpectedly, from a terminological point of view, and in contrast to what I have assumed in chapter 2, following essentially Kayne (1989)) disallows *pro* in its specifier, whereas weak I licenses *pro* in SpecI.<sup>8</sup> Furthermore, Koster assumes that strong governors which can assign Case have the property of tolerating in their domain only elements bearing this Case; in particular, strong I “only tolerates a dependent nominative in its domain” (Koster (1986: 16)). Then, given that a VP-adjoined or IP-adjoined XP belongs to the domain of I, scrambling to either VP or IP is predicted to be impossible – a strong I “is functioning as a watchdog that keeps the VP-internal objects in their D-structure position” (p. 16).

Although this analysis accounts for the existence of scrambling in lan-

guages like German, and the lack thereof in languages like English, I think there is again reason not to adopt it. Apart from a number of problems inherent to Koster's (1986) unified approach to scrambling and *pro*-drop (which are discussed in detail in Müller & Rohrbacher (1989: 31ff)), the purported correlation between the licensing of *pro* and the availability of scrambling to VP and IP, upon closer inspection, turns out to be only apparent. Most notably, there are *pro*-drop languages which do not permit adjunction to VP or IP. In Italian, for instance, (even referential) *pro* is licensed by I. In Koster's framework, this implies that I is weak in this language. But then, one should expect Italian to exhibit scrambling phenomena (resulting in free word order), which, of course, it does not.

It seems to be somewhat more difficult to find languages where scrambling occurs, although *pro* is not licensed. Notice, however, that it is by no means self-evident that the empty subjects and objects which frequently show up in languages like Korean or Japanese are to be treated as instances of referential *pro*; in general, it has emerged that referential, non-generic *pro* (in either subject or object position) can be licensed only by rich verbal inflection, more precisely, agreement morphology (cf., e.g., McCloskey & Hale (1984) and Rizzi (1986a)). However, agreement morphology is virtually non-existent in Japanese or Korean. Accordingly, the question of whether the phenomenon of empty subjects and objects in these languages can be treated on a par with *pro*-drop in, say, Italian or German, does not appear to be settled yet; cf. Huang (1984), Hasegawa (1984/85), and Jaeggli & Safir (1989) for some discussion. Thus, if Japanese and Korean should eventually turn out not to license *pro*, the remaining part of the correlation breaks down as well – recall that both Japanese and Korean have scrambling (cf. (18), (19) and (20), (21), respectively).

In conclusion, Koster's (1986) explanation in terms of strong vs. weak I ultimately is not viable because its cross-linguistic predictions are too strong, as was the case with the directionality-based approach.

### 3.1.4. Case morphology

More or less implicit in much recent work on scrambling is the idea that what permits (relatively) free word order is a rich system of Case morphology in a language; the basic intuition seems to be that the relationship of an argument to its predicate (its grammatical function) can be identified either by its occupying a specific position, as in English, or by specific Case morphology, as in German; cf. Haider (1988a) for an approach to word order variation (albeit in terms of base-generation) which incorporates this insight. This view, which is ultimately a functional one, can be made precise in several ways. A particularly suggestive proposal to this effect in terms of scrambling is outlined in Fanselow (1992a) (also see Haider (1991a; 1991b)).

Fanselow makes the following assumptions. First, scrambling is A-movement. Second, there is no Case transmission in A-chains (or, more precisely, A-CHAINS, including expletive-argument pairs). That is, in an A-CHAIN  $\langle \alpha_1, \dots, \alpha_n \rangle$ ,  $\alpha_1$  cannot derive Case from  $\alpha_n$ , and vice versa. This implies that a scrambled element cannot derive Case from its trace. The third and most important assumption, then, is that German nouns differ from English ones in that they are taken from the lexicon already equipped with overt Case morphology. Thus, German NPs can satisfy the Case Filter directly – they do not have to receive (abstract) Case by a Case-assigner. English nouns, on the other hand, are not yet specified for Case in the lexicon. Therefore, they have to be assigned Case in the syntax in order to meet the demands of the Case Filter. But then, given that there is no Case transmission in A-chains, a scrambled NP in English invariably violates the Case Filter, whereas a scrambled NP in German (which is inherently Case-marked, by assumption) respects the Case Filter.

Although I think that a Case-morphological account of scrambling is intuitively very attractive, there is again counterevidence in abundance, which ultimately necessitates a rejection of Fanselow's (1992a) proposal. First, as Fanselow himself remarks, the correlation of rich Case morphology and the option of scrambling is not complete – languages like Icelandic, unexpectedly under Fanselow's assumptions, do not permit scrambling, although they exhibit rich Case morphology. This requires an additional qualification; Fanselow accordingly acknowledges that whereas the existence of scrambling implies overt Case morphology, the reverse implication does not hold.<sup>9</sup>

Still, there are other problems. If overt Case morphology is the crucial factor in licensing or prohibiting scrambling, we should expect items which do not bear overt Case morphology to resist scrambling in German. This is evidently not the case. As shown in (25), PPs can undergo scrambling. Moreover, proper names which are not overtly Case-marked may scramble, as shown in (27-a); the R-pronoun *da* (which we have seen does not even require abstract Case; cf. the previous chapter) may scramble (cf. (27-b)); similarly, the reflexive pronoun *sich* (which does not bear overt Case morphology, and which – as I will argue in chapter 4 – also does not even have to be assigned abstract Case) may scramble (cf. (27-c)):

- (27) a. daß Martin<sub>i</sub> keiner t<sub>i</sub> gesehen hat  
 that Martin<sub>acc</sub> no-one<sub>nom</sub> seen has
- b. daß da<sub>i</sub> keiner [PP t<sub>i</sub> von ] informiert war  
 that that no-one of informed was
- c. daß sich<sub>i</sub> die Laune t<sub>i</sub> langsam verbessert  
 that REFL the mood slowly improves

This state of affairs minimally requires that what distinguishes German from

English must be a more abstract property than just *overt* Case morphology. But then the distinction between overt (i.e., morphological) Case and abstract Case becomes blurred – what appears to be required for licensing scrambling is an “intermediate” notion of Case, to the effect that German nouns have this type of Case even in (27-abc), whereas English nouns never do, not even in the case of pronouns like *him*, as discussed in the last note. Similarly, one has to make sure that Dutch, which exhibits scrambling phenomena to some extent (see below), but has an impoverished system of Case morphology, has this peculiar type of Case relevant for scrambling.

Most interesting is the case of Bulgarian. This language, like English, and unlike other Slavic languages, does not have any Case morphology anymore. In particular, subjects and DOs cannot be distinguished via Case morphemes; IOs and “genitive” objects are preceded by a preposition *na* (corresponding to English *to* and *of*). Thus, Bulgarian, also being an SVO language (as indicated in (28-a)), is fairly similar to English in all relevant respects. Nevertheless, it freely permits scrambling to VP (cf. (28-b)) and IP (cf. (28-c)). (The examples are from Rudin (1985: 13ff); cf. also Molxova (1970: 27) and Stanchev (1987).)

- (28) a. če [IP Ivan [VP otvori vratata ]]  
           that Ivan opened door-the
- b. če [IP Ivan [VP vratata<sub>i</sub> [VP otvori t<sub>i</sub> ]]]  
           that Ivan door-the opened
- c. če [IP vratata<sub>i</sub> [IP Ivan [VP otvori t<sub>i</sub> ]]]  
           that door-the Ivan opened

Thus, not only may scrambling be prohibited despite an articulated Case system, it may also apply in languages where Case morphology is non-existent. This clearly shows that Case morphology is not the decisive factor in licensing scrambling. Although I would agree that there is probably a correlation between Case morphology and free word order under a *diachronic* perspective, *synchronically* the two properties are independent from one another.

### 3.1.5. Conclusion

Let me summarize the main findings so far. Upon closer scrutiny, it turns out that attempts to correlate scrambling with some other, independently motivated property of a given language, like directionality of government, *pro*-drop, or Case morphology, fail in the light of cross-linguistic evidence. Also, the idea that scrambling might be an instance of A-movement is of no help. Hence, it may be time to view the problem from a different angle. To this end, I would like to suggest a broadening of perspective, both conceptually and empirically.

On the conceptual side, one should compare scrambling with other types

of A-bar movement. Consider, for instance, *wh*-movement. Why do some languages (German, English, etc.) have overt *wh*-movement, whereas others (Chinese, Japanese, Korean, for instance) do not? To the best of my knowledge, this parametric variation has not yet been successfully derived by invoking an *independent* property of the languages in question. Lasnik & Saito (1984; 1992), e.g., simply state that a [+wh] "COMP" must be filled by a *wh*-phrase at S-structure in languages with overt *wh*-movement; Chomsky (1993) suggests that an abstract morphological property of a C node marked [+wh] requires overt *wh*-movement in some languages.<sup>10</sup> In all these theories of *wh*-movement, it is taken for granted that the existence of overt *wh*-movement does not have anything to do with phenomena like directionality of government, *pro*-drop, or the Case system; rather, overt *wh*-movement is assumed to be regulated solely by properties of the landing site, i.e., (according to standard assumptions) SpecC, or, more generally, the C-projection. In the same way, I will argue (following Müller & Sternefeld (1990; 1993)) in chapter 6 that the option of topicalization crucially rests on properties of the projection of another functional head, viz., T (the landing site of V/2 movement). Under this perspective, it would not come as a surprise if the option of scrambling were also exclusively determined by the properties of the landing site(s). In other words, V- and I-projections do tolerate XPs adjoined to VP and IP in German, whereas they do not in English. Scrambling at first sight still seems to differ from *wh*-movement or topicalization in this respect, since there is more than one kind of landing site (viz., VP- and IP-adjoined positions) available. However, in cases of multiple *wh*-questions, there are, by standard assumption, also two kinds of landing sites available at LF, viz., SpecC itself and the adjunction site of SpecC. Furthermore, if Rudin (1988) is correct, these two kinds of landing sites for *wh*-movement may in principle both be accessible at S-structure already, as she assumes to be the case in Bulgarian. Possibly, something similar applies in the multiple topicalization constructions found in Japanese or Korean.

If this reasoning is on the right track, two consequences arise with respect to scrambling. First, an account of whether a language has scrambling to VP and IP or not, in terms of properties of the landing sites, does not differ from the standard accounts of, say, whether a language has overt *wh*-movement or not in any interesting respect. (In other words, scrambling again behaves like other instances of A-bar movement.) And second, it should in principle be possible for a language to have more landing sites for scrambling than German (i.e., more than only VP and IP), or fewer than German, but still more than English, which I think is indeed the case. This leads us to the empirical broadening of perspective envisaged above. I will address this issue in the next section.

### 3.2. Adjunction to XP

In this section, I want to show that the notion “scrambling” must be relativized. It does not suffice to simply distinguish between languages which have scrambling and those which have not. Rather, it turns out that some languages have more scrambling than others, as they allow adjunction to NP and CP in addition to VP and IP. This is in line with the pertinent remarks of the previous sections, and will become particularly important in the discussion of locality constraints on scrambling in section 4.

#### 3.2.1. Adjunction to CP

In German, scrambling to CP is not possible. This is most clearly shown in (29), where a *wh*-phrase occupies SpecC:

- (29) a. \*Ich war (dort) [CP [NP die neue Schule]<sub>i</sub> [CP wo sie t<sub>i</sub> bauen ]]  
 I was (there) the new school where they build
- b. \*so daß ich mich frage [CP [PP an Fritz]<sub>i</sub> [CP was alle Frauen t<sub>i</sub>  
 so that I REFL ask to Fritz what all women  
 schicken wollen ]]  
 send want-to

Similarly, movement of a [-wh] phrase in front of a complementizer results in ungrammaticality, as shown in (30):

- (30) a. \*Hast du gewusst [CP [NP der Typ]<sub>i</sub> daß t<sub>i</sub> schon gekommen  
 have you known the guy that already come  
 ist ] ?  
 is
- b. \*Ich finde [CP [NP mein Fahrrad]<sub>i</sub> daß ich t<sub>i</sub> reparieren sollte ]  
 I think my bicycle that I fix should

In chapter 6, it will be argued that [-wh] phrases may never move into the SpecC position in German. But in order to fully exclude (30-ab), it is of course necessary in addition to rule out a derivation of these examples which involves scrambling to CP. Thus, (30-ab) also show that adjunction to CP is not possible in German.<sup>11</sup>

S-structural left-adjunction to CP also appears to be prohibited in Japanese (Saito (1985)) and Korean (H.H. Lee (1992)), although this is not easy to test in a language where C is right-peripheral, S-structural *wh*-movement non-existent, and adjunction to IP allowed. However, we will encounter a strong indirect argument in support of this claim in section 4.

It goes without saying that English does not allow adjunction to CP either (more generally, it seems plausible to venture the hypothesis that no language without adjunction to VP or IP has adjunction to CP; cf. below):

- (31) a. \*I wonder [CP him<sub>i</sub> [CP why she left t<sub>i</sub> ]]  
 b. \*I believe [CP him<sub>i</sub> that she left t<sub>i</sub> ]

However, as pointed out in Müller (1988: 52), Müller & Sternefeld (1990; 1993), and Yadroff (1991: 7), CP is a possible adjunction site in Russian. Consider the following examples from Zemskaja (1973: 394) and Krylova & Chavronina (1976: 172ff), respectively:

- (32) a. Ja byl [CP [NP novuju školu ]<sub>i</sub> [CP gde strojat t<sub>i</sub> ]]  
 I was new school<sub>acc</sub> where they-build  
 "I have been where they are building the new school."  
 b. [CP [VP Obedat' ]<sub>i</sub> [CP kogda budem t<sub>i</sub> ] ] ?  
 have lunch when will-we

Here the NP *novuju školu* in (32-a), and the VP *obedat'* in (32-b), have undergone scrambling in front of the *wh*-phrase in SpecC, adjoining to CP.<sup>12</sup> Similarly, constructions like (30-ab) in German or (31-b) in English are acceptable throughout in Russian, as shown in (33), which is again taken from Zemskaja (1973):

- (33) Ty znaeš' [CP Petr Ivanyč<sub>i</sub> [CP čto [IP t<sub>i</sub> uže priexal ]]] ?  
 you know Petr Ivanych<sub>nom</sub> that already came  
 "Do you know that Petr Ivanych has already come?"

Of course, one must guarantee that what looks like scrambling to CP in (33) cannot be analysed as movement to SpecC, in order for the argument for CP-adjunction to be valid. But given that Russian exhibits the Doubly Filled Comp Filter (it does not allow the co-occurrence of a *wh*-phrase in SpecC and a lexical complementizer), it is highly unlikely that a [-*wh*] phrase can show up in the specifier of *čto*. Moreover, as noted before, we will see in chapter 6 that there is a general prohibition against moving a [-*wh*] phrase into the specifier of a complementizer. Therefore, (33) shows that Russian allows left-adjunction to CP, just like (32) does.

### 3.2.2. Adjunction to NP

As observed by Webelhuth (1987: 2; 1988: 289) and Stechow & Sternefeld (1988: 465), NP is not a possible adjunction site in German. These authors present examples like those in (34) to support their claim:

- (34) a. \* $[_{NP} [ \text{meines Vaters} ]_i [_{NP} \text{das blaue Schrottauto } t_i ]]$   
           my     father<sub>gen</sub>           the blue junk-car
- b. \* $[_{NP} [ \text{kleinen Wuches} ]_i [_{NP} \text{eine schlanke Frau } t_i ]]$   
           small height<sub>gen</sub>           a slender woman

(Recall from chapter 2 that I have assumed, more or less in line with the traditional view, that DP is dominated by NP, and not vice versa.)

Examples like (35-ab) may be taken as evidence that adjunction to NP is also impossible in English:

- (35) a. \* $[_{NP} [ \text{about Mary} ]_i [_{NP} \text{a book } t_i ]]$   
       b. \* $[_{NP} [ \text{of John's} ]_i [_{NP} \text{a book } t_i ]]$

Similarly, Korean does not seem to allow adjunction to NP; cf. H.H. Lee (1992: 103).

However, things are again different in Russian. As noted in Müller & Sternefeld (1990: 23), adjunction to NP appears frequently here; cf. (36-ab), taken from Zemskaĵa (1973) (also see Yadroff (1991: 4)):

- (36) a.  $[_{NP} [ \text{moej sestry} ]_i [_{NP} (\text{é}tot) \text{ dom } t_i ]]$   
           my sister<sub>gen</sub>           this house
- b.  $[_{NP} [ \text{nevysokogo rosta} ]_i [_{NP} \text{xuden'kaja ženščina } t_i ]]$   
           small height<sub>gen</sub>           slender woman

Thus, it appears that adjunction to NP patterns exactly like adjunction to CP, in the languages under consideration. However, a slight complication emerges in German because of a construction which at first sight does indeed look like an instance of adjunction to NP. As noted by Tappe (1989: 166), Webelhuth (1989: 247; 1992) and Bayer (1990a: 71), among others, examples like (34-ab) become grammatical as soon as a PP, rather than an NP, occupies the position in front of the determiner. Cf.:

- (37) a.  $[_{NP} [ \text{von meinem Vater} ]_i \text{das blaue Schrottauto } t_i ]]$   
           of my father           the blue junk-car
- b.  $[_{NP} [ \text{über Zeitmaschinen} ]_i \text{die Bücher } t_i ]]$   
           about time machines   the books
- c.  $[_{NP} [ \text{wegen Ruhestörung} ]_i \text{die Beschwerden } t_i ]]$   
           because-of disturbance   the complaints
- d.  $[_{NP} [ \text{in den Abgrund} ]_i \text{der Blick } t_i ]]$   
           into the abyss           the view

Moreover, an R-pronoun like *da* can undergo this NP-internal movement, inducing postposition stranding:

- (38) [NP da<sub>i</sub> ein Buch [PP t<sub>i</sub> über ]]  
 that a book about

In what follows, I cannot present a full-fledged account of this construction. Rather, I will confine myself to showing that NP-internal movement in (37) and (38) is not an instance of scrambling, but rather of movement to SpecD.

Notice first that if movement in front of a determiner involves scrambling, we expect it to be iterable (cf. section 2.2; note incidentally that, in line with this, multiple adjunction to NP in a language like Russian seems to be possible). This prediction is not confirmed:

- (39) a. [NP ein Buch [ von Martin ] [ über die Metapher ]]  
 a book by Martin about the metaphor  
 b. [NP [ von Martin ]<sub>i</sub> ein Buch t<sub>i</sub> [ über die Metapher ]]  
 by Martin a book about the metaphor  
 c. [NP [ über die Metapher ]<sub>i</sub> ein Buch [PP von Martin ] t<sub>i</sub> ]  
 about the metaphor a book by Martin  
 d. \*[NP [ von Martin ]<sub>i</sub> [ über die Metapher ]<sub>j</sub> ein Buch t<sub>i</sub> t<sub>j</sub> ]  
 by Martin about the metaphor a book

Both an AGENT PP, and a THEME PP can individually undergo NP-internal movement in (39-a), as shown in (39-b) and (39-c), respectively. However, they cannot both undergo this type of movement at the same time – (39-d) is ungrammatical, which is unexpected under a scrambling hypothesis.

Second, as observed by Fanselow (1991a: 3), a prenominal genitive NP blocks preposing of the kind in (37) and (38):

- (40) a. [NP [DP Martins ] Buch [ über die Metapher ]]  
 Martin's book about the metaphor  
 b. \*[NP [ über die Metapher ]<sub>i</sub> [DP Martins ] Buch t<sub>i</sub> ]  
 about the metaphor Martin's book

It is plausible to assume that prenominal NPs occupy SpecD, as depicted in (40-a). But then, (40-b) shows again that PP-preposing of the kind in (37) and (38) cannot be adjunction to NP.<sup>13</sup> Rather, (39-d) and (40-b) suggest that (37) and (38) involve movement to SpecD.

Third, it is standardly assumed that scrambling licenses parasitic gaps (cf. section 10 below). Accordingly, a PP argument which has been extracted from an NP and adjoined to VP permits a parasitic gap in an infinitival adjunct clause in German, cf. (41-a). But, as pointed out by Jochen Geilfuß (p.c.), NP-internal PP-preposing does not license parasitic gaps; this is shown in (41-b). Here, the relevant NP has undergone topicalization in the matrix clause. If preposing in (37) and (38) were adjunction to NP, the PP in (41-b) would c-command the gap in the adjunct clause and the sentence should

thus, *ceteris paribus*, be grammatical, which, however, it is not. Rather, (41-b) behaves exactly like (41-c) (where no movement of the NP-internal PP has occurred), with respect to parasitic gap licensing. This indicates that the PP *über Metaphern* in (41-b) is still NP-internal, and lends further support to the movement to SpecD hypothesis.

- (41) a. daß ich [ über Metaphern ]<sub>i</sub> heute [NP einen Artikel t<sub>i</sub>] schreibe  
 that I about metaphors today an article write  
 [ ohne vorher e<sub>i</sub> [NP ein Buch t<sub>i</sub>] gelesen zu haben ]  
 without before a book read to have
- b. \*[NP [ Über Metaphern ]<sub>i</sub> einen Artikel t<sub>i</sub>] schreibe ich heute  
 about metaphors an article write I today  
 [ ohne vorher [NP e<sub>i</sub> ein Buch t<sub>i</sub>] gelesen zu haben ]  
 without before a book read to have
- c. \*daß ich heute [NP einen Artikel [ über Metaphern ]<sub>i</sub>] schreibe  
 that I today an article about metaphors write  
 [ ohne vorher [NP ein Buch e<sub>i</sub>] gelesen zu haben ]  
 without before a book read to have

Finally, note that if NP-internal movement as in (37) and (38) were scrambling, one would expect those items which may undergo this kind of movement to be freely extractable from NP – adjunction positions of XPs are escape hatches for movement, according to the theory of barriers adopted here (cf. also Chomsky (1986)). This prediction is, of course, not borne out. Scrambling from an NP, the head of which does not abstractly incorporate into the embedding verb, is still ungrammatical; cf. (42-ab), with NP-internal movement, vs. (43-ab), where subsequent scrambling has taken place:

- (42) a. daß Wolfgang [NP [ über Zeitmaschinen ]<sub>i</sub> ein Buch t<sub>i</sub>] geklaut  
 that Wolfgang about time machines a book stolen  
 hat  
 has
- b. daß mich [NP da<sub>i</sub> ein Film [PP t<sub>i</sub> über ]] beeindruckt hat  
 that me that a film about impressed has
- (43) a. \*daß Wolfgang [ über Zeitmaschinen ]<sub>i</sub> gestern [NP ein Buch  
 that Wolfgang about time machines yesterday a book  
 t<sub>i</sub>] geklaut hat  
 stolen has
- b. \*daß da<sub>i</sub> mich [NP ein Film [PP t<sub>i</sub> über ]] beeindruckt hat  
 that that me a film about impressed has

Thus, (43) again shows that NP-internal movement in front of a determiner is not to be analysed as scrambling, but rather as movement to SpecD; recall from chapter 2 that in the theory of barriers assumed here, SpecD is not an escape hatch for movement out of NP.<sup>14</sup>

In conclusion, the claim that German, like English or Korean, but unlike Russian, does not allow S-structural left-adjunction to NP is well-supported, and not undermined by the existence of NP-internal movement of the kind in (37) and related examples.<sup>15</sup> Let us now consider adjunction to PP.

### 3.2.3. Adjunction to PP

Webelhuth (1987: 2; 1988: 289) and Stechow & Sternefeld (1988: 465) observe that German does not permit left-adjunction to PP, cf. (44-ab). The same goes for English, and, apparently, Korean (cf. H.H. Lee (1992)).

- (44) a. Ich bin [PP unter Druck ]  
 I am under pressure  
 b. \*Ich bin [PP Druck<sub>i</sub> [PP unter t<sub>i</sub> ]]  
 I am pressure under

Interestingly, Russian patterns with German and English this time. Yadroff (1991: 5) points out that adjunction to PP is ungrammatical in Russian. Consider his examples:

- (45) a. Včera on raskazal [PP o [NP priključenijax { svoego  
 yesterday he told about adventures his  
 druga }]]  
 friend<sub>gen</sub>  
 b. Včera on raskazal [PP o [NP [ svoego druga ]<sub>i</sub> [NP  
 yesterday he told about his friend<sub>gen</sub>  
 priključenijax t<sub>i</sub> ]]]  
 adventures  
 c. \*Včera on raskazal [PP [ svoego druga ]<sub>i</sub> [PP o [NP  
 yesterday he told his friend<sub>gen</sub> about  
 priključenijax t<sub>i</sub> ]]]  
 adventures

In (45-a), the preposition *o* embeds a complex NP *priključenijax svoego druga*; as shown in (45-b), the NP-internal argument *svoego druga* can undergo left-adjunction to NP, as expected. However, it may not be adjoined to the whole PP, as shown in (45-c). This indicates that PP in Russian, unlike NP, CP, VP or IP, is not a possible adjunction site for scrambling.

### 3.2.4. Adjunction to AP

For the sake of completeness, a remark is due on adjunction to AP. On the basis of examples like those in (46), Webelhuth (1987: 2; 1988: 289) and Stechow & Sternefeld (1988: 465) conclude that AP is a possible adjunction site in German:

- (46) die [<sub>AP</sub> [ ihres Freundes ]<sub>i</sub> [<sub>AP</sub> im höchsten Maße t<sub>i</sub>  
 the her boy-friend<sub>gen</sub> in-the highest degree  
 überdrüssige ]] Frau  
 sick-of woman

However, Webelhuth (1989: 362ff; 1992) argues against assimilating the AP-internal permutation operation in (46) to scrambling, and concludes that it behaves rather like A-movement. Moreover, one might even speculate that the structure of AP in (46) can be base-generated; notice that this would be in line with some more recent theories of projection, where it is assumed that certain non-arguments can be base-generated closer to the head than arguments (cf., e.g., Larson (1988), and chapter 4 below). Be this as it may, I will assume that (46) does not involve scrambling to AP, and neglect the issue in what follows.

### 3.2.5. The Adjunction Site Parameter

Let me summarize the results of the previous sections. There are languages where S-structural left-adjunction to some XP does not appear to be possible at all, like English. Then, some languages, like German or Korean, allow scrambling to VP and IP, but not to CP, NP, or PP. Finally, we have seen that Russian exhibits even more adjunction sites for scrambling, viz., CP and NP, in addition to VP and IP. However, adjunction is not entirely unconstrained in Russian; it has emerged that scrambling to PP is prohibited.

We have seen that the approaches to the contrast between “scrambling languages” and “non-scrambling languages” discussed in section 3.1 all fail, ultimately because they are not able to handle cross-linguistic variation with respect to VP- (and IP-) adjunction. Now, given the findings of the ensuing subsections, their inadequacy is all the more evident. More generally, it seems to me that any attempt to find a single property that turns a language into a “scrambling language” is eventually doomed to fail, because “scrambling languages” like German or Russian differ substantially with respect to the availability of landing sites, and the interesting question is not just whether a language has scrambling or not, but rather, how much scrambling it has.

In view of this situation, I suggest, following Müller & Sternefeld (1990; 1993), accounting for the parametric variation observed by way of introducing an Adjunction Site Parameter, as in (47):

(47) *Landing Sites of Scrambling:*

English: { }

German: {VP,IP}

Korean: {VP,IP}

Russian: {VP,IP,CP,NP}

This parameter accounts for the scrambling options of the languages considered so far in a straightforward manner. Moreover, it has the same form as the parameter needed for landing sites of S-structural *wh*-movement, which can be formulated as in (48) (cf. section 3.1.5 above):

(48) *Landing Sites of Overt Wh-Movement:*

Korean, Japanese, Chinese: { }

English, German: {SpecC}

Bulgarian: {SpecC, SpecC-adjoined position}

Finally, note that, as it stands, the Adjunction Site Parameter (47) conforms to the theory of parameters developed by Manzini & Wexler (1987); it respects the Subset Principle that restricts possible values of parameters. According to this principle, parameter values are ordered along the lines of a markedness hierarchy. Thus, given (47), we expect not to find languages where, e.g., VP and CP are possible adjunction sites of scrambling, but IP is not. As far as I can tell, this strong prediction seems to be confirmed.

Although I believe that the Adjunction Site Parameter (47) is empirically well motivated and conceptually justifiable, it would of course still be better if its effects could be derived in one way or another. To this end, I will discuss a modification of Chomsky's (1986) theory of adjunction in the following section.

### 3.2.6. Arguments vs. adjuncts

Chomsky (1986) develops a theory that is supposed to give the result that, in general, adjunction is possible to IP and VP, and impossible otherwise. By stipulation, adjunction to IP is prohibited for *wh*-phrases. In addition, recall from chapter 2 that there is evidence that *wh*-phrases may not undergo adjunction to VP either; this is accomplished by the PUB, which precludes intermediate adjunction in the course of *wh*-movement. Intermediate, covert adjunction of *wh*-phrases, though, is the only domain Chomsky's theory of adjunction is developed for.

However, although Chomsky's approach to adjunction clearly fails with respect to *wh*-movement (i.e., covert adjunction), and although there are a number of inherent problems connected with it, which I will not go into here (cf. Müller (1989: 123ff), Cinque (1990: 40ff), and Sternefeld (1991: 110ff)), it turns out that Chomsky's (1986) basic idea might indeed be relevant for

accounting for the parametric variation encountered in overt adjunction, i.e., scrambling. The basic idea is this: VP and IP are non-arguments, whereas CP and NP typically occur as arguments. Given this distinction, Chomsky assumes that adjunction is possible only to non-arguments, and he suggests that this might be derivable from independently motivated properties of  $\Theta$ -theory (cf. Chomsky (1986: 15f)). The effect of this is supposed to be that CP and NP block adjunction since they are arguments, and that VP and IP in principle permit adjunction since they are non-arguments.

As noted by Mark Baker (p.c.), the argument/non-argument distinction provided by Chomsky's theory of adjunction might be invoked to account for the differences between languages like (a) English, (b) German and Korean, and (c) Russian, with respect to scrambling. Under this view, parameter (47) could be replaced by the statement that English does not allow (left-)adjunction at all, German and Korean allow adjunction only to non-arguments, and Russian allows adjunction to both non-arguments and arguments.

But, on the one hand, the notions "argument" and "non-argument" relevant for scrambling options are somewhat murky. E.g., whether adjunction to NP is possible or not is obviously not related to the actual status of NP as an argument or non-argument. Thus, adjunction to NP in German is still ungrammatical if the NP is a non-argument, as shown in (49):

- (49) a. Ich habe nur [NP den ersten Monat [ des Jahres ]] gearbeitet  
 I have only the first month the year<sub>gen</sub> worked
- b. \*Ich habe nur [NP [ des Jahres ]<sub>i</sub> [NP den ersten Monat t<sub>i</sub> ]]  
 I have only the year<sub>gen</sub> the first month  
 gearbeitet  
 worked

Similarly, adjunction to relative clause CPs is not permitted, although (restrictive) relative clauses are modifiers of nouns, and not arguments:

- (50) a. der Mann [CP der [ die Metaphern ]] liebt ]  
 the man who the metaphors<sub>acc</sub> loves
- b. \*der Mann [CP [ die Metaphern ]<sub>i</sub> der t<sub>i</sub> liebt ]  
 the man the metaphors<sub>acc</sub> who loves

This means that the argument/non-argument distinction would have to be relativized (and weakened) in such a way that non-argumental NPs and CPs in German still block scrambling.

What is more, there is empirical counterevidence. Note first that if Yadroff (1991) is right in assuming that adjunction to PP is not possible in Russian (recall (45-c)), this cannot be explained under the hypothesis that all kinds of

XPs are landing sites for scrambling in Russian. Second, if the argument/non-argument status of XPs were the relevant factor in licensing scrambling, there could only be a three-partite distinction among languages. This is indeed the picture that emerges from (47). However, the Adjunction Site Parameter is in principle compatible with the existence of a language which has an intermediate status between English and German, in that it allows adjunction to VP, but not to IP; or a language that lies between German and Russian, in that it allows adjunction to VP, IP, and CP, but not to NP. Also, a language that is like Russian except for also allowing adjunction to PP does not contradict (47).

Indeed, Dutch might best be analysed as a language which has an intermediate status between English and German. For one thing, it has often been noted that in Dutch, word order in the VP is much more free than in English, cf. Koster (1986; 1987) and Reuland & Kosmeijer (1988), among others. Thus, consider the following examples from Reuland & Kosmeijer (1988: 91):

- (51) a. dat Jan [VP het boek gisteren [ voor Marie ] meegebracht heeft ]  
 that Jan the book yesterday for Marie brought has  
 b. dat Jan [VP [ voor Marie ]<sub>i</sub> het boek gisteren t<sub>i</sub> meegebracht  
 that Jan for Marie the book yesterday brought  
 heeft ]  
 has

This indicates that VP is a possible adjunction site in Dutch.<sup>16</sup> In contrast to this, scrambling in front of a transitive agentive subject is generally not allowed in Dutch, cf., e.g., Koster (1986: 8; 1987: ch. 4), Webelhuth (1989: 423), Vikner (1990: ch. 4; 1994: 510-511), Fanselow (1991a: 3). Relevant examples are the following:

- (52) a. \*dat [IP er<sub>i</sub> [IP Fred de jongens [PP t<sub>i</sub> mee ] heeft geplaagd ]]  
 that there Fred the boys with has teased  
 b. \*dat [IP [ deze man ]<sub>i</sub> [IP Peter nooit voordien t<sub>i</sub> gezien heeft ]]  
 that this man Peter never before seen has

Examples like these are grammatical in German, though (recall the data in (17)). This indicates that Dutch should be integrated into the Adjunction Site Parameter (47) as shown in (53):

- (53) *Landing Sites of Scrambling:*  
 English: { }  
 Dutch: {VP}  
 German: {VP,IP}  
 Korean: {VP,IP}  
 Russian: {VP,IP,CP,NP}

However, there does not appear to be a possibility of capturing the evidence from Dutch in an argument/non-argument approach to landing sites. Therefore, I conclude that the effects of the Adjunction Site Parameter cannot be derived (at least not by invoking the notion of “argument”), and must be stated as such.

## 4. Locality

I will now turn to a discussion of the locality constraints for scrambling. It will turn out that the results of the previous section, concerning the availability of adjunction sites in a given language, have far-reaching consequences for the issue of locality.

### 4.1. Clause-bound scrambling

In German and Dutch, CP-internal scrambling obeys the same locality constraints as *wh*-movement; cf., e.g., Webelhuth (1989: 327ff) and Müller (1989: 185ff) for German, and Koster (1987: ch. 4) for Dutch. Consider, for instance, scrambling from NP in German. First, subject NPs are always islands for scrambling, just as they are for *wh*-movement:

- (54) a. \*daß darüber<sub>i</sub> [NP ein Buch t<sub>i</sub>] den Fritz beeindruckt hat  
           that about-that a book<sub>nom</sub> ART Fritz<sub>acc</sub> impressed has  
       b. \*daß darüber<sub>i</sub> den Fritz [NP ein Buch t<sub>i</sub>] beeindruckt hat  
           that about-that ART Fritz<sub>acc</sub> a book<sub>nom</sub> impressed has

Second, scrambling from IO NPs is impossible, just as *wh*-movement is:

- (55) a. \*daß ich [über Benjamin]<sub>i</sub> gestern [NP einem Buch t<sub>i</sub>]  
           that I about Benjamin yesterday a book<sub>dat</sub>  
           wenig Aufmerksamkeit geschenkt habe  
           little attention<sub>acc</sub> given have  
       b. \*daß man [über die Liebe]<sub>i</sub> neulich [NP einem Film t<sub>i</sub>] einen  
           that one about the love lately a film<sub>dat</sub> a  
           Preis verliehen hat  
           price awarded has

Third, scrambling from DO NPs is subject to lexical variation, i.e., it depends on abstract noun incorporation, given the analysis developed in chapter 2:

- (56) a. daß ich [ über Benjamin ]<sub>i</sub> gestern [NP ein Buch t<sub>i</sub>] gelesen  
 that I about Benjamin yesterday a book<sub>acc</sub> read  
 habe  
 have
- b. \*daß ich [ über Benjamin ]<sub>i</sub> gestern [NP ein Buch t<sub>i</sub>] geklaut  
 that I about Benjamin yesterday a book<sub>acc</sub> stolen  
 habe  
 have

Fourth, scrambling from DO NPs which have themselves undergone scrambling is ungrammatical:

- (57) a. \*daß [ über Benjamin ]<sub>i</sub> der Fritz [NP ein Buch t<sub>i</sub>]<sub>j</sub>  
 that about Benjamin ART Fritz<sub>nom</sub> a book<sub>acc</sub>  
 gestern t<sub>j</sub> gelesen hat  
 yesterday read has
- b. \*daß [ über Benjamin ]<sub>i</sub> gestern [NP ein Buch t<sub>i</sub>]<sub>j</sub> keiner  
 that about Benjamin yesterday a book<sub>acc</sub> no-one<sub>nom</sub>  
 t<sub>j</sub> gelesen hat  
 read has

Finally, scrambling from NP obeys the Specified Subject Condition and the Left Branch Condition, just like *wh*-movement does in German (cf. chapter 2):

- (58) a. \*daß ich [ über Benjamin ]<sub>i</sub> gestern [NP Antjes Buch t<sub>i</sub>]  
 that I about Benjamin yesterday Antje<sub>gen</sub> book<sub>acc</sub>  
 gelesen habe  
 read have
- b. \*daß ich Antjes<sub>i</sub> gestern [NP t<sub>i</sub> Papiere über Benjamin ] gelesen  
 that I Antje<sub>gen</sub> yesterday papers about Benjamin read  
 habe  
 have

Recall from chapter 2 that abstract noun incorporation and assignment of genitive Case are incompatible in languages like German; hence, NPs that dominate genitive NPs are always barriers.

Now, notice that the barrierhood of an NP could in principle be circumvented via adjunction to NP. Moreover, successive-cyclic scrambling via NP-adjunction in (54) – (58) would be compatible with the PUB. Hence, intermediate adjunction to NP in the course of scrambling must be excluded, and this is of course accomplished by the Adjunction Site Parameter – overt scrambling to NP is not permitted in German, and it is natural to assume that this

implies that covert adjunction (even if compatible with the PUB, as in the case of successive-cyclic scrambling) is not available either. More generally, I contend that invisible, covert adjunction to XP is possible in a language only if overt adjunction to XP is possible. Then, the data on scrambling from NP follow without further stipulation.

More or less the same goes for extraction from PP in German. (59-a) shows that R-pronouns may be scrambled from PPs; (59-b) shows that scrambling of R-pronouns may not take place from PPs which are too far away from the verb after PP-scrambling; finally, (59-c) shows that full, i.e., Case-dependent NPs may not undergo scrambling from PP.

- (59) a. daß  $da_i$  gestern keiner [<sub>PP</sub>  $t_i$  von ] gehört hat  
 that that yesterday no-one of heard has
- b. \*daß  $da_i$  gestern [<sub>PP</sub>  $t_i$  von ]<sub>j</sub> keiner  $t_j$  gehört hat  
 that that yesterday of no-one heard has
- c. \*daß [ diesem Gerücht ]<sub>i</sub> gestern keiner [<sub>PP</sub> von  $t_i$  ] gehört hat  
 that this rumour yesterday no-one of heard has

Given that PP is not a possible adjunction site in German, this follows from the assumptions so far.

Thus, although scrambling in principle has an additional option for circumventing barriers which *wh*-movement does not have (due to the PUB), viz., intermediate adjunction, this does not make a difference with respect to clause-bound movement in German; the reason for this is that S-structural left-adjunction in German happens to be possible only to XPs which are not barriers in the first place, i.e., VP and IP. If, however, a language allows adjunction to XPs which are otherwise barriers, we expect to find an asymmetry between scrambling and *wh*-movement – whereas the former movement type may leave a barrier via adjunction, the latter may not, because the resulting configuration would involve ambiguous binding of a variable. This prediction appears to be borne out in Russian. Recall from chapter 2 that Russian exhibits complementizer-trace effects with *wh*-movement:

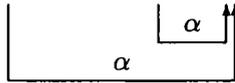
- (60) a. \*[Kakaja kniga ]<sub>i</sub> ty dumaješ' [<sub>CP</sub> čto [<sub>IP</sub>  $t_i$  nraivilas' Petru ] ] ?  
 which book you believe that pleased Petr
- b. \*[Kakaja kniga ]<sub>i</sub> Maksim xotel [<sub>CP</sub>  $t'_i$  čtoby [<sub>IP</sub>  $t_i$  očarovala  
 which book Maxim wanted that<sub>subj.</sub> fascinated  
 Mašu ] ] ?  
 Masha
- c. Kto<sub>i</sub> ty dumaješ' [<sub>CP</sub>  $t'_i$  – [<sub>IP</sub>  $t_i$  ljubit Mašu ] ] ?  
 who you think loves Masha

According to the analysis developed in chapter 2, complementizer-trace effects as in (60-ab) are due to the existence of an IP-barrier; if the C node of an embedded clause is empty, as in (60-c), I and C are non-distinct (via empty identification), and the IP-barrier is removed. Intermediate adjunction to IP in (60-ab) would open up the barrier, but is prohibited due to the PUB. With this in mind, consider again an example like (33), which is repeated here as (61):

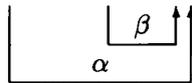
- (61) Ty znaeš' [CP Petr Ivanyč<sub>i</sub> [CP čto [IP t<sub>i</sub> uže priexal ]]] ?  
 you know Petr Ivanyč<sub>nom</sub> that already came

This example was given in order to show that Russian has overt adjunction to CP; but notice that it involves movement of a subject across an IP barrier. The fact that such a sentence is nonetheless grammatical indicates that scrambling has an option for circumventing IP barriers that *wh*-movement does not have, and this is, of course, adjunction to IP. Thus, the relevant part of (61) can have a derivation as in (62-a), whereas *wh*-movement across a complementizer as in (60-ab) cannot have such a derivation – it would involve ambiguous binding, as shown in (62-b).

- (62) a. ... [CP XP<sub>i</sub> [CP ... [IP t'<sub>i</sub> [IP t<sub>i</sub> ... ]]]]



- b. \* ... [CP t''<sub>i</sub> C [IP t'<sub>i</sub> [IP t<sub>i</sub> ... ]]]



Similarly, Russian freely permits scrambling from NP, as shown by the example (63-a), which is taken from Zemskaja (1973). Given that NP is a possible adjunction site in Russian, this would follow from the option of intermediate adjunction to NP, in analogy to adjunction to IP in (61) (as shown in (62-a)). However, as already noted by Ross (1967/1986: 145), Russian does not show Left Branch Condition effects with *wh*-movement either, cf. (63-b):

- (63) a. čto [NP Vasil' Ivanyča ]<sub>i</sub> vstretil ja segodnja [NP t<sub>i</sub> ženu ]  
 that Vasili Ivanyč<sub>gen</sub> met I today wife  
 b. Čju<sub>i</sub> ty čital [NP t<sub>i</sub> knigu ] ?  
 who<sub>gen</sub> you read book

This suggests that NPs in Russian are not barriers for their specifiers in the first place; hence, scrambling from NP as in (63) does not have to proceed via intermediate NP-adjunction.

The third kind of XP to be considered in this connection is CP. This leads us to the issue of long-distance scrambling.

## 4.2. Long-distance scrambling

### 4.2.1. The A-bar movement nature of long-distance scrambling

Ross (1967/1986: 51) suggests, on the basis of evidence from Latin, that scrambling is clause-bound; his “rule ... scrambles major constituents, subject to the restriction that they be in the same clause.” Similarly, Bierwisch (1963) notes that scrambling in German is strictly clause-bound; i.e., in current terminology, a finite CP may never be crossed.<sup>17</sup> This is illustrated in (64-ab), which involve scrambling from a *daß*-clause (to VP and IP, respectively), and in (65-ab), with scrambling from a V/2 clause (again to VP and IP).

- (64) a. \**daß* keiner [<sub>VP</sub> Hygrometer<sub>i</sub> [<sub>VP</sub> sagt [<sub>CP</sub> *daß* Antje t<sub>i</sub> mag ]]]  
 that no-one hygrometers says that Antje likes
- b. \**daß* [<sub>IP</sub> Hygrometer<sub>i</sub> [<sub>IP</sub> keiner sagt [<sub>CP</sub> *daß* Antje t<sub>i</sub> mag ]]]  
 that hygrometers no-one says that Antje likes
- (65) a. \**daß* du [<sub>VP</sub> Hygrometer<sub>i</sub> [<sub>VP</sub> meinst [<sub>CP</sub> würde<sub>j</sub> [<sub>IP</sub> Antje t<sub>i</sub>  
 mögen t<sub>j</sub> ]]]]]  
 that you hygrometers think would Antje  
 like
- b. \*Gestern meinte [<sub>IP</sub> Hygrometer<sub>i</sub> [<sub>IP</sub> keiner [<sub>CP</sub> würde<sub>j</sub> [<sub>IP</sub> Antje  
 yesterday thought hygrometers no-one would Antje  
 t<sub>i</sub> mögen t<sub>j</sub> ]]]]]  
 like

If one considers German only, scrambling, in this respect, at first sight behaves more like a typical A-dependency, and not like A-bar movement. Thus, recall from chapter 2 that *wh*-movement in German may leave both *daß*-clauses and V/2 clauses in successive-cyclic fashion (cf. (66-ab)):

- (66) a. Was<sub>i</sub> sagt keiner [<sub>CP</sub> t<sub>i</sub> *daß* Antje t<sub>i</sub> mag ] ?  
 what says no-one that Antje likes
- b. [ Welches Instrument ]<sub>i</sub> meinst du [<sub>CP</sub> t<sub>i</sub> würde Antje t<sub>i</sub> mögen ] ?  
 which instrument think you would Antje like

A-dependencies like anaphoric binding, on the other hand, are strictly clause-bound in German, cf.:

- (67) daß der Frank<sub>i</sub> glaubt [<sub>CP</sub> daß Christiane \*sich<sub>i</sub>/ihn<sub>i</sub> manchmal  
that ART Frank believes that Christiane REFL/him sometimes  
mag ]  
likes

Also, raising, as a typical instance of A-movement, is clause-bound, i.e., it may not cross a finite CP, cf. (68-ab) vs. (68-c):

- (68) a. daß es scheint [<sub>CP</sub> daß Antje Hygrometer mag ]  
that it seems that Antje hygrometers likes  
b. daß Antje<sub>i</sub> [<sub>IP</sub> t<sub>i</sub> Hygrometer zu mögen ] scheint  
that Antje hygrometers to like seems  
c. \*daß Antje<sub>i</sub> scheint [<sub>CP</sub> (t'<sub>i</sub>) daß [<sub>IP</sub> t<sub>i</sub> Hygrometer mag ]]  
that Antje seems that hygrometers likes

As noted in chapter 1, according to standard assumptions (cf. Chomsky (1981)), (68-c) violates a locality constraint (the ECP or principle A) if an intermediate trace  $t'_i$  is not present in the embedded SpecC position; if, however,  $t'_i$  is present,  $t_i$  in SpecI qualifies as a variable, according to the functional definition of empty categories (because it is locally A-bar bound), and violates principle C – the chain antecedent *Antje* in the matrix SpecI position A-binds  $t_i$ . Thus, successive-cyclic movement in (68-c) instantiates a case of *improper movement* which is reducible to principle C, according to Chomsky (1981).

Since, as far as long-distance movement is concerned, scrambling in German patterns with A-movement, as in (68-c), rather than with *wh*-movement, as in (66-ab), it does not seem to be a priori implausible to assume that scrambling is A-movement; then, the ungrammaticality of (64-ab) and (65-ab) can be derived in more or less the same way as the ungrammaticality of (68-c). This line of reasoning is pursued in Fanselow (1990). But, whereas Fanselow's theory seems to work for languages like German, serious problems arise with languages that exhibit long-distance scrambling phenomena.

Notice that any theory that tries to establish a strict one-to-one correspondence between scrambling and A-dependencies like anaphoric binding predicts that a language has long-distance scrambling if and only if it has long-distance anaphoric binding. This prediction is not borne out. Although some languages where long-distance scrambling occurs (like Korean or Japanese, see below) also have long-distance binding of anaphors (Fanselow (1990: 121) himself mentions Turkish as a case in point), scrambling and anaphoric binding behave differently in Russian. Here, scrambling is not clause-bound; (69), e.g., shows that long-distance scrambling may apply across a finite *wh*-island (the data are from Zemskaja (1973: 394ff)).

- (69) a. Ty [VP doktor<sub>i</sub> [VP videl [CP kogda [IP t<sub>i</sub> pod"ezzal ]]]] ?  
 you the-doctor<sub>nom</sub> saw when came
- b. Vy [VP pocytku<sub>i</sub> videli [CP kak zapakovali t<sub>i</sub> ]]  
 you<sub>plur</sub> parcel<sub>acc</sub> saw how (they-)did-up

In contrast, anaphoric binding obeys a much stricter locality condition. As pointed out by Rappaport (1986: 103), Russian reflexives must be bound within the minimal finite clause that contains them; long-distance binding phenomena arise only with anaphors in infinitives and NPs. That is, although PRO and subject of NP do not induce opacity, finite AGR does:

- (70) Vanja<sub>i</sub> znaet [CP čto Volodja<sub>j</sub> ljubit sebja<sub>\*i/j</sub> ]  
 Vanja<sub>i</sub> knows that Volodja<sub>j</sub> loves REFL<sub>\*i/j</sub>

Fanselow (1990: 128ff) does indeed concede that scrambling may be A-bar movement in some languages after all.<sup>18</sup> But apart from being unattractive on theory-internal grounds, such a parameterization of scrambling also faces empirical problems. The reason is that scrambling in Russian does not behave like *wh*-movement either. We have already seen this in the discussion of the structures in (62); recall the issue of IP barriers for *wh*-movement which do not block scrambling. Similarly, although scrambling can violate the *wh*-island condition, as shown in (69), there is no *wh*-movement out of *wh*-islands in Russian (cf. Zemskaĵa (1973) and Sinicyn (1981), among others):

- (71) a. \*Kto<sub>i</sub> ty videl [CP kogda t<sub>i</sub> pod"ezzal ] ?  
 who you saw when came
- b. ?\*Čto<sub>i</sub> vy videli [CP kak zapakovali t<sub>i</sub> ] ?  
 what you<sub>plur</sub> saw how (they-)did-up

This clearly suggests that it is not the status of scrambling as A-movement or A-bar movement that is responsible for the locality properties of scrambling in German and Russian, respectively. Rather, it looks as though different types of A-bar movement behave differently with respect to locality constraints. Thus, what appears to be relevant here is again the PUB.

In what follows, then, two questions must be answered, viz.:

- (a) Why is scrambling, unlike *wh*-movement, clause-bound in German, given that both movement types end in an A-bar position?
- (b) Why does Russian have long-distance scrambling, even in contexts which block *wh*-movement (like *wh*-islands)?

I will address these issues in turn in the following two sections.

#### 4.2.2. The clause-boundedness of scrambling in German

Consider again a typical instance of ungrammatical long-distance scrambling in German, such as (64-a), repeated here:

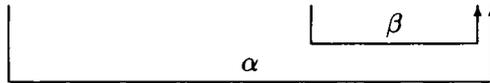
- (72) \*daß keiner Hygrometer<sub>i</sub> sagt [CP [SpecC] daß Antje t<sub>i</sub> mag ]  
 that no-one hygrometers says that Antje likes

Upon closer scrutiny, examples like (72) show a substantial similarity to extractions across *wh*-islands in German, as in (73):

- (73) \*Warum<sub>i</sub> weißt du [CP [welche Hygrometer] Antje t<sub>i</sub> mag ] ?  
 why know you which hygrometers Antje likes

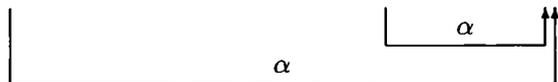
In both cases, the SpecC position of the embedded clause appears to be inaccessible as an escape hatch. Hence, as has been noted by Sternefeld (1989: 42; 1990: 245f) and Wilder (1989: 133f), a promising step towards accounting for the clause-boundedness of scrambling could consist in making SpecC unavailable for this movement type. Thus, improper movement seems to be relevant. As shown in Müller & Sternefeld (1990; 1993), the inaccessibility of SpecC for scrambling follows directly from the PUB. Consider a derivation of (72) via successive-cyclic movement through SpecC:

- (74) \*daß keiner [VP Hygrometer<sub>i</sub> [VP sagt [CP [SpecC t'<sub>i</sub>] daß Antje t<sub>i</sub> mag ]]]



Here, the scrambling trace  $t_i$ , being a variable by assumption, is bound ambiguously, by its chain antecedent *Hygrometer* in a VP-adjoined position of the matrix clause, and by the intermediate trace  $t'_i$  in SpecC. Hence, a PUB violation occurs. However, although I would like to contend that this is the crucial step towards deriving the clause-boundedness of scrambling in German, other derivations of examples like (72) must also be ruled out. Thus, consider the derivation in (75):

- (75) \*daß keiner [VP Hygrometer<sub>i</sub> [VP sagt [CP - daß [IP t'<sub>i</sub> [IP Antje t<sub>i</sub>



mag ]]]]]

Whereas (74) violates the PUB, (75) does not, because SpecC is not used as an escape hatch. Now, CP is a barrier (and bounding node) for  $t'_i$  (since  $t'_i$  does not occupy an escape hatch of CP); but given the theory of Lasnik

& Saito (1984; 1992), which I have adopted so far, an ECP effect cannot be derived –  $t_i$  is properly antecedent-governed by  $t'_i$  at S-structure, and receives the feature  $[+\gamma]$ . The intermediate trace  $t'_i$ , however, being ungoverned at S-structure (due to the presence of a CP barrier) may then delete on the way to LF. Thus, a weak Subjacency violation could be derived in (75), with CP as a barrier and bounding node. (Moreover, given the NP-shell hypothesis outlined in chapter 2, a strong Subjacency effect would be predicted in the case of long-distance scrambling from subject clauses and complements of non-bridge predicates, with CP and the NP-shell as bounding nodes.) However, examples involving long-distance scrambling from any kind of finite clause in German are more ungrammatical than one would expect them to be, if only a Subjacency violation occurred. Thus, it appears that the strong deviance of this construction necessitates the assumption that intermediate traces in scrambling chains are not deletable on the way to LF. Following Sternefeld (1989; 1990), this can be stated in more general terms, as in (76):

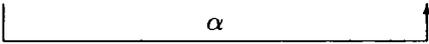
(76) *Deletability of Intermediate Traces:*

An intermediate trace cannot be deleted on the way to LF if it occurs in a chain which contains an adjunction position.

Notice that this statement does not only rule out trace deletion in scrambling chains, as in (75); it also guarantees that traces of adjuncts that have undergone *wh*-movement can never be deleted.

However, there is yet another derivation of (72) which must be excluded, viz., direct movement in one swoop:

(77) \*daß keiner [<sub>VP</sub> Hygrometer<sub>i</sub> [<sub>VP</sub> sagt [<sub>CP</sub> – daß [<sub>IP</sub> Antje  $t_i$  mag ]]]]



In analogy to examples like (78) in English, where movement in one swoop occurs (but cf. section 11 of chapter 6 for a different analysis), it seems that (77) should involve only a weak Subjacency violation, contrary to fact.

(78) ??[ Which car ]<sub>i</sub> don't you know [<sub>CP</sub> how to fix  $t_i$  ] ?

An appropriate means to guarantee an ECP effect would be to stipulate, in addition to (76), that a chain requires antecedent-government of all its traces whenever an adjunction site enters into chain formation. This can be stated as follows:

(79) *Antecedent-Government in Chains:*

All traces must be antecedent-governed in a chain which contains an adjunction position.

Thus, the prohibition against scrambling from finite clauses in German is fully accounted for. Note incidentally that the requirements (76) and (79) are not construction-specific – as they stand, they apply to both scrambling and *wh*-movement (or indeed any kind of movement). We will see later (in the discussion of long-distance scrambling in Korean and Japanese, in section 4.2.4) that (76) and (79) are too strict; for the time being, though, we may assume that the question of what explains the clause-boundedness of scrambling in German is successfully answered. Let us therefore now turn to the second question posed at the end of the previous section, viz.: Why does Russian have long-distance scrambling, even in environments where long-distance *wh*-movement is not allowed?

#### 4.2.3. Long-distance scrambling in Russian

In much recent work on long-distance scrambling, it is suggested that a CP barrier can be circumvented by means of successive-cyclic movement via SpecC (cf., e.g., the discussion of long-distance scrambling in Persian in Browning & Karimi (1994)). We have, however, seen that this is not compatible with the requirements the PUB imposes on scrambling; indeed, the non-availability of SpecC has turned out to be the crucial factor for the explanation of the locality of scrambling in German. Furthermore, we have already encountered an asymmetry between scrambling and *wh*-movement in the case of extraction from *wh*-islands in Russian. This indicates that scrambling does not depend on the availability of SpecC as an escape hatch for long-distance movement; cf. (69) vs. (71), repeated here in (80) and (81):

- (80) a. Ty [VP doktor<sub>i</sub> [VP znaeš' [CP kogda [IP t<sub>i</sub> pod"ezžal ]]] ?  
 you the-doctor<sub>nom</sub> know when came
- b. Vy [VP pocytku<sub>i</sub> videli [CP kak zapakovali t<sub>i</sub> ]]  
 you<sub>plur</sub> parcel<sub>acc</sub> saw how (they-)did-up
- (81) a. \*Kto<sub>i</sub> ty znaeš' [CP kogda t<sub>i</sub> pod"ezžal ] ?  
 who you know when came
- b. ?\*Čto<sub>i</sub> vy videli [CP kak zapakovali t<sub>i</sub> ] ?  
 what you<sub>plur</sub> saw how (they-)did-up

In (81-ab), a subject and an object undergo *wh*-extraction from a *wh*-island, creating an ECP effect and a Subjacency violation, respectively, just as one would expect under the assumptions made so far (CP being a barrier and bounding node). But then, if SpecC does not play a role in licensing (80-ab), which property does Russian have, and German lack, so that long-distance scrambling is possible even in examples like (80-ab) in Russian, but impossible throughout in German?

A first suggestion might be that this contrast between Russian and German can be explained by assuming that long-distance scrambling in Russian is not scrambling after all, but some other type of movement. A plausible candidate would be topicalization. The contrast between (64) & (65) in German on the one hand, and (80) in Russian on the other, would then not reflect parametric variation in scrambling options, but rather asymmetries between two different types of movement, viz., scrambling and topicalization. However, long-distance scrambling in Russian differs substantially from topicalization, and behaves very much like one would expect if it is an instance of scrambling. It has, *inter alia*, the following properties.

First, it can be iterated, just like clause-bound scrambling. Thus compare clause-bound scrambling of both DO and IO in (82-a) with long-distance scrambling of subject and DO in (82-b).

- (82) a. čto [IP knigu<sub>i</sub> [IP mne<sub>j</sub> [IP Maksim dal t<sub>j</sub> t<sub>i</sub> ]]]  
 that book<sub>acc</sub> me<sub>dat</sub> Maxim gave
- b. čto ty<sub>i</sub> menja<sub>j</sub> vižu [CP čto t<sub>i</sub> ljubiš' t<sub>j</sub> ]  
 that you<sub>nom</sub> me<sub>acc</sub> I-see that love  
 "that I see that you love me."

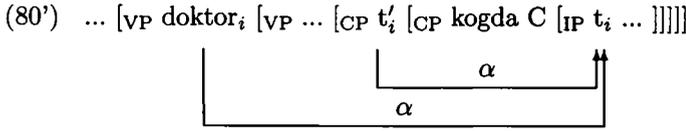
Second, long-distance scrambling in Russian does not create islands or block clause-bound *wh*-movement; thus, substituting *kto* ('who') for *ty* ('you') in examples like (80-a) does not result in ungrammaticality:

- (83) Kto [VP doktor<sub>i</sub> [VP znaet [CP kogda [IP t<sub>i</sub> pod"ezžal ]]] ?  
 who the-doctor<sub>nom</sub> knows when came

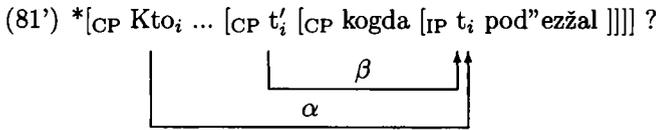
Moreover, it never induces verb raising; it may end in ungoverned, i.e., non-bridge contexts (e.g., in clauses introduced by *čto*, as in (82-b) – see below); and finally, the landing site may be to the right of the subject, as in (80-ab). In chapter 6, however, it will be shown that topicalization crucially differs from scrambling with respect to all these properties (i.e., topicalization may not be iterated, it blocks clause-bound *wh*-movement, etc.); hence, it seems that long-distance scrambling in Russian should not be analysed as topicalization. Since other well-established movement types also do not suggest themselves, I conclude that long-distance scrambling in Russian is a genuine instance of scrambling, conceived of as left-adjunction to XP.<sup>19</sup>

But if long-distance scrambling in Russian is simply scrambling, the difference between Russian and German must be explained without resorting to the idea that different movement types are involved. Given the results of section 3, this problem is resolved straightforwardly. In Russian, but not in German, CP is an adjunction site for scrambling. Hence, it follows that scrambling in Russian is insensitive to CP barriers. Thus, examples like (80-a) can have

a well-formed derivation as in (80'), with successive-cyclic scrambling via a CP-adjoined position:



Here, adjunction to CP voids the barrier, and the variable t<sub>i</sub> does not violate the PUB, since it is bound by adjunction positions only. Such a derivation is not possible for *wh*-movement, due to the PUB. This is shown in (81'), which contains the relevant part of (81-a):



Therefore, *wh*-movement from a *wh*-island, as in (81), either crosses a CP barrier, or violates the PUB, with ungrammaticality arising in both cases.

The approach pursued so far makes an interesting prediction for long-distance movement from complements of non-bridge verbs, and from subject clauses. According to the NP-shell hypothesis developed in chapter 2, there is a (phonologically empty) NP barrier dominating CP in these cases, which blocks *wh*-movement from the embedded CP. A sort of bridge effect is indeed detectable in Russian. As shown by Comrie (1973) and Pesetsky (1982), *wh*-movement from finite clauses in Russian may proceed only when the complementizer bears a subjunctive feature – an indicative complementizer destroys a bridge configuration (cf. note 17 of chapter 2).

- (84) a. ?\*[ Kakuju knigu ]<sub>i</sub> ty dumaeš' [NP [CP čto Petr pročital t<sub>i</sub> ] ] ?  
           which book you believe that<sub>ind</sub> Petr read  
       b. [ Kakuju knigu ]<sub>i</sub> ty dumaeš' [NP [CP čtoby Petr pročital t<sub>i</sub> ] ] ?  
           which book you believe that<sub>subj</sub> Petr read

For concreteness, I will assume that incorporation of an NP-shell is possible only when the embedded clause is in the subjunctive mood, which is evidenced by the appropriate morphology on the complementizer. Then, it follows that (84-a) exhibits a Subjacency violation, with the NP-shell being a barrier and bounding node, whereas (84-b) is grammatical, due to abstract N incorporation.

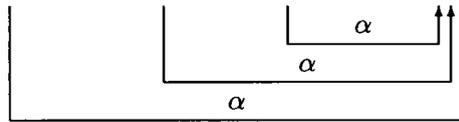
This accounts for *wh*-movement. But note that if the analysis developed so far is on the right track, one expects scrambling to be insensitive to the

bridge/non-bridge distinction; recall from section 3 that NP qualifies as a possible adjunction site in Russian, in contrast to German. As pointed out by Zemskaja (1973) and Comrie (1973), this prediction is borne out; scrambling may take place from a CP headed by the indicative complementizer *čto*:

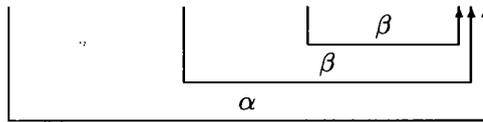
- (85) On skazal [CP *čto* [IP noski<sub>i</sub> [IP on rad [CP *čto* kupil t<sub>i</sub> ]]]  
 he said that socks he is-glad that he-bought

The relevant derivation involves adjunction to both CP and the NP-shell, cf. (86-a); again, a similar derivation via adjunction to the NP-shell, which would render well formed (84-a) (i.e., the analogous case involving *wh*-movement), is excluded by the PUB, cf. (86-b):

- (86) a. ... [IP noski<sub>i</sub> [IP ... [NP t''<sub>i</sub> [NP [CP t'<sub>i</sub> [CP - C ... t<sub>i</sub> ... ]]]]]]



- b. \*[CP [ Kakuju knigu ]<sub>i</sub> ... [NP t''<sub>i</sub> [NP [CP t'<sub>i</sub> [CP - C ... t<sub>i</sub> ... ]]]]]]



Therefore, direct movement from the embedded SpecC position (without intermediate adjunction to NP or CP) must be chosen, so as to turn (84-a) into a mere Subjacency violation.

Furthermore, subject clauses are islands for *wh*-movement in Russian, just like complements of non-bridge predicates:

- (87) a. \*Kto<sub>i</sub> stranno [NP [CP t'<sub>i</sub> *čto* t<sub>i</sub> nam pomogal ] ] ?  
 who is-odd that us helped  
 b. ?\*Komu<sub>i</sub> stranno [NP [CP *čto* on pomogal t<sub>i</sub> ] ] ?  
 who is-odd that he helped

But again, the same configuration allows long-distance scrambling (cf. again Zemskaja (1973)):

- (88) ... *čto* [IP Petrov<sub>i</sub> [IP stranno [NP [CP *čto* t<sub>i</sub> nam pomogal ]]]]  
 that Petrov<sub>nom</sub> is-odd that us helped

This asymmetry can be explained along the same lines as the one present in (84) vs. (85); scrambling in (88) can proceed via intermediate adjunction to CP and NP, but *wh*-movement in (87) cannot.

Interestingly, long-distance scrambling in Russian may not take place from all kinds of clauses. As noted by Yadroff (1991: 11f), adjunct clauses are generally islands for scrambling in this language, cf.:

- (89) \*Vse [groza]<sub>i</sub> usnuli [kogda t<sub>i</sub> končilas']  
 all storm fell-asleep when ended

The ungrammaticality of (89) might possibly be explained as follows. Recall from section 3 that PP is not an adjunction site for scrambling in Russian (cf. the discussion of the examples in (45)). In chapter 2, however, it was assumed that adjunct clauses in German are to be analysed as PPs. If this is also correct for Russian, there is a PP barrier in (89) which cannot be circumvented via adjunction to PP, and ungrammaticality arises.

Summarizing so far, we have seen that the PUB plays an important part in answering the questions posed at the end of section 4.2.1. In contrast to *wh*-movement, scrambling in German is strictly clause-bound because using SpecC as an escape hatch for long-distance scrambling induces ambiguous binding; scrambling in Russian, on the other hand, can leave finite clauses via adjunction to CP and the NP-shell, in contrast to scrambling in German, where CP and NP are not possible adjunction sites, and in contrast to *wh*-movement in Russian (or German), which, after adjunction to CP or NP, would induce ambiguous binding.

#### 4.2.4. Long-distance scrambling in Korean and Japanese

Now I want to discuss long-distance scrambling in languages like Korean or Japanese. It turns out that scrambling in these languages is particularly interesting insofar as it behaves partly like scrambling in German, and partly like scrambling in Russian. I will show that the evidence from Korean and Japanese on the one hand exhibits asymmetries between scrambling and *wh*-movement, which are again accounted for by the PUB; on the other hand, it emerges that the requirements (76) and (79) (according to which traces in scrambling chains must be antecedent-governed, and may not be deleted on the way to LF) must be modified.

First notice that there is long-distance scrambling of objects from declarative clauses in Korean, cf. (90). (In what follows, all of the Korean scrambling data are due to Jung-Goo Kang, Shin-Sook Kim, and Hyun-Hee Lee (p.c.); cf. also H.H. Lee (1992) and Kang (1992).)

- (90) a. [IP Kūrim-ū<sub>i</sub> [IP Ch'ōlsu-ka [CP ai-ka t<sub>i</sub> kūri-ōss-ta-ko ]  
 picture<sub>acc</sub> Ch'ōlsu<sub>nom</sub> child<sub>nom</sub> draw-PAST-DECL-C  
 mit-ōss-ta ]]  
 believe-PAST-DECL

- b. [<sub>IP</sub> Yōngghi-ka [<sub>VP</sub> posōk-ū<sub>i</sub> [<sub>VP</sub> pōpchōng-esō [<sub>CP</sub> nae-ka t<sub>i</sub>  
 Yōngghi<sub>nom</sub> jewelry<sub>acc</sub> court-in I<sub>nom</sub>  
 humch'i-ōss-ta-ko ] chuchangha-ōss-ta ]]]  
 steal-PAST-DECL-C testify-PAST-DECL

In (90-a), the DO *kūrim-ūl* has undergone long-distance scrambling to an IP-adjoined position in the matrix clause; the DO *posōk-ūl* in (90-b) is adjoined to the matrix VP. Similarly, long-distance scrambling of objects is possible in Japanese, cf. the following data from Saito (1985):

- (91) a. [<sub>IP</sub> Sono hon-o<sub>i</sub> [<sub>IP</sub> John-ga [<sub>CP</sub> Mary-ga t<sub>i</sub> katta to ]  
 that book<sub>acc</sub> John<sub>nom</sub> Mary<sub>nom</sub> bought C  
 omotte iru ] ] (koto)  
 think fact  
 (Saito (1985: 156))
- b. [<sub>IP</sub> Mary-ga [<sub>VP</sub> sono hon-o<sub>i</sub> [<sub>VP</sub> Bill-ni<sub>j</sub> [<sub>CP</sub> PRO<sub>j</sub> t<sub>i</sub> yomu  
 Mary<sub>nom</sub> that book<sub>acc</sub> Bill<sub>dat</sub> read  
 yooni ] itta ]]] (koto)  
 so that said fact  
 (Saito (1985: 225))
- c. [<sub>IP</sub> John-ga [<sub>VP</sub> sono hon-o<sub>i</sub> [<sub>VP</sub> minna-ni [<sub>CP</sub> Mary-ga t<sub>i</sub>  
 John<sub>nom</sub> that book<sub>acc</sub> all<sub>dat</sub> Mary<sub>nom</sub>  
 motte iru to ] itta ]]] (koto)  
 have C said fact  
 (Saito (1985: 267))

There is long-distance scrambling to the matrix IP in (91-a), and to the matrix VP in (91-bc).<sup>20</sup> Note in addition that the constructions in (90) and (91) show all the signs of being instances of scrambling (rather than a different type of movement). E.g., long-distance scrambling in Korean and Japanese can be iterated, as shown in (92) and (93), from Korean and Japanese, respectively. This follows straightforwardly under the adjunction analysis. (For more arguments that long-distance scrambling in Japanese is genuine scrambling, and not, for instance, topicalization, cf. Saito (1985: ch. 3 & 4). As shown by H.H. Lee (1992), these arguments carry over to Korean.)

- (92) [<sub>IP</sub> Kūrim-ū<sub>i</sub> [<sub>IP</sub> Yōngghi-eke<sub>j</sub> [<sub>IP</sub> Ch'ōlsu-ka [<sub>CP</sub> ai-ka t<sub>j</sub> t<sub>i</sub>  
 picture<sub>acc</sub> Yōngghi<sub>dat</sub> Ch'ōlsu<sub>nom</sub> child<sub>nom</sub>  
 chu-ōss-ta-ko ] saengkakha-n-ta ]]]  
 give-PAST-DECL-C think-PRES-DECL

- (93) [IP Bill-ni<sub>j</sub> [IP sono hon-o<sub>i</sub> [IP Mary-ga [CP John-ga t<sub>j</sub> t<sub>i</sub> watasita  
 Bill<sub>dat</sub> that book<sub>acc</sub> Mary<sub>nom</sub> John<sub>nom</sub> handed  
 to ] omotte iru ]]] (koto)  
 C think fact  
 (Saito (1985: 163))

It seems that the status of all the examples involving long-distance scrambling in Korean or Japanese is only slightly marginal; thus, with respect to objects, long-distance scrambling in these languages behaves more like Russian than like German. However, things are different in the case of adjuncts. Long-distance scrambling of adjuncts is completely ungrammatical in Korean; compare clause-bound adjunct scrambling to IP in (94-a) with long-distance scrambling in (94-b):

- (94) a. Yŏngghi-ka [CP [IP sulchip-esŏ<sub>i</sub> [IP nae-ka t<sub>i</sub> sikan-ül  
 Yŏngghi<sub>nom</sub> pub<sub>loc</sub> I<sub>nom</sub> time<sub>acc</sub>  
 ponae-öss-ta-ko ]]] mit-öss-ta  
 spend-PAST-DECL-C believe-PAST-DECL  
 b. \*[IP Sulchip-esŏ<sub>i</sub> [IP Yŏngghi-ka [CP nae-ka t<sub>i</sub> sikan-ül  
 pub<sub>loc</sub> Yŏngghi<sub>nom</sub> I<sub>nom</sub> time<sub>acc</sub>  
 ponae-öss-ta-ko ] mit-öss-ta ]]  
 spend-PAST-DECL-C believe-PAST-DECL

Similarly, long-distance scrambling of adjuncts is impossible in Japanese, as observed by Saito (1985: 175):

- (95) \*[IP [ Riyuu-mo naku ]<sub>i</sub> [IP Mary-ga [CP John-ga t<sub>i</sub> sono setu-o  
 reason-even without Mary<sub>nom</sub> John<sub>nom</sub> that theory<sub>acc</sub>  
 sinzite iru to ] omotte iru ]] (koto)  
 believe C think fact

Thus, with respect to adjuncts, long-distance scrambling in Korean and Japanese behaves more like German than like Russian. As a first step towards a solution of this apparent dilemma, recall from section 3 that only VP and IP (but not CP or NP) are possible adjunction sites in Korean and Japanese. Furthermore, the PUB strictly precludes successive-cyclic long-distance scrambling via SpecC. Under these premises, it follows that long-distance movement of adjuncts, as in (94-b) and (95), can only proceed as depicted in (96) (linear order being irrelevant):

- (96) \*[IP  $\alpha_i$  [IP ... [CP - C [IP t'<sub>i</sub> [IP ... t<sub>i</sub> ... ]]]]]

But here, a CP barrier intervenes between  $\alpha_i$  and t'<sub>i</sub>. Since adjunct traces are never deletable on the way to LF, t'<sub>i</sub> violates the ECP at LF. In essence,

then, the impossibility of long-distance scrambling of adjuncts in Japanese and Korean follows in exactly the same way as the general impossibility of long-distance scrambling in German – the only derivation which is compatible with the ECP (viz., via SpecC) violates the PUB.

There is indeed independent corroboration for a PUB-related account of (94-b) and (95). Whereas CP blocks adjunct scrambling in Korean or Japanese, long-distance *wh*-movement of adjuncts is possible. Thus, consider the following example from Korean:

- (97) [IP Nō-nūn [CP Ch'ōlsu-ka wae o-ass-ta-ko ]  
           you<sub>top</sub> Ch'ōlsu<sub>nom</sub> why come-PAST-DECL-C  
           saengkakha-ni ] ?  
           think-Q

Here, an adjunct *wae* occurs in the embedded clause; the embedded CP is marked [-wh], and the matrix CP has a question marker *ni*. Hence, at LF, *wh*-movement of the adjunct-*wh*-phrase to the matrix SpecC is obligatory. As we have seen, the only way for an adjunct to undergo extraction from CP in Korean or Japanese is via SpecC; by the PUB, this option is unavailable for scrambling, but available for *wh*-movement. Thus, (97) can have an LF derivation as in (98), where both the PUB and the ECP are respected; and (97) is correctly predicted to be well formed, unlike (94-b) in Korean.<sup>21</sup>

- (98) [CP wae<sub>i</sub> [IP nō-nūn [CP t'<sub>i</sub> Ch'ōlsu-ka t<sub>i</sub> o-ass-ta-ko ]  
           why you<sub>top</sub> Ch'ōlsu<sub>nom</sub> come-PAST-DECL-C  
           saengkakha-ni ] ]  
           think-Q

Saito (1985; 1987) shows that the same contrast can be found in Japanese; compare ungrammatical adjunct scrambling in (95) with (99-a) (from Lasnik/Saito (1984: 244), Saito (1985: 175)), where a *wh*-adjunct *naze* is contained in an embedded declarative clause at S-structure, and may undergo successive-cyclic *wh*-movement to the matrix SpecC position at LF (as shown in (99-b)):

- (99) a. [IP Mary-wa [CP Bill-ga [XP naze ] kubi-ni natta to ] omotte iru  
           Mary<sub>Top</sub> Bill<sub>nom</sub> why was fired C think  
           no ] ?  
           Q  
       b. [CP [XP naze ]<sub>i</sub> [IP Mary-wa [CP t'<sub>i</sub> Bill-ga t<sub>i</sub> kubi-ni natta to ] omotte  
           iru no ] ]

Saito remarks that the observed asymmetry between *wh*-movement and scrambling is “a ... problem, for which I do not have any interesting solution to offer”



maticality or not (whereas crossing of two bounding nodes always results in strong ungrammaticality.) Thus, it might be that Korean and Japanese pattern with Italian, rather than English or German, with respect to Subjacency, so that the examples involving long-distance scrambling of objects do not even violate the Subjacency condition.<sup>23</sup> Since there appears to be some variation among speakers concerning the precise degree of deviance or “markedness” of long-distance scrambling in Korean and Japanese, I will not take a firm stand on this issue, and simply leave it at that.

Given the assumptions so far, an interesting prediction arises. Long-distance scrambling of objects from a subject clause should result in a strong Subjacency violation, almost indistinguishable from an ECP effect – under the NP-shell hypothesis, finite clauses are NPs, and adjunction to NP is just as impossible as adjunction to CP in Korean and Japanese; hence, two bounding nodes are crossed. This prediction is borne out. As noted by H.H. Lee (1992: 115), subject clauses are strict islands for long-distance scrambling of objects.<sup>24</sup>

- (102) ?\*[IP Suni-rül<sub>i</sub> [IP na-eke<sub>j</sub> [NP [CP [IP t'<sub>i</sub> [IP ai-ka t<sub>i</sub> silhōha-m-i ]]]]  
           Suni<sub>acc</sub>      me<sub>dat</sub>  child<sub>nom</sub>      dislike  
           t<sub>j</sub> punmyōngha-ta ]]  
           evident-DECL

Moreover, one expects that long-distance scrambling of objects is possible only when the NP-shell is incorporated, i.e., in case the matrix verb is a bridge predicate. This prediction is also confirmed in Japanese. Ueyama (1990) notes that whereas long-distance scrambling of adjuncts is never possible, long-distance scrambling of objects depends on bridge properties of the matrix verb. Thus, consider the contrast between Saito’s (91-a), repeated here as (103-a), and (103-b):

- (103) a. Sono hon-o<sub>i</sub> John-ga [NP [CP Mary-ga t<sub>i</sub> katta to ]]  
           that book<sub>acc</sub> John<sub>nom</sub>                  Mary<sub>nom</sub> bought C  
           omotte iru (koto)  
           think      fact
- b. ?\*Sono hon-o<sub>i</sub> John-ga [NP [CP Mary-ga t<sub>i</sub> katta to ]] siraseta  
           that book<sub>acc</sub> John<sub>nom</sub>                  Mary<sub>nom</sub> bought C told  
           (koto)  
           fact

According to the system of assumptions developed so far, *sono hon-o* crosses only one bounding node (the CP barrier) in (103-a), because *omotte iru* is a bridge verb and incorporates the empty head of the NP-shell; thus at worst a very weak Subjacency effect occurs. If, however, we assume that *siraseta*

in Japanese is not a bridge verb, N incorporation may not take place, and long-distance scrambling of *sono hon-o* crosses two bounding nodes (CP and NP), thereby giving rise to a strong Subjacency violation, almost on a par with an ECP effect.

Recall that so far, we have encountered a scrambling/*wh*-movement asymmetry in Korean and Japanese only with respect to adjunct movement. But in cases where object scrambling induces a strong Subjacency effect due to crossing of two bounding nodes, we again expect there to be an asymmetry between scrambling and *wh*-movement. This time, though, the asymmetry is due to the different levels where scrambling and *wh*-movement apply in languages like Japanese, and not to the PUB; the contrast does not have anything to do with the availability of SpecC as an escape hatch. Rather, given that *wh*-movement at LF is constrained solely by the ECP, and not by Subjacency (cf. Huang (1982), Lasnik & Saito (1984; 1992)), objects, unlike adjuncts, are predicted to be insensitive to subject clause islands or non-bridge contexts. As noted by Ueyama, this prediction is confirmed:

- (104) a. John-wa [<sub>NP</sub> [<sub>CP</sub> Mary-ga nani-o katta to ]] siraseta-no  
           John<sub>top</sub>          Mary<sub>nom</sub> what<sub>acc</sub> bought C told-Q
- b. \*John-wa [<sub>NP</sub> [<sub>CP</sub> Mary-ga sono hon-o naze katta to ]]  
           John<sub>top</sub>          Mary<sub>nom</sub> that book<sub>acc</sub> why bought C  
           siraseta-no  
           told-Q

(104-a) parallels (103-b) in all relevant respects, the only difference being that (103-b) involves overt scrambling of an object, which is impossible, whereas (104-a) exhibits LF *wh*-movement of an object, which is permitted. Since *nani-o* is  $\Theta$ -governed, and need not move to the matrix SpecC via the intermediate SpecC position, the well-formedness of (104-a) is accounted for. Adjuncts, in contrast, depend on antecedent-government. Hence, an intermediate trace must be created in the embedded SpecC in (104-b), which cannot be deleted afterwards anymore, and thus violates the ECP due to the presence of the NP-shell, which acts as a barrier.

Thus, it has turned out that scrambling in Japanese and Korean is sensitive to islands created by sentential subjects and complements of non-bridge predicates.<sup>25</sup> This evidence corroborates the NP-shell hypothesis, on the one hand (otherwise, the strong deviance of the pertinent examples would remain a mystery); on the other hand, it confirms the PUB, in that it again shows that scrambling may not use SpecC as an escape hatch – if SpecC were available for movement in the Korean example (102), or in the Japanese example (103-b), a strong violation of Subjacency could not be derived anymore, because CP would cease to be a barrier.

Summarizing, long-distance scrambling in Korean and Japanese fits well

into the theory of scrambling developed so far, and further corroborates the PUB as an important part of the theory of improper movement. Basically, long-distance scrambling in Korean and Japanese is less free than in Russian, because NP and CP are not possible adjunction sites; this rules out long-distance scrambling of adjuncts, and long-distance scrambling of objects from subject clauses and complements of non-bridge verbs. On the other hand, long-distance scrambling in Korean and Japanese is more liberal than in German, because the requirement does not hold that traces of scrambling chains are undeletable on the way to LF. This accounts for all the evidence encountered so far.<sup>26</sup> More generally, we have seen that, given the PUB and independently motivated assumptions about possible adjunction sites in a given language, an A-bar movement approach to scrambling makes exactly the right predictions for the existence or lack of long-distance scrambling in that language. Furthermore, an A-movement approach clearly fails in languages like Russian, where there is a mismatch between the locality conditions for anaphor binding and scrambling. The only additional assumption that was needed in order to account for the parametric variation in long-distance scrambling is that traces of scrambling chains (more precisely, of chains which include an adjoined position) must not be LF-deleted in German, but may in principle (i.e., if the result is compatible with the mechanism developed by Lasnik & Saito) be LF-deleted in Japanese or Korean. Nevertheless, one might still wish to derive the deletability/non-deletability of scrambling traces from some independently motivated difference between Korean/Japanese and German. As a first step towards this, I now want to address what looks like yet another parametric difference in scrambling options.

## 5. Operator scrambling

### 5.1. Illicit operator scrambling in German

It has often been noted that scrambling of *wh*-phrases to IP in multiple questions in German reduces acceptability (cf., among others, Stechow & Sternefeld (1988), Fanselow (1990), and Rizzi (1991)). Thus, compare adjunction of *wh*-phrases to IP in (105-b) and (106-b) with *wh*-in-situ in (105-a) and (106-a):

- (105) a. Wie haben [<sub>IP</sub> die Neubauten was gespielt ] ] ?  
           how have       the new buildings what played
- b. ??Wie haben [<sub>IP</sub> was<sub>i</sub> [<sub>IP</sub> die Neubauten t<sub>i</sub> gespielt ] ] ?  
           how have       what       the new buildings   played

- (106) a. Ich habe vergessen [CP wem [IP diese Frau [ welches Buch ]  
I have forgotten whom<sub>dat</sub> this woman which book  
gegeben hat ]]  
given has
- b. ??Ich habe vergessen [CP wem [IP [ welches Buch ]<sub>i</sub> [IP diese  
I have forgotten whom<sub>dat</sub> which book this  
Frau t<sub>i</sub> gegeben hat ]]]  
woman given has

As is also well known (see Engel (1972), Lenerz (1977), Stechow & Sternefeld (1988), and Webelhuth (1989)), the same phenomenon occurs with focused phrases – they may not undergo scrambling to IP either, as shown in (107) & (108). (Focusing in German goes hand in hand with pitch accent, and is indicated by capital letters in the whole focused phrase.)

- (107) a. Soeben hat [IP ein Student [ EINE PROFESSORIN ]  
right now has a student<sub>nom</sub> a professor<sub>acc,focused</sub>  
geküßt ]  
kissed
- b. Soeben hat [IP [ eine Professorin ]<sub>i</sub> [IP ein Student t<sub>i</sub>  
right now has a professor<sub>acc</sub> a student<sub>nom</sub>  
geküßt ]]  
kissed
- c. ??Soeben hat [IP [ EINE PROFESSORIN ]<sub>i</sub> [IP ein Student  
right now has a professor<sub>acc,focused</sub> a student<sub>nom</sub>  
t<sub>i</sub> geküßt ]]  
kissed
- (108) a. daß [IP der Chef [ DAS BUCH ] geklaut hat ]  
that the boss the book<sub>focused</sub> stolen has
- b. daß [IP [ das Buch ]<sub>i</sub> [IP der Chef t<sub>i</sub> geklaut hat ]]  
that the book the boss stolen has
- c. ??daß [IP [ DAS BUCH ]<sub>i</sub> [IP der Chef t<sub>i</sub> geklaut hat ]]  
that the book<sub>focused</sub> the boss stolen has

In (107-a) and (108-a), a DO is focused in its in situ position; in (107-b) and (108-b), the object is unfocused and can be adjoined to IP; however, simultaneous focusing and scrambling to IP is illicit, as shown by the deviance of (107-c) and (108-c).

A similar effect occurs with adjunction to VP, i.e., scrambling to a position which follows the subject. Thus, consider illicit scrambling of *wh*-phrases to VP in (109-b), as opposed to *wh*-in-situ in (109-a):

- (109) a. Warum hat der Fritz [VP seiner Frau was geschenkt ] ?  
 why has ART Fritz<sub>nom</sub> his wife<sub>dat</sub> what<sub>acc</sub> given
- b. ??Warum hat der Fritz [VP was<sub>i</sub> [VP seiner Frau t<sub>i</sub>  
 why has ART Fritz<sub>nom</sub> what<sub>acc</sub> his wife<sub>dat</sub>  
 geschenkt ]] ?  
 given

As expected, scrambling of focused DOs to VP also leads to reduced grammaticality:

- (110) a. daß der Fritz [VP seiner Frau [ DAS AUTO ]  
 that ART Fritz<sub>nom</sub> his wife<sub>dat</sub> the car<sub>acc,focused</sub>  
 geschenkt hat ]  
 given has
- b. daß der Fritz [VP [ das Auto ]<sub>i</sub> [VP seiner Frau t<sub>i</sub>  
 that ART Fritz<sub>nom</sub> the car<sub>acc</sub> his wife<sub>dat</sub>  
 geschenkt hat ]]  
 given has
- c. ??daß der Fritz [VP [ DAS AUTO ]<sub>i</sub> [VP seiner Frau t<sub>i</sub>  
 that ART Fritz<sub>nom</sub> the car<sub>acc,focused</sub> his wife<sub>dat</sub>  
 geschenkt hat ]]  
 given has

Note in passing that the deviance of (109-b) and (110-c) suggests that the order “DO > IO” in the German VP is derived via scrambling, as indicated; and that the order “IO > DO” is the base-generated one (but cf. the proviso made in note 4). In accordance with this, the IO in (109-a) can be a *wh*-phrase (as in (111-a)), and the IO in both (110-a) and (110-b) can be focused (as in (111-bc)).

- (111) a. Warum hat der Fritz [VP wem das Buch geschenkt ] ?  
 why has ART Fritz<sub>nom</sub> whom<sub>dat</sub> the book<sub>acc</sub> given
- b. daß der Fritz [VP SEINER FRAU [ das Auto ]  
 that ART Fritz<sub>nom</sub> his wife<sub>dat,focused</sub> the car<sub>acc</sub>  
 geschenkt hat ]  
 given has
- c. daß der Fritz [VP [ das Auto ]<sub>i</sub> [VP SEINER FRAU  
 that ART Fritz<sub>nom</sub> the car<sub>acc</sub> his wife<sub>dat,focused</sub>  
 t<sub>i</sub> geschenkt hat ]]  
 given has

How can this prohibition against scrambling of *wh*-phrases and focused phrases be explained? Webelhuth (1989: 391ff) introduces a “Focusing Constraint”

that states (in its parameterized form for German): “The head of a sentence-internal operator chain has to be necessarily unfocused” (Webelhuth (1989: 396)). But “head of a sentence-internal operator chain” just means “scrambled phrase,” so this seems to be more or less a restatement of the facts, rather than a real explanation. Note further that Webelhuth’s approach covers only focused elements; nothing is said about *wh*-phrases, which, as we have just seen, may not undergo scrambling either.

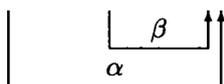
An interesting solution is proposed by Fanselow (1990: 127). He assumes that adjunction to IP leads to a “dead end” in the sense that “no category ... can be removed from the adjunction slot of IP.” Given that both *wh*-phrases and focused elements are operators, and must undergo LF movement so as to occupy an adequate operator position at LF, it can be derived in Fanselow’s approach that they cannot move to a position adjoined to IP at S-structure. This accounts for illicit IP-adjunction of *wh*-phrases and focused elements. However, it is unclear why exactly further movement is blocked after IP-adjunction. Moreover, nothing in Fanselow’s system rules out operator scrambling to VP. Hence, in order to account for the data in (109) and (110), it must in addition be assumed that, after VP-adjunction, further movement is also blocked. But now recall from section 4 that there is good evidence from Russian that successive-cyclic scrambling can indeed proceed via intermediate adjunction to IP. I have argued that complementizer-trace effects are reducible to the existence of an IP barrier. Intermediate adjunction to IP, then, accounts for the option of subject scrambling across a complementizer, as in (61), repeated here as (112):

- (112) Ty znaeš' [CP Petr Ivanyč<sub>i</sub> [CP čto [IP t'<sub>i</sub> [IP t<sub>i</sub> uže  
 you know Petr Ivanych<sub>nom</sub> that already  
 priexal ]]]] ?  
 came

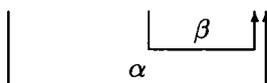
Thus, Fanselow’s claim that IP-adjoined positions per se block further movement is empirically problematic. However, it seems plausible to follow Fanselow in assuming that what ultimately rules out operator scrambling in German is the fact that operators have to undergo subsequent LF movement. The question then is, Why may operator movement at LF not build up on scrambling at S-structure?

As noted in Müller & Sternefeld (1990; 1993), this question can be answered by invoking the PUB. So far we have only considered cases where the PUB constrains S-structural movement. Now suppose that the PUB applies at LF in German, too. Then, the examples in (105-b), (106-b), and (109-b), which involve illicit scrambling of *wh*-phrases, receive LF representations like the ones in (113-ab) (with IP- and VP-adjunction, respectively):

(113) a. ??<sub>[CP  $\alpha_i$  C [IP  $t'_i$  [IP ...  $t_i$  ... ]]]</sub>



b. ??<sub>[CP  $\alpha_i$  C ... [VP  $t'_i$  [VP ...  $t_i$  ... ]]]</sub>



As indicated, the PUB is violated in these structures – the variable  $t_i$  is ambiguously bound, by its chain antecedent  $\alpha_i$  in SpecC, and by the intermediate trace  $t'_i$  in IP- or VP-adjoined position.<sup>27</sup>

Along the same lines, the deviance of scrambling of focused phrases in (107-c), (108-c), and (110-c) can be accounted for. Assuming that focused phrases, as operators, must move to an operator position at LF (cf. Chomsky (1981), among others), and that this position is distinct in nature from the landing sites of scrambling, a PUB violation occurs if a focused phrase undergoes scrambling at S-structure.

Finally, a remark is due on the degree of (un-)acceptability of operator scrambling in German. Throughout, I have assigned only two question marks to the pertinent examples, and indeed, operator scrambling in German is much better than, e.g., long-distance scrambling in this language.<sup>28</sup> Thus, it seems that PUB violations at LF are weaker than PUB violations at S-structure. Note incidentally that this is more or less the reverse of the situation with locality constraints – a violation of the ECP (which applies at LF) is stronger than a violation of Subjacency (which applies at S-structure).

Summarizing, we have seen that operators may not undergo scrambling in German. This has been shown to follow from the PUB. In the next two sections, I turn to languages where operators can be scrambled, and investigate the consequences this has for the PUB.

## 5.2. Operator scrambling in Korean and Japanese

Notice first that *wh*-phrases may undergo clause-bound scrambling in Korean. Thus, (114) exhibits adjunction of a DO *wh*-phrase to VP, and (115) and (116) show that *wh*-phrases (in these cases, an IO and a DO, respectively) may be adjoined to IP. (Again, all the Korean data of this section are due to Jung-Goo Kang, Shin-Sook Kim, and Hyun-Hee Lee (p.c.).)

(114) a. Ch'ölsu-ka [VP Sunhi-eke muös-ül chu-öss-ni ] ?  
 Ch'ölsu<sub>nom</sub> Sunhi<sub>dat</sub> what<sub>acc</sub> give-PAST-Q

- b. Ch'ölsu-ka [VP muós-ül<sub>i</sub> [VP Sunhi-eke t<sub>i</sub> chu-öss-ni ]] ?  
 Ch'ölsu<sub>nom</sub> what<sub>acc</sub> Sunhi<sub>dat</sub> give-PAST-Q
- (115) a. [IP John-i [VP nuku-eke ch'aek-ül chu-öss-ni ]] ?  
 John<sub>nom</sub> whom<sub>dat</sub> book<sub>acc</sub> give-PAST-Q
- b. [IP Nuku-eke<sub>i</sub> [IP John-i [VP t<sub>i</sub> ch'aek-ül chu-öss-ni ]]] ?  
 whom<sub>dat</sub> John<sub>nom</sub> book<sub>acc</sub> give-PAST-Q
- (116) a. [IP K'al-lo<sub>i</sub> [IP Ch'ölsu-ka t<sub>i</sub> nuku-rül tchil-öss-ni ]] ?  
 knife-with Ch'ölsu<sub>nom</sub> who<sub>acc</sub> stab-PAST-Q
- b. [IP K'al-lo<sub>i</sub> [IP nuku-rül<sub>j</sub> [IP Ch'ölsu-ka t<sub>i</sub> t<sub>j</sub> tchil-öss-ni ]]] ?  
 knife-with who<sub>acc</sub> Ch'ölsu<sub>nom</sub> stab-PAST-Q

Similarly, *wh*-phrases may undergo scrambling in Japanese. Consider, for instance, adjunction of a *wh*-object to VP (the data are from Mitsunobu Yoshida (p.c.)):

- (117) a. John-ga [VP Mary-ni nani-o ageta ] no ?  
 John<sub>nom</sub> Mary<sub>dat</sub> what<sub>acc</sub> gave Q
- b. John-ga [VP nani-o<sub>i</sub> [VP Mary-ni t<sub>i</sub> ageta ]] no ?  
 John<sub>nom</sub> what<sub>acc</sub> Mary<sub>dat</sub> gave Q

Adjunction to IP is also possible, as shown by the data in (118) (from Saito (1985: 148)), (119), and (120) (from Mitsunobu Yoshida (p.c.)):

- (118) a. [IP John-ga dare-o sagasite iru no ] ?  
 John<sub>nom</sub> what<sub>acc</sub> looking-for Q
- b. [IP Dare-o<sub>i</sub> [IP John-ga t<sub>i</sub> sagasite iru no ]] ?  
 what<sub>acc</sub> John<sub>nom</sub> looking-for Q
- (119) a. [IP John-ga dare-ni hon-o ageta no ] ?  
 John<sub>nom</sub> whom<sub>dat</sub> book<sub>acc</sub> gave Q
- b. [IP Dare-ni<sub>i</sub> [IP John-ga t<sub>i</sub> hon-o ageta no ]] ?  
 whom<sub>dat</sub> John<sub>nom</sub> book<sub>acc</sub> gave Q
- (120) a. [IP Naihu-de<sub>i</sub> [IP John-ga t<sub>i</sub> dare-o sasita no ]] ?  
 knife-with John<sub>nom</sub> who<sub>acc</sub> stabbed Q
- b. [IP Naihu-de<sub>i</sub> [IP dare-o<sub>j</sub> [IP John-ga t<sub>i</sub> t<sub>j</sub> sasita no ]]] ?  
 knife-with who<sub>acc</sub> John<sub>nom</sub> stabbed Q

In (118), a DO undergoes scrambling to IP; in (119), an IO is moved; finally, in (120), a DO lands between a scrambled adjunct and the subject.

What is even more interesting is that long-distance scrambling of *wh*-phrases in Korean is possible, and in exactly the same environments where long-distance scrambling of [-wh] phrases is permitted. Thus, consider long-distance scrambling of a *wh*-object to VP in (121-a), and to IP in (121-b):

- (121) a. [IP Yŏngghi-ka [VP [ ōnũ ch'aek-ül ]<sub>i</sub> Ch'ōlsu-eke<sub>j</sub> [CP PRO<sub>j</sub> t<sub>i</sub>  
 Yŏngghi<sub>nom</sub> which book<sub>acc</sub> Ch'ōlsu<sub>dat</sub>  
 ilk-ūra-ko ] malha-öss-ni ]] ?  
 read-IMP-QUOT say-PAST-Q
- b. [IP [ Ōnũ ch'aek-ül ]<sub>i</sub> [IP Ch'ōlsu-ka [CP Yŏngghi-ka t<sub>i</sub>  
 which book<sub>acc</sub> Ch'ōlsu<sub>nom</sub> Yŏngghi<sub>nom</sub>  
 sa-öss-ta-ko ] saengkakha-ni ]] ?  
 buy-PAST-DECL-C think-Q

The examples in (121) are direct questions, as evidenced by the question marker *ni* in the matrix clause. Therefore, at first sight one might think that at least (121-b) involves optional *wh*-movement. But there is some reason for not assuming this to be the case, cf. Kang (1992) and Lasnik & Saito (1992) for arguments to this effect.<sup>29</sup> Thus, given that there is no S-structural movement to SpecC, there must be subsequent *wh*-movement at LF in (121-ab), so as to put the *wh*-phrase in an appropriate operator position. Note that an argument for the hypothesis that there is no optional *wh*-movement involved in (121-ab) can be derived from the behaviour of *wh*-adjuncts. Consider (122):

- (122) \*[IP Wae<sub>i</sub> [IP nŏ-nũn [CP Ch'ōlsu-ka t<sub>i</sub> o-ass-ta-ko ]  
 why you<sub>top</sub> Ch'ōlsu<sub>nom</sub> come-PAST-DECL-C  
 saengkakha-ni ]] ?  
 think-Q

In Korean, long-distance scrambling of *wh*-adjuncts patterns identical to long-distance scrambling of [-*wh*] adjuncts (as in (94-b)), and not to LF *wh*-movement of *wh*-phrases (as in (97)/(98)), or overt relativization of adjuncts (as discussed in note 22). If (122) necessarily involves scrambling (i.e., if overt *wh*-movement is not even optionally available in Korean), its ungrammaticality again follows from the PUB, in the same way as the ungrammaticality of (94-b) – if SpecC is used as an escape hatch for scrambling, ambiguous binding results.

The situation in Japanese is essentially identical. Long-distance scrambling of *wh*-objects is grammatical, as shown in (123-ab) with adjunction to VP and IP, respectively (data from Mitsunobu Yoshida (p.c.); also see Saito (1985; 1989; 1992) and Takahashi (1993)):

- (123) a. [IP Mary-wa [VP nani-o<sub>i</sub> [VP Bill-ni<sub>j</sub> [CP PRO<sub>j</sub> t<sub>i</sub> yomu yooni ]  
 Mary<sub>top</sub> what<sub>acc</sub> Bill<sub>dat</sub> read so that  
 itta no ]]] ?  
 said Q

- b. [IP Nani-o<sub>i</sub> [IP John-wa [CP Mary-ga t<sub>i</sub> katta to ] omotte iru  
       what<sub>acc</sub> John<sub>Top</sub> Mary<sub>nom</sub> bought C think  
       no ]] ?  
 Q

Long-distance scrambling of *wh*-adjuncts, on the other hand, is ruled out by the PUB, as in the Korean example (122); cf. the following example (taken from Saito (1985: 175)):

- (124) \*[IP [ Naze ]<sub>i</sub> [IP Mary-wa [CP Bill-ga t<sub>i</sub> kubi-ni natta to ] omotte iru  
       why Mary<sub>Top</sub> Bill<sub>nom</sub> was fired C think  
       no ]] ?  
 Q

Summarizing, the feature [ $\pm wh$ ] does not appear to play any role for the option of scrambling in Japanese and Korean. Similarly, it is well known that both clause-bound and long-distance scrambling in Korean and Japanese can go hand in hand with focusing. Thus, we have to conclude that operators in Korean and Japanese, unlike operators in German, can systematically undergo scrambling. This follows directly if we make the assumption that the PUB applies at S-structure, but not at LF, in Korean and Japanese, whereas it applies at S-structure and at LF in German.

### 5.3. Operator scrambling in Russian

Consider now Russian. As noted before, overt *wh*-movement is obligatory in Russian, in the sense that a *wh*-phrase in simple (direct or indirect) questions must occupy the SpecC position at S-structure, just as in languages like English and German. However, Russian differs from English or German in that *all wh*-phrases in a multiple question obligatorily undergo S-structural movement (this also holds for the other Slavic languages, and Romanian). This is exemplified by the following data, taken from Wachowicz (1974: 158):

- (125) a. Kto čto kogda skazal ?  
       who what when said  
       b. Kto kakim sposobom sbežal iz tjurmy ?  
       who in what manner escaped from prison  
       c. Maša skazala mne pod sekretom [CP kto kakuju devušku ljubit ]  
       Masha told me as a secret who which girl loves

There appears to be agreement in the literature as to the position of the left-most *wh*-phrase in multiple questions in Russian (i.e., *kto* in (125-a)); it is generally assumed that it occupies the SpecC position. However, there is an ongoing debate about the precise nature of the landing site of the other

*wh*-phrases in the “*wh*-cluster” (i.e., *čto* and *kogda* in (125-a)); cf. Comorovski (1986), Toman (1981), Lasnik & Saito (1984), and Rudin (1988) for discussion. Here I will follow Rudin (1988), who argues that what looks like overt multiple “*wh*-movement” is not a uniform process among the Slavic languages. According to a number of tests, the multiply fronted *wh*-phrases in languages like Bulgarian behave as if they all occupy an operator position at S-structure already (i.e., SpecC, or a position right-adjoined to SpecC). However, so Rudin argues, in languages like Polish and Russian, only the left-most *wh*-phrase in multiple questions occupies SpecC – the remaining *wh*-phrases have undergone obligatory adjunction to IP, and thus occupy a non-operator position at S-structure, from which they are raised to the operator position SpecC at LF.<sup>30</sup> I will address this issue in some detail in chapter 5, and present additional evidence for the correctness of this view there. For the time being, though, it may suffice to note that, if Rudin is right about obligatory IP-adjunction in multiple questions in Polish or Russian, we have to conclude that the Russian data in (125) involve obligatory *wh*-scrambling to IP, which implies that the PUB does not hold at LF in this language.<sup>31</sup> Thus, Russian and Korean (or Japanese) behave alike, as far as the *option* of *wh*-scrambling is concerned, although they differ with respect to the *obligatoriness* of *wh*-scrambling.

Note also that both clause-bound and long-distance scrambling in Russian can apply to focused elements (cf. Krylova & Chavronina (1976), for instance), like in Korean or Japanese, but in contrast to what is the case in German. Hence, we have to conclude again that the PUB only applies at S-structure in Russian, and not at LF.

#### 5.4. Full Representation

Now it is time to return to the apparent difference between Korean and Japanese on the one hand, and German on the other, with respect to the deletability of traces of scrambling chains, which we have encountered in section 4. There, it had to be assumed that the requirements (126-ab) (= (100-ab)) hold in German; but, whereas it looked as though it did not matter whether or not (126-b) holds in Korean and Japanese, it turned out that (126-a) could not be assumed to be a part of the grammar of these languages – otherwise, long-distance scrambling of objects would be predicted to be impossible in Korean and Japanese.

(126) a. *Deletability of Intermediate Traces:*

An intermediate trace cannot be deleted on the way to LF if it occurs in a chain which contains an adjunction position.

b. *Antecedent-Government in Chains:*

All traces must be antecedent-governed in a chain which contains an adjunction position.

Notice also that the Russian evidence from long-distance scrambling does not force a decision as to whether or not (126-a) holds in this language. To see this, suppose that (126-a) applies in Russian. Then, antecedent-government in scrambling chains is required, and scrambling traces are undeletable on the way to LF. However, both arguments and non-arguments in Russian are still predicted to be able to undergo long-distance scrambling from finite clauses, due to the option of adjunction to CP and the NP-shell. Of course, if (126-a) does not apply in Russian, long-distance scrambling of arguments and non-arguments is also possible. Although the available data do not require a decision, let us assume, for reasons that will become clear immediately, that Russian patterns with Korean and Japanese, rather than with German, with respect to (126-a). Assuming (126-b) to hold in all languages for the time being, we can now state that German LF representations preclude the deletion of traces in adjoined positions, whereas Korean, Japanese or Russian LF representations do not. But in the previous section, we have seen another LF-related difference between German on the one hand, and Korean, Japanese, and Russian on the other – the PUB applies at LF in German, but not in the other languages under consideration. Thus, it seems very likely that these two differences are not due to two independent parameters (one of which concerns trace deletion, and another one which concerns the PUB); rather, this state of affairs strongly suggests that only one parameter is genuine, and the other truly derivative.

This line of reasoning is pursued in Müller & Sternefeld (1990; 1993). There, it is suggested that the only thing that is subject to parametric variation is the level(s) where the PUB applies, and not the issue of whether or not (126-a) holds in a language. The basic idea is that, at the level(s) where the PUB applies, representations involving adjunction sites must be “fully articulated” in the sense that intermediate traces in adjoined positions must be generated whenever this is possible, i.e., whenever an adjunction site intervenes between two elements of a chain, and trace generation is compatible with the PUB and the Adjunction Site Parameter. This requirement is called “Full Representation,” and can be informally, and somewhat sloppily, written down as in (127):

- (127) *The Principle of Full Representation* (informal version):  
 Adjunction sites must contain intermediate traces if possible, at the level(s) where the PUB applies.

More precisely, *Full Representation* can be formulated as a local binding requirement on chains, as in (128) (from Müller & Sternefeld (1993: sec. 2.9)).<sup>32,33</sup>

(128) *The Principle of Full Representation* (formal version):

- A. If, in a representation ...  $\alpha_i$  ... [ $\beta$  ...  $t_i$  ... ] ... ,
- a.  $\beta$  excludes  $\alpha_i$ ,
  - b.  $\beta$  includes  $t_i$ ,
  - c. the chain  $C = \langle \dots \alpha_i \dots t_i \dots \rangle$  is subject to the PUB,
  - d. and  $\beta$  is a possible adjunction site for  $C$ , then  $\alpha_i$  cannot locally bind  $t_i$ .
- B.  $\beta$  is a possible adjunction site for  $C$  iff
- a.  $\beta$  is a possible adjunction site according to the Adjunction Site Parameter, and
  - b. adjoining a trace  $t'_i$  to  $\beta$  would not violate the PUB (for  $C' = \langle \dots \alpha_i \dots t'_i \dots t_i \dots \rangle$ ).

Let us briefly consider the consequences of *Full Representation* for scrambling chains. In languages like Korean, Japanese, and Russian, the PUB applies at S-structure only. Then, *Full Representation* requires that scrambling obligatorily applies successive-cyclically, via intermediate adjunction to every possible adjunction site. E.g., an object which undergoes long-distance scrambling to the matrix IP in Korean or Japanese must first be adjoined to the embedded VP, then to the embedded IP, and then to the matrix VP – all these positions are available adjunction sites in these languages, and, given that the ultimate landing site is a scrambling position, the PUB is not violated after intermediate adjunction. In a comparable construction in Russian, *Full Representation* in addition requires intermediate adjunction to CP and the NP-shell. However, in all these languages, the PUB does not apply at LF. Hence, *Full Representation* does not require the LF-presence of intermediate traces in adjoined positions in Korean, Japanese, or Russian, and these can all be deleted in accordance with the assumptions of Lasnik & Saito (1984; 1992). In the case of Japanese and Korean, this guarantees that ungoverned intermediate traces of objects may disappear before inducing ECP effects, and thus accounts for the very option of long-distance scrambling here.

Now consider German. Again, the S-structural presence of intermediate traces in scrambling chains is forced by *Full Representation*. However, since the PUB also applies at LF, these traces are also required at LF, and may not be deleted. Thus, the effects of the system developed by Lasnik & Saito are overridden. Therefore, long-distance scrambling is barred even with arguments in German.

If this approach is on the right track, the cross-linguistic variation encountered in long-distance scrambling follows entirely from the interaction of two independently established properties of languages, viz., (a) the Adjunction Site Parameter, and (b) the level(s) where the PUB applies. Long-distance scrambling is strictly disallowed in German, because the PUB applies at LF,

and CP and NP are not possible adjunction sites; long-distance scrambling of objects, but not of adjuncts, is possible in Korean and Japanese, because, although CP and NP are not possible adjunction sites, the PUB does not apply at LF (so that intermediate scrambling traces are deletable, in accordance with *Full Representation*); finally, in Russian, where the PUB does not apply at LF, and CP and NP are possible adjunction sites, long-distance scrambling of arguments *and* non-arguments is permitted.<sup>34</sup>

Let me summarize this section. Operators, i.e., *wh*-phrases and focused phrases, may not undergo scrambling very well in German. This follows if we assume that the PUB applies at LF, in addition to S-structure. On the other hand, there is optional scrambling of *wh*-phrases in Japanese and Korean, and obligatory scrambling of *wh*-phrases in multiple questions in Russian. Moreover, scrambling may go hand in hand with focusing in these languages. This implies that the PUB applies at S-structure, but not at LF in Korean, Japanese, and Russian. Given this parametric variation with respect to the level(s) where the PUB applies, it turns out that another parameter can be dispensed with, viz., whether deletion of intermediate traces of arguments in scrambling chains is possible or not. This can be accomplished by invoking a principle of *Full Representation*, which forces the presence of intermediate traces of scrambling chains at the level(s) where the PUB applies, i.e., at S-structure and at LF in German (thus barring trace deletion), and at S-structure only in Japanese, Korean, and Russian (thus allowing trace deletion on the way to LF). Cross-linguistic variation in long-distance scrambling, then, can entirely be accounted for by independently attested properties of the languages under consideration, viz., the availability of adjunction sites as escape hatches, and the level(s) where the PUB applies.

## 6. Categorical selectivity

Thus far, we have seen that NP and PP arguments can undergo scrambling in German, as in (1-b) and (15-a), respectively (repeated here in (129) and (130)).

(129) daß [<sub>NP</sub> den Fritz ]<sub>i</sub> seine Studentinnen t<sub>i</sub> bewundern  
 that ART Fritz<sub>acc</sub> his students<sub>nom</sub> admire

(130) daß [<sub>PP</sub> an Fritz ]<sub>i</sub> alle Frauen Liebesbriefe t<sub>i</sub> schicken wollen  
 that to Fritz all women love letters send want-to

Similarly, (finite or non-finite) argumental CPs can be scrambled in German:<sup>35</sup>

- (131) a. weil [CP daß sie Recht hat]<sub>i</sub> der Fritz nie t<sub>i</sub> behaupten  
 because that she right is ART Fritz<sub>nom</sub> never claim  
 würde  
 would
- b. daß [CP PRO dieses Problem zu lösen]<sub>i</sub> keiner t<sub>i</sub> versuchen wird  
 that this problem to solve no-one try will

Note that also non-argumental CPs (again finite or non-finite) may be left-adjoined in the syntax in German (for the purposes of this discussion, I abstract away from the more articulated structure of finite and adjunct clauses argued for in chapter 2):

- (132) a. daß [CP damit er verliert]<sub>i</sub> der Frank t<sub>i</sub> alles tun würde  
 that so-that he loses ART Frank everything do would
- b. daß [CP PRO um zu verlieren]<sub>i</sub> der Frank t<sub>i</sub> alles  
 that in-order to lose ART Frank everything  
 tun würde  
 do would

The same holds for non-argumental NPs (cf. (133-a)), and non-argumental PPs (cf. (133-bc)):

- (133) a. daß [NP den ganzen Tag]<sub>i</sub> der Fritz t<sub>i</sub> im Büro gewesen ist  
 that the whole day ART Fritz in-the office been is
- b. daß [PP im Büro]<sub>i</sub> der Fritz den ganzen Tag t<sub>i</sub> geschlafen  
 that in-the office ART Fritz the whole day slept  
 hat  
 has
- c. daß [PP ins Kino]<sub>i</sub> gestern keiner t<sub>i</sub> gehen wollte  
 that into-the cinema yesterday no-one go wanted-to

However, scrambling in German may not apply to all kinds of items; there are restrictions on the mobility of categories. One restriction we have encountered already – operators, i.e., *wh*-phrases and focused phrases, may not undergo scrambling very well. This was derived by the PUB. However, it has often been noted that certain other categories also do not scramble easily. Thus, Webelhuth (1987: 3) and Stechow & Sternefeld (1988: 465f) observe that scrambling of VPs results in reduced acceptability:<sup>36</sup>

- (134) a. ??daß [VP die Suppe essen]<sub>i</sub> hier keiner t<sub>i</sub> so richtig wollte  
 that the soup eat here no-one really wanted-to
- b. ??daß [VP Geschirr gespült]<sub>i</sub> hier wohl noch nie jemand t<sub>i</sub> hat  
 that dishes washed here apparently never someone has

As noted by Webelhuth and Stechow & Sternefeld, the same goes for APs:

- (135) a. ??daß [<sub>AP</sub> krank ]<sub>i</sub> der Hans am Montag t<sub>i</sub> nicht gewesen ist  
           that    ill           ART Hans on Monday not been is  
       b. ?daß [<sub>AP</sub> so völlig roh ]<sub>i</sub> der Fritz das Fleisch t<sub>i</sub> nicht essen  
           that    so totally raw   ART Fritz the meat not eat  
           wollte  
           wanted-to  
       c. ?daß [<sub>AP</sub> betrunken ]<sub>i</sub> niemand t<sub>i</sub> reinkommt  
           that    drunk           no-one gets-in

Following Haider (1991b: 13), I assume that the correct descriptive generalization then is that scrambling of *predicative* XPs often goes along with reduced acceptability. Note in particular that the bracketed categories in (134) and (135) can undergo topicalization in the same context without problems. Compare, e.g.:

- (136) a. [<sub>VP</sub> Die Suppe essen ]<sub>i</sub> hat keiner t<sub>i</sub> wollen  
           the soup eat has no-one wanted-to  
       b. [<sub>AP</sub> Krank ]<sub>i</sub> ist der Hans am Montag t<sub>i</sub> gewesen  
           ill is ART Hans on Monday been

Haider (1991b: 13ff) suggests that the apparent categorial selectivity of scrambling is an indication of its status as A-movement. A-movement is categorially selective in the sense that only NP arguments (and maybe, in addition, argument clauses) can undergo movement to SpecI. But, as noted in section 2 above, scrambling clearly differs from A-movement in this respect – PPs, for instance, can undergo scrambling, but not A-movement to SpecI. Also, we have just encountered examples where a non-argumental NP, PP, or CP is scrambled. Hence, invoking the hypothesis that scrambling is A-movement does not produce the desired effect. Nevertheless, scrambling at first sight appears to behave differently from other types of A-bar movement, in particular from topicalization, where it looks as though (almost) any kind of XP can in principle be moved. In what follows, I will therefore try to explain away the evidence adduced to support the idea that scrambling, unlike other types of A-bar movement, is categorially selective. (I hasten to add that the following remarks are in part very tentative.)

A relevant observation is that predicate scrambling as in (134) and (135) is not entirely ungrammatical; rather, it has an intermediate status. Moreover, there is some variation in the degree of ungrammaticality of the pertinent examples, as indicated by one vs. two question marks. In accordance with this, there is also considerable variation among speakers, as regards examples like those in (134) and (135). Finally, given a suitable choice of (linguistic and

non-linguistic) context, even examples like (134-ab) and (135-a), which I have assigned two question marks as they stand, can be further improved. Thus, the task on the one hand is to account for the difference between predicate topicalization, as in (136), and predicate scrambling, as in (134) & (135); on the other hand, it must be guaranteed at the same time that predicate scrambling is not ruled out by some very strict and inviolable principle.<sup>37</sup>

As a first step towards an explanation, note that predicates which have undergone movement strongly tend to be focused in German. Thus, whereas topicalization of, say, NP arguments may or may not go along with focusing (recall from section 2.1 that the German SpecV/2 position is both *Anschlußstelle* and *Ausdrucksstelle*, according to traditional terminology), topicalization of the VP and AP predicates in (136-ab) appears to be generally impossible unless they are focused. Thus, I would like to put forward, as a descriptive generalization, the following hypothesis:<sup>38</sup>

(137) Predicates in derived positions are usually focused.

But if the conjecture (137) is correct, then what looks at first sight as unreducible categorial selectivity of the movement type scrambling can be derived from the PUB, in exactly the way pointed out in section 5. If focused XPs must undergo operator movement at LF, and if predicates in derived positions are focused, then predicates may not undergo scrambling in German, where the PUB applies at LF and precludes scrambling of focused elements. Invoking the PUB also accounts for the variable and intermediate status of the scrambling examples under discussion; recall from section 5 that PUB effects that arise at LF are typically much weaker, and more variable, than those which arise at S-structure. Predicates may undergo topicalization perfectly well, though. This follows if we assume that the topic position either optionally qualifies as a target position for focus movement already, or is indistinguishable from the ultimate landing site of focus movement (whatever that is), for the purposes of the PUB.

Given these assumptions, an interesting prediction arises. If predicates for some reason exceptionally do *not* have to be focused after movement, we expect grammaticality to arise in the case of predicate scrambling, *ceteris paribus*. This prediction is confirmed. Apart from bearing pitch accent and being interpreted as focused, predicates in derived positions may also (for some unknown reason) participate in an *I-topicalization* (i.e., “intonational topicalization,” cf. Jacobs (1982)) construction, where they appear not to be focused. And indeed, all of the examples in (134) and (135) improve substantially if the scrambled predicates participate in an I-topicalization construction. Whereas focus accent in German is characterized by a falling tone (symbolizable as “\”), I-topicalization starts with a rising tone (symbolizable by “/”), and ends with a falling tone. According to standard assumptions, I-

topicalization in general indicates reconstruction, and the phrase bearing the rising tone does not itself count as focused (but rather the phrase bearing the falling tone), so that operator movement at LF does not take place. Now, Stechow & Sternefeld (1988: 466) note that accent on a scrambled NP leads to reduced acceptability only if a falling tone (indicating focus) is involved, and not in case of a rising tone (indicating I-topicalization, i.e.: no focus). Thus, examples like (107-c) (repeated here as (138)) are ungrammatical only if the scrambled NP has a falling tone, as in (138-a), and not if it has a rising tone, as in (138-b):

- (138) a. ??Soeben hat eine Professorin\ ein Student geküßt  
           right now has a professor<sub>acc</sub> a student<sub>nom</sub> kissed  
       b. Soeben hat eine Professorin/ ein Student\ geküßt  
           right now has a professor<sub>acc</sub> a student<sub>nom</sub> kissed

As expected under the PUB account, the examples in (134) and (135) become fairly acceptable if the scrambled predicate undergoes I-topicalization, rather than focusing.<sup>39</sup> This is shown in (139-ab) (compare (134-a) and (135-a), where there is a falling tone on the scrambled predicate):

- (139) a. daß die Suppe/ essen hier keiner\ so richtig wollte  
           that the soup eat here no-one really wanted-to  
       b. daß so richtig/ krank der Hans am Montag natürlich nicht\  
           that really ill ART Hans on Monday of course not  
           gewesen ist  
           been is

Furthermore, if the PUB account is correct, predicates should freely undergo scrambling in those languages where the PUB does not apply at LF. This prediction is borne out in Russian. As noted by Zemskaja (1973), Krylova & Chavronina (1976), and Yadroff (1991), among others, VPs can be freely scrambled in Russian; cf. (140-ab) (recall in addition from note 19 that even long-distance scrambling of VP is possible in Russian; cf. also Yadroff (1991: 3)).

- (140) a. čto [VP vozvraščaetsja]<sub>i</sub> Maksim t<sub>i</sub>  
           that returns Maxim  
       b. (My v kino ne uspeem) [VP pridet pozdno]<sub>i</sub> esli on t<sub>i</sub>  
           we to the cinema not will-make-it comes late if he

In (140-a), there is VP-adjunction to IP, and in (140-b), to CP, in accordance with the constraints the Adjunction Site Parameter imposes on scrambling in Russian.

In the same way, APs can undergo scrambling in Russian (cf. Zemskaja (1973), Yadroff (1991)):<sup>40</sup>

- (141) On [<sub>AP</sub> strašno učenuju ] kupil sebe [<sub>NP</sub> t<sub>i</sub> knigu ]  
 he           terribly learned   bought himself           book

In Korean, the picture is obscured by a number of intervening factors; e.g., VP- or AP-movement is often blocked because of a requirement that embedded predicates must be strictly adjacent to the matrix predicate in order to receive verbal Case, and thus may not undergo any movement at all. However, it seems that if verbal Case-assignment is not involved (as in cases of secondary predication or adverbial modification), AP scrambling occurs, as expected (Shin-Sook Kim (p.c.)).

As noted by Frey & Tappe (1991) and Haider (1991a; 1991b), there are a number of other items which generally appear to resist scrambling in German, but may undergo topicalization (in addition to *wh*-phrases, focused phrases, and predicates), like particles, or NPs occurring in (certain) light verb constructions. A cursory survey suggests that a treatment along the lines of illicit predicate scrambling might be possible. I will, however, leave the issue here, and draw a preliminary conclusion.

I have tried to show in this section that there is some reason to assume that scrambling, despite superficial evidence to the contrary, is per se no more categorially selective than other types of A-bar movement, in particular topicalization. The two most conspicuous cases where it looks as though certain items may not (or not very well) undergo scrambling (viz., operators and predicates) have, upon closer inspection, turned out to be derivable from independently motivated assumptions, most notably, the assumptions that the PUB applies at LF in German, and that predicates in derived positions are generally focused. The PUB-related account also explains why predicate scrambling is possible in cases where moved predicates exceptionally do not have to be focused in German, and why predicate scrambling does not pose problems in Russian or (modulo intervening factors) Korean, i.e., languages where the PUB does not apply at LF. Of course, many questions had to be left open.<sup>41</sup> But all in all, the claim that scrambling does not behave differently from other types of A-bar movement, and that there is neither need nor justification for resorting to the idea that scrambling is A-movement, has received additional support – scrambling, in principle, may apply to any XP, including VP and AP.

## 7. Anaphoric binding

Webelhuth (1989: 407ff), Moltmann (1990: 33ff) and Santorini (1990: 6ff) maintain that scrambling may give rise to new A-binding possibilities in Ger-

man. This clearly would speak for an A-movement approach to scrambling since, as is well known (cf. for instance Chomsky (1982), Sternefeld (1985; 1991a), Mahajan (1990), Chomsky & Lasnik (1993)), A-movement typically opens up new binding possibilities, whereas A-bar movement does not. Thus, consider the contrast between raising and topicalization in English (cf. (142-ab)) and in German (cf. (143-ab)):

- (142) a. John<sub>i</sub> seems to himself<sub>i</sub> [<sub>IP</sub> t<sub>i</sub> to have shot Bill ]  
 b. \*[ John and Mary ]<sub>i</sub> [<sub>IP</sub> [ each other ]<sub>i</sub> do not really like t<sub>i</sub> ]
- (143) a. daß der Fritz<sub>i</sub> sich<sub>i</sub> [<sub>AP</sub> t<sub>i</sub> schlau ] vorkommt  
 that ART Fritz<sub>nom</sub> REFL intelligent appears/strikes as  
 b. \*[ Den Frank ]<sub>i</sub> hat [<sub>IP</sub> sich<sub>i</sub> manchmal t<sub>i</sub> nicht gemocht ]  
 ART Frank<sub>acc</sub> has REFL sometimes not liked

As shown in (142-b) and (143-b), A-bar movement types like topicalization do not create anaphoric binding in English or German. A-movement, on the other hand, evidently does, as shown in (142-a) and (143-a).<sup>42</sup> That said, let us consider the argument put forward by Webelhuth, Moltmann, and Santorini, in order to show that scrambling in German is A-movement.<sup>43</sup>

Grewendorf (1984; 1988: 57ff) has observed that, in typical double object constructions in German (which involve a THEME and a GOAL argument), IO anaphors can be bound not only by subjects, but also by DOs. This would not be unexpected if DOs precede and thus c-command IOs at D-structure. However, I have so far assumed, based on evidence from movement theory (cf. chapter 2), unmarked linearization, etc., that the opposite is the case – viz., that in typical double object constructions, IOs precede and c-command DOs in German. This is indeed the standard view (cf. Lenerz (1977)), and it is shared by Webelhuth, Moltmann, and Santorini. But given the “uncontroversial assumption” (Santorini (1990: 1)) that IOs precede DOs in the base, Grewendorf’s data in (144) can be taken to indicate that scrambling of a DO in front of the IO ends up in an A-position:

- (144) a. daß der Arzt<sub>i</sub> den Patienten<sub>j</sub> sich<sub>i/j</sub> t<sub>i</sub> im Spiegel  
 that the doctor<sub>nom</sub> the patient<sub>acc</sub> REFL<sub>dat</sub> in-the mirror  
 zeigte  
 showed  
 b. daß man die Gäste<sub>i</sub> einander<sub>i</sub> t<sub>i</sub> vorgestellt hat  
 that one<sub>nom</sub> the guests<sub>acc</sub> RECIP<sub>dat</sub> introduced-to has

However, if a DO can A-bind an IO anaphor after scrambling, one would of course expect that an IO can A-bind a DO anaphor *without* scrambling, i.e., with the two elements occupying their respective base positions. These are clearly A-positions, and given that the IO c-commands and precedes the DO,

anaphoric binding should be possible. But, as noted by Grewendorf (1988: 58), only a subject can A-bind a DO anaphor, but not an IO that precedes and c-commands a DO anaphor:

- (145) a. daß der Arzt<sub>i</sub> dem Patienten<sub>j</sub> sich<sub>i/\*j</sub> im Spiegel zeigte  
 that the doctor<sub>nom</sub> the patient<sub>dat</sub> REFL<sub>acc</sub> in-the mirror showed  
 b. \*daß man den Gästen<sub>i</sub> einander<sub>i</sub> vorgestellt hat  
 that one<sub>nom</sub> the guests<sub>dat</sub> RECIP<sub>acc</sub> introduced-to has

Thus, if (144) is supposed to show that the landing site of scrambling is an A-position, the same reasoning would allow us to conclude from (145) that IOs are not base-generated in A-position. This, however, would clearly be absurd. What, then, can be done to save the A-movement approach to scrambling, in the light of (145)?

Moltmann (1990: 34) suggests that there is a special movement rule in German according to which accusative anaphors “must always move to a position between the subject and any other full NP,” thereby preventing anaphoric binding of DOs by any constituent bar the subject. But this rule faces empirical difficulties. It implies, e.g., that the reflexive *sich* in (145-a) cannot be bound at all; therefore the sentence should be ungrammatical even under co-indexing with the subject, which happens not to be the case. Thus, Moltmann’s additional assumption does not help.

Another way out is suggested by Santorini (1990). According to her, IOs can simply never act as binders in German. However, such a statement – to the extent that it is correct – should ideally be derived by some general assumptions about the ordering of arguments at D-structure and the effects of scrambling, rather than be stipulated. On the other hand, there is evidence that IOs *can* bind anaphors, if the latter ones are contained in a PP which is closer to the verb than a DO. Thus, consider the following example (cf. again Grewendorf (1988: 58)):

- (146) daß Maria<sub>i</sub> ihr<sub>i</sub> die Augen [PP über sich<sub>j/i</sub>] öffnete  
 that Maria her<sub>dat</sub> the eyes<sub>acc</sub> about REFL opened

However this is eventually to be accounted for, it clearly shows one thing: IOs are potential binders of anaphors.

So far, I have only considered the relation between scrambling to VP and anaphoric binding. As soon as scrambling to IP comes into play, the A-movement approach to scrambling faces even more problems. Given that this latter type of scrambling is considered A-movement too, which seems to be desirable on conceptual grounds and is explicitly assumed by Fanselow (1990) and Santorini (1990), the trace left by scrambling is an anaphor, subject to condition (A) of the binding theory; hence it must be bound within its governing category. From this we have to conclude that a category adjoined to

IP does not only occupy an A-position; furthermore, it still has to be within the governing category of its anaphoric trace. Now, recall the contrast between A-movement (raising) and A-bar movement (topicalization) in (143). If scrambling to IP is A-movement, we expect it to pattern with (143-a); if it is A-bar movement, it should pattern with (143-b). As shown in (147-ab) (with reflexive *sich* and reciprocal *einander*, respectively), scrambling clearly behaves like topicalization, and not like raising – it does not license a subject anaphor:

- (147) a. \*daß [IP [ den Frank ]<sub>i</sub> [IP sich<sub>i</sub> manchmal t<sub>i</sub> nicht gemocht  
that ART Frank<sub>acc</sub> REFL sometimes not liked  
hat ]]  
has
- b. \*daß [IP [ den Frauen ]<sub>i</sub> [IP einander<sub>i</sub> t<sub>i</sub> Bücher schenkten ]]  
that the women<sub>dat</sub> RECIP books gave

Finally, consider scrambling out of NP. First, recall from chapter 2 that NPs can never be extracted from NP in German, due to the interaction of the Case Filter and the abstract incorporation requirement for extraction from NP. PPs, on the other hand, can be extracted, and scrambled, if abstract noun incorporation takes place, as in (148):

- (148) daß der Fritz sich [PP von Henscheid ]<sub>j</sub> gestern [NP ein  
that ART Fritz<sub>nom</sub> REFL<sub>dat</sub> by Henscheid yesterday a  
Buch t<sub>j</sub> ] gekauft hat  
book<sub>acc</sub> bought has

Interestingly, a preposition like *von* in German (or *by* in English) systematically does not block binding by the NP it embeds (cf. Koster (1987), among others). This is shown in (149):

- (149) a. [NP ein Buch [PP von Henscheid<sub>i</sub> ] [PP über sich<sub>i</sub> ]]  
a book by Henscheid about REFL
- b. daß dies [PP von Henscheid<sub>i</sub> ] [PP über sich<sub>i</sub> (selbst) ] geäußert  
that this by Henscheid about REFL (self) uttered  
wurde  
PASS

But this process is only legitimate if the PP occupies an A-position. As one would expect, a topicalized *von*-PP that has been moved out of an NP, e.g., cannot license an anaphor in German (i.e., (150) cannot mean “Fritz has bought a book by Henscheid *for Henscheid*,” it can only mean “Fritz has bought a book by Henscheid *for himself*”):

- (150) [ Von Henscheid<sub>i</sub> ]<sub>j</sub> hat der Fritz<sub>k</sub> sich<sub>k/\*i</sub> [NP ein Buch t<sub>j</sub> ] gekauft  
 by Henscheid has ART Fritz REFL a book bought

Again, if scrambling is A-movement, binding by a scrambled PP should be permitted; if scrambling is A-bar movement, the result should be as bad as the topicalization case (150). The following example shows that the latter prediction is correct:

- (151) daß der Fritz<sub>k</sub> [PP von Henscheid<sub>i</sub> ]<sub>j</sub> sich<sub>k/\*i</sub> [NP ein Buch t<sub>j</sub> ]  
 that ART Fritz<sub>nom</sub> by Henscheid REFL a book  
 gekauft hat  
 bought has

(151), like (150), can only mean something like “Fritz has bought a book by Henscheid for himself;” and not “Fritz has bought a book by Henscheid for Henscheid.”

Summarizing so far, it has turned out that assuming scrambling to be A-movement in German makes wrong predictions with respect to anaphoric binding; this conclusion holds in the case of both adjunction to VP, and adjunction to IP, contrary to what is assumed by Webelhuth, Moltmann, and Santorini. Similarly, scrambling in Russian does not appear to create new options for anaphoric binding, such as the possibility of subject anaphors (cf. Rappaport (1986)).<sup>44</sup> However, although the view that scrambling is strictly an A-bar movement type undoubtedly fares better with the data discussed in this section, the murky situation with VP-internal anaphoric binding in German (shown in (144) – (146)) still calls for an explanation. It seems that these data can be correctly accounted for under the A-bar movement approach to scrambling if the hierarchical D-structural order of arguments in German corresponds to something like (152-a), and not to (152-b), as I have so far assumed:

- (152) a. subject > DO > IO > PP argument V  
 b. subject > IO > DO > PP argument V

According to (152-a), subjects can bind DOs, IOs, and categories in PP arguments; DOs can bind IOs and PP arguments; and IOs can only bind PP arguments. If any of these items undergoes scrambling (e.g., a DO in front of a subject, or an IO in front of a DO), this does not create new binding options, given the A-bar movement approach to scrambling. However, the evidence from the theory of movement, and from unmarked word order strongly suggests that something like (152-b) is the correct D-structural order. Apparently, there is a paradox involved here. In the following chapter, I will argue that this paradox can be resolved on the basis of the A-bar movement approach to scrambling, by invoking a more articulated structure of VP, in

the sense of Larson (1988), and by assuming that there exists a Case-driven VP-internal rule of dative movement in German. For the time being, though, I will continue to assume that IOs precede and c-command DOs at D-structure in German, leave the examples in (144) and (145) unaccounted for, and turn to strong crossover.

## 8. Strong crossover

It is well known since Postal (1971) and Wasow (1972) that A-bar movement of a *wh*-phrase across a co-indexed c-commanding pronoun induces a “strong crossover” effect, resulting in strong ungrammaticality; cf. the English example (153-a) and the German example (153-b):

- (153) a. \*Who<sub>i</sub> does she<sub>i</sub> like t<sub>i</sub> ?  
 b. \*Ich weiß nicht [CP wen<sub>i</sub> sie<sub>i</sub> t<sub>i</sub> getroffen hat ]  
 I know not who<sub>acc</sub> she<sub>nom</sub> met has

Similarly, topicalization of a [-wh] phrase across a c-commanding pronoun is not possible; cf. the following examples from English and German, respectively:

- (154) a. \*John<sub>i</sub> he<sub>i</sub> likes t<sub>i</sub>  
 b. \*Den Fritz<sub>i</sub> kann er<sub>i</sub> t<sub>i</sub> nicht leiden  
 ART Fritz<sub>acc</sub> can he<sub>nom</sub> not like

Thus, A-bar movement across a co-indexed c-commanding pronoun leads to ungrammaticality. Recall from the last section that A-bar movement across a co-indexed anaphor also is not possible, due to principle A of the binding theory. (153-ab) and (154-ab), on the other hand, do not violate a principle of binding theory, as they stand. Given that the binding theory applies at S-structure and at LF, both the pronouns, and the items which have undergone A-bar movement in these examples, meet the requirements imposed by binding theory – the pronouns are not A-bound by the co-indexed NPs in A-bar position, and the moved items do not violate principle C because they are not bound at all. Thus, an independent assumption is necessary to derive the illformedness of (153-ab) and (154-ab).

At present, it is immaterial how exactly the strong crossover constraint is explained; for the sake of concreteness, let me assume here that traces of A-bar movement, as variables, obey principle C of the binding theory, as proposed by Chomsky (1981) and others.<sup>45</sup> What is crucial, however, is that traces of A-movement do *not* obey this principle – otherwise the possibility of A-movement across a co-indexed anaphor, which we have encountered in the

last section (cf. (142-a) and (143-a), repeated here), could not be accounted for:

(142) a. John<sub>i</sub> seems to himself<sub>i</sub> [IP t<sub>i</sub> to have shot Bill ]

(143) a. daß der Fritz<sub>i</sub> sich<sub>i</sub> [AP t<sub>i</sub> schlau ] vorkommt

Once more, scrambling patterns with the A-bar movement types topicalization or *wh*-movement, and not with A-movement, with respect to strong crossover. Thus, consider scrambling to IP in German:<sup>46</sup>

(155) \*daß [IP den Fritz<sub>i</sub> [IP er<sub>i</sub> [VP t<sub>i</sub> nicht leiden kann ]]]  
 that ART Fritz<sub>acc</sub> he<sub>nom</sub> not like can

Here, the object *den Fritz* has undergone scrambling across a co-indexed pronoun in subject position, giving rise to a strong crossover effect.<sup>47</sup> In conclusion, the distribution of strong crossover effects once more suggests that scrambling is A-bar movement, and not A-movement.

## 9. Weak crossover

A-bar movement of an operator across a c-commanding NP which contains a co-indexed pronoun gives rise to a weak crossover effect in English, which is typically somewhat weaker than the strong crossover effect discussed in the previous section. This is shown in (156):

(156) ??[ Which boy ]<sub>i</sub> does [NP his<sub>i</sub> mother ] like t<sub>i</sub> ?

Here, the pronoun *his* is co-indexed with a *wh*-operator. Therefore, it cannot be understood as referential, and must be interpreted as a *bound variable* at LF. If, on the other hand, a referential expression undergoes A-bar movement across an intervening NP which contains a co-indexed pronoun, the result is, *ceteris paribus*, well formed. This is shown for topicalization of a [-wh] phrase in (157):

(157) John<sub>i</sub> [IP [NP his<sub>i</sub> mother ] likes t<sub>i</sub> ]

Thus, the weak crossover effect shows up with bound variable pronouns only – bound variable pronouns, unlike referential pronouns, evidently have to fulfill another requirement in addition to principle B. There have been various proposals in the literature as to what this additional requirement is.<sup>48</sup> Here, I will basically follow Heim (1989: 93; 1993) where it is assumed that bound variable pronouns must be A-bound (also see Reinhart (1983) and Mahajan (1990: 23) for related concepts). The condition can be formulated as follows:<sup>49</sup>

(158) *Condition on Bound Variable Pronouns:*

A bound variable pronoun must be co-indexed with a c-commanding A-position.

I assume that a violation of (158) induces weak ungrammaticality (indicated by two question marks). Now, condition (158) predicts that A-movement of an operator does not induce weak crossover effects. This prediction is borne out:

(159) [ Every boy]<sub>i</sub> seems to [NP his<sub>i</sub> mother ] [IP t<sub>i</sub> to be intelligent ]

The bound variable pronoun *his* in (159) is A-bound by *every boy*, and thus fulfills (158). Under these assumptions, the weak crossover phenomenon can be expected to be a very clear indicator of the status of scrambling as A- or A-bar movement – if scrambling patterns with A-movement, weak crossover is predicted not to arise, and if it patterns with A-bar movement, a weak crossover effect should occur.

Indeed, for a number of speakers, scrambling does exhibit a weak crossover effect in German (cf. Geilfuß (1988: 12), Reis & Rosengren (1988), Stechow (1990: 13), Höhle (1991: 190f), and Müller & Sternefeld (1994: 368)). Thus, consider (160-ab):

- (160) a. daß jeder<sub>i</sub> [NP seine<sub>i</sub> Schwester ] verabscheut  
 that everyone<sub>nom</sub> his sister<sub>acc</sub> loathes  
 b. ??daß jeden<sub>i</sub> [NP seine<sub>i</sub> Schwester ] t<sub>i</sub> verabscheut  
 that everyone<sub>acc</sub> his sister<sub>nom</sub> loathes

In (160-a), the bound variable pronoun *seine* is contained in an object NP, and A-bound by the subject *jeder*, thus fulfilling condition (158). In (160-b), on the other hand, the bound variable pronoun *seine* is included in a subject NP, and is bound by the operator *jeden*, which has undergone scrambling to IP. I find the result fairly deviant; and given (158), this clearly suggests that scrambling in German is A-bar movement, and not A-movement. Note that scrambling behaves exactly like undisputed instances of A-bar movement in this respect; thus, in the dialect under consideration, *wh*-movement exhibits the same weak crossover effect, as is shown in (161):

- (161) a. Wer<sub>i</sub> verabscheut t<sub>i</sub> [NP seine<sub>i</sub> Schwester ] ?  
 who<sub>nom</sub> loathes his sister<sub>acc</sub>  
 b. ??Wen<sub>i</sub> verabscheut [NP seine<sub>i</sub> Schwester ] t<sub>i</sub> ?  
 who<sub>acc</sub> loathes his sister<sub>nom</sub>

The same goes for topicalization:

- (162) a. Jeder<sub>i</sub> verabscheut t<sub>i</sub> [<sub>NP</sub> seine<sub>i</sub> Schwester ]  
 everyone<sub>nom</sub> loathes his sister<sub>acc</sub>
- b. ??Jeden<sub>i</sub> verabscheut [<sub>NP</sub> seine<sub>i</sub> Schwester ] t<sub>i</sub>  
 everyone<sub>acc</sub> loathes his sister<sub>nom</sub>

Finally, note that A-movement in raising constructions does not induce weak crossover effects in German, just as in the analogous English example (159):

- (163) daß [ jedes Kind ]<sub>i</sub> [<sub>NP</sub> seiner<sub>i</sub> Mutter ] [<sub>IP</sub> t<sub>i</sub> klug zu sein ]  
 that every child his mother<sub>dat</sub> intelligent to be  
 scheint  
 seems

Given this state of affairs, then, the evidence from weak crossover effects clearly supports an A-bar movement approach to scrambling. There is more to be said about this issue, though, since there appears to be another dialect of German where weak crossover effects do not show up with scrambling. This dialect underlies the analyses of Haider (1988a), Fanselow (1990), Grewendorf (1988), Frey (1989), Webelhuth (1989; 1992), Moltmann (1990), Santorini (1990), and Frank, Lee & Rambow (1992).<sup>50</sup> For these speakers, examples involving scrambling of an operator in front of a co-indexed bound variable pronoun contained in an NP, as in (160-b), are perfectly grammatical. This is then generally taken to show that scrambling is A-movement. However, there is complete agreement among the speakers of this second dialect that there is no weak crossover effect with *wh*-movement (as in (161-b)) and topicalization (as in (162-b)) either. Nevertheless, no-one so far has taken this as an indication that *wh*-movement and topicalization are instances of A-movement in German. However, it is evident that (160-b) on the one hand, and (161-b) and (162-b) on the other, circumvent a weak crossover effect in the same way, in the dialect currently under discussion. Still, it is by no means clear how to achieve this result under the assumption that scrambling is A-movement, whereas *wh*-movement and topicalization are not.

In some of the literature cited above, where it is assumed that scrambling does not exhibit weak crossover effects, the conflicting evidence to be gained from the data in (161) and (162) is simply ignored. Let me briefly consider the proposals that have been made. According to Haider (1988a: 198ff), there is no weak crossover in overt movements in German because all arguments are base-generated in a "flat" VP and c-command each other. However, recall from chapter 2 that there is substantial evidence for the hypothesis that projection in German closely resembles projection in languages like English, in the sense that subjects asymmetrically c-command objects at D-structure. Moreover, it is easy to see that, under Haider's (1988a) assumptions, the existence of a German dialect where weak crossover effects do in fact occur must remain a

complete mystery. Hence, I assume that the base-generation approach should be rejected, despite its virtue of being simple and elegant.

What, then, can be said about the lack of weak crossover effects (in the liberal dialect of German) with *wh*-movement and topicalization, if one wants to maintain that the lack of weak crossover effects with scrambling shows that scrambling is A-movement? The answer given by Grewendorf (1988: 320) and Fanselow (1991a: 5) is straightforward: Sentences like (161-b), for instance, can have a derivation as in (164), where scrambling (i.e., by hypothesis, A-movement) to IP precedes *wh*-movement to SpecC, and thus provides the A-binder (viz.,  $t'_i$ ) that the subject-contained bound variable pronoun depends on:

- (164)  $Wen_i$  verabscheut [IP  $t'_i$  [IP [NP  $seine_i$  Schwester ]  $t_i$  ] ] ?  
 who<sub>acc</sub> loathes his sister<sub>nom</sub>

In effect, (164) is supposed to mirror the situation with raising, an undisputable A-movement type, followed by *wh*-movement, as in (165) (cf. (163)):

- (165) Ich weiß nicht [NP welches Kind ]<sub>i</sub>  $t'_i$  [NP seiner<sub>i</sub> Mutter ] [IP  $t_i$   
 I know not which child his mother<sub>dat</sub>  
 klug zu sein ] scheint  
 intelligent to be seems

In (165), the *wh*-phrase may first have undergone raising to the matrix SpecI, and then subsequent *wh*-movement takes place, leaving an intermediate trace in SpecI which may serve as an A-binder for the bound variable pronoun. However, there is some evidence against a similar treatment of (164) and (165). I have argued in chapter 2 that *wh*-movement may not proceed via intermediate adjunction (i.e., scrambling). Also, the discussion of long-distance movement in Russian in section 4.2.3 of this chapter has clearly shown that intermediate adjunction must be prohibited in the case of *wh*-movement – otherwise, the asymmetries between long-distance scrambling and long-distance *wh*-movement cannot be explained. Finally, recall from section 5 above that there is even overt evidence to the effect that *wh*-phrases (as operators) may not undergo scrambling in German. All of these cases are correctly accounted for by the PUB. And, of course, the PUB rules out a structure like the one in (164), where a variable ( $t_i$ ) is ambiguously bound, by an intermediate trace ( $t'_i$ ) in IP-adjoined position, and by its antecedent (*wen*) in SpecC. In contrast to that, (165) does not violate the PUB, because  $t_i$  is not a variable, but an anaphoric trace; thus,  $t'_i$  is the only variable present, and this trace is unambiguously bound, by its *wh*-antecedent only.

Summarizing so far, it turns out that the A-movement approach to scrambling has significant problems in accounting for the fact that A-bar movement types like *wh*-movement or topicalization, just like scrambling, do not induce

weak crossover effects in the more liberal dialect of German. Moreover, there seems to be no way to account for the existence of weak crossover effects with scrambling, *wh*-movement, and topicalization in the more rigid dialect of German. A possible way out (ignoring the inherent problems of the A-movement approach just mentioned) would be to assume that scrambling is A-movement in one dialect, and A-bar movement in the other. But, since scrambling otherwise appears to have basically the same properties in both varieties of German, such a step would clearly be unwarranted. I conclude from all this that the weak crossover data in their entirety do not favour an A-movement approach to scrambling, but again suggest an A-bar movement analysis – scrambling behaves exactly like *wh*-movement and topicalization, in both dialects. It remains, then, to account for the apparent lack of weak crossover effects with all kinds of overt movement in the more liberal dialect of German. To this end, let me first broaden the perspective, by taking into account more data.

It has often been observed that a very “strong” weak crossover effect does indeed occur in all dialects of German if a bound variable pronoun is not bound at all at S-structure, as in (166):<sup>51</sup>

- (166) a. \*daß [NP seine<sub>i</sub> Schwester ] jeden Mann<sub>i</sub> verabscheut  
           that his sister<sub>nom</sub> every man<sub>acc</sub> loathes  
       b. \*[NP Seine<sub>i</sub> Schwester ]<sub>j</sub> verabscheut t<sub>j</sub> jeden Mann<sub>i</sub>  
           his sister<sub>nom</sub> loathes every man<sub>acc</sub>

Here, a subject-contained pronoun is co-indexed with a quantified object NP; a bound variable interpretation is absolutely impossible for all speakers, although, e.g., (166-a) can have a semantically well-formed LF representation like (167), with *seine* interpreted as a variable bound by *jeden*, after quantifier raising (QR).

- (167) every [ $\lambda x$  man(x) ] [ $\lambda x$  [ x's sister ] loathes x ]

The conclusion to be drawn here is this. Licensing of bound variable pronouns on the one hand depends on the availability of an S-structural binder – if no such binder is present, the result is invariably very bad. On the other hand, whether an S-structural binder has to occupy an A-position or not seems to be subject to parametric variation – in English, and in the more rigid dialect of German, this has to be the case, in the more liberal dialect of German, this is not necessary. This suggests that there is an additional constraint at work, apart from (something like) (158). As a first approximation, I would like to suggest (elaborating on proposals by Koster (1987) and Haider (1988)) that (158) (= (168-b)) is an LF-requirement to be met by bound variable pronouns, and that, in addition, bound variable pronouns are subject to something like (168-a) at S-structure:

- (168) *Condition on Bound Variable Pronouns* (revised):  
 A bound variable pronoun must have
- a. a c-commanding binder at S-structure, and
  - b. a c-commanding A-binder at LF.

Let me briefly point out the consequences of (168). A pronoun which is not bound at S-structure cannot find an A-binder at LF either, if we make the assumption that QR is not A-movement.<sup>52</sup> Hence, examples like (166-ab) violate both (168-a) and (168-b), thereby giving rise to strong ungrammaticality. Moreover, in the restrictive dialect of German, bound variable pronouns which are bound by operators that have undergone scrambling (or topicalization, or *wh*-movement) fulfill (168-a), but not (168-b), thus inducing a weaker violation of (168). But what about the liberal dialect of German? At first sight, it might seem as though (168-b) simply does not hold in this variety. But this is not very attractive from a theoretical point of view. Furthermore, examples like (166-ab) appear to be strongly ungrammatical for all speakers of German. Hence, if the strong deviance induced by bound variable pronouns that lack an S-structural binder altogether is actually due to a violation of both conditions in (168), as I have just assumed, *both* conditions in (168) must accordingly hold even in the liberal dialect.

Therefore, I would like to pursue a slightly different approach, which incorporates the insight behind (168-ab), but can account for the variation encountered in German. Condition (168) can, ultimately, be viewed as a licensing condition on a certain kind of variables. Thus, it serves a similar function to the ECP. Now recall that, according to Lasnik & Saito (1984; 1992) and Chomsky (1986), the ECP should be regarded as an LF filter  $*[ \dots t_{[-\gamma]} \dots ]$ . This filter excludes any LF representation which contains a trace that is not properly governed, i.e., has a feature  $[-\gamma]$ . Suppose that the condition on bound variable pronouns is viewed similarly, as a filter which applies to representations at LF (in the unmarked case, see below), such that each bound variable pronoun which has been assigned a feature  $[-\delta]$  (i.e., the “identification” feature for bound variable pronouns) induces relative unacceptability, as in (169):

- (169) *Condition on Bound Variable Pronouns* (second revision):  
 ??[ ... bound variable pronoun $_{[-\delta]}$  ... ]

According to (169), every LF representation containing a bound variable pronoun which bears the feature  $[-\delta]$  will be assigned two question marks. I assume that  $\delta$ -assignment to pronouns is obligatory, taking place both at S-structure and at LF. Furthermore, it is possible to assume that  $\delta$ -assignment applies to *every* pronoun, and not only to those that turn out to be interpreted as bound variables at LF – note that a pronoun which is referential can bear

the feature  $[-\delta]$  without inducing ungrammaticality, since the licensing condition (169) says nothing about these items. Of course, now, everything depends on the conditions for  $\delta$ -assignment; these must reflect (168-ab). Thus, consider (170):

(170)  *$\delta$ -Assignment:*

- a. At S-structure, a pronoun receives the feature  $[+\delta]$  iff it has a binder, and  $[-\delta]$  otherwise.
- b. At LF, a pronoun receives the feature  $[+\delta]$  iff it has an A-binder, and  $[-\delta]$  otherwise.

Suppose further that  $\delta$ -features, unlike what is proposed in the case of  $\gamma$ -features by Lasnik & Saito (1984), are assigned twice – at S-structure and at LF. The second  $\delta$ -feature neither extinguishes the first one, nor is it suppressed by it; both features will simply add up. Then, there is a double violation of filter (169) if a bound variable pronoun bears two  $[-\delta]$  features, which we may assume to induce strong ungrammaticality. With this in mind, let us again consider the empirical evidence presented so far.

If a bound variable pronoun does not have a binder at S-structure, it is assigned  $[-\delta]$ . As noted earlier, it then cannot have an LF binder in an A-position either, and is assigned  $[-\delta]$  again, thus ending up with two  $[-\delta]$  features, and inducing a strong violation of (169). If a bound variable pronoun has an S-structural binder in an A-bar position (as is the case with scrambling, *wh*-movement, and topicalization), it is assigned  $[+\delta]$  at S-structure, but  $[-\delta]$  at LF, thereby giving rise to a mild violation of (169), i.e., a typical weak crossover effect in the restrictive dialect of German. Finally, as concerns the more liberal variety of German, suppose that for these speakers, the interpretation of a pronoun as a bound variable may take place as soon as the pronoun can *in principle* be identified as bound, and that, in accordance with this, the licensing condition (169) may apply at the level where a binder is present. Then, if a pronoun is bound at S-structure, (169) may apply at S-structure already, and if a pronoun is bound at LF only, (169) applies at LF. Given these assumptions, dialectal variation with respect to weak crossover can be accounted for. If, in the liberal dialect, a pronoun is bound at S-structure by an item which has undergone A-bar movement (like scrambling, *wh*-movement, or topicalization), it can, by assumption, already be licensed as a variable at this level by fulfilling (169). Being bound, it receives the feature  $[+\delta]$ , and no weak crossover effect arises. If, on the other hand, no S-structural binder is present, the identification as a variable, and hence, the application of filter (169) can take place at LF only. But then, even in the liberal dialect of German, the pronoun has received two  $[-\delta]$  features, and induces strong ungrammaticality, just as in the restrictive dialect.

Thus, the dialectal difference in German with respect to weak crossover is accounted for. Note that, given the interpretation of the bound variable condition as a licensing condition for a certain type of variables on a par with the ECP, it has proven possible to maintain the assumption that the A-binding requirement holds for the licensing of bound variable pronouns even in the more liberal dialect of German; in a nutshell, the effects of the A-binding requirement simply can be overridden, because it holds at LF, and bound variable licensing may take place at S-structure already. More precisely, the weak crossover effect does not show up after A-bar movement in the dialect of some speakers of German because here, filter (169) can be fulfilled at S-structure already (if there is a binder at that level), and  $\delta$ -assignment at S-structure does not require A-binding. At the level where A-binding is required for  $\delta$ -assignment (viz., LF), however, the bound variable pronoun is already licensed in this liberal variety. If this view is tenable, the only thing that distinguishes between the two varieties of German is whether or not filter (169) can apply before LF – the filter itself, and the conditions for  $\delta$ -assignment, are not subject to parametric variation.<sup>53</sup>

Although much more would have to be said about the licensing of bound variable pronouns, I will leave the issue here, and draw a conclusion.<sup>54</sup> There appear to be two varieties of German with respect to the weak crossover phenomenon. In one dialect, no weak crossover effect occurs with any kind of movement, as long as the bound variable pronoun has an S-structural binder; in the other dialect, weak crossover effects show up with *wh*-movement, topicalization, and scrambling, but not with raising, i.e., A-movement. This latter, more restrictive dialect thus straightforwardly supports the view that scrambling is A-bar movement. But also the former, more liberal dialect suggests that scrambling is to be treated on a par with *wh*-movement or topicalization – the empirical evidence again shows that scrambling patterns with clear instances of A-bar movement, like *wh*-movement and topicalization here. Since there is reason not to assume invisible, intermediate scrambling in the case of *wh*-movement or topicalization, the more liberal dialect necessitates some additional assumptions, which, however, are not specific to the scrambling issue, but apply to all kinds of movement. To this end, I have followed Heim (1989; 1993) and others in postulating a specific condition on bound variable pronouns, and I have formulated this condition in a way that is reminiscent of Lasnik & Saito's (1984; 1992) treatment of the ECP as a filter on representations. This  $\delta$ -filter was then shown to allow an account of the variation encountered among speakers of German (by parameterizing the level where it applies); it also explains why strong ungrammaticality results when a bound variable pronoun is not yet bound at all at S-structure, in all dialects of German. Thus, again, a resort to the idea that scrambling in German is an

instance of A-movement has proven to be ill supported, whereas an A-bar movement account is, by and large, confirmed.

## 10. Parasitic gaps

In general, a parasitic gap can only be licensed by a variable which does not c-command it (cf., e.g., Chomsky (1982: 40)). This, *inter alia*, excludes examples like (171) (from Chomsky (1986: 54)):

(171) \*Who<sub>i</sub> [<sub>IP</sub> t<sub>i</sub> met you [<sub>CP</sub> before you recognized e<sub>i</sub> ] ] ?

Here, the variable t<sub>i</sub> in SpecI illicitly c-commands the parasitic gap e<sub>i</sub>. The requirement that a parasitic gap must not be c-commanded by a co-indexed variable is standardly derived by principle C of the binding theory. If e<sub>i</sub> qualifies as a variable itself, subject to principle C, it may not be A-bound. It is, however, A-bound by t<sub>i</sub> in (171), and the sentence is therefore ruled out. In line with this, it has often been noted that only A-bar movement can license parasitic gaps; A-movement invariably leads to a violation of principle C. Consider (172-ab):

(172) a. What<sub>i</sub> did you file t<sub>i</sub> [<sub>CP</sub> before reading e<sub>i</sub> ] ?  
 b. \*[ This book ]<sub>i</sub> was filed t<sub>i</sub> [<sub>CP</sub> before reading e<sub>i</sub> ]

In (172-a), e<sub>i</sub> is not A-bound – t<sub>i</sub> fails to c-command e<sub>i</sub>, and *what* occupies an A-bar position, viz., SpecC. On the other hand, in (172-b), e<sub>i</sub>, although still not c-commanded by t<sub>i</sub>, is A-bound by *this book*, which occupies SpecI, after case-driven A-movement. Given this state of affairs, an obvious consequence arises. If scrambling is A-bar movement, it should license parasitic gaps; if it is A-movement, it should not. As has first been noted by Felix (1983) for German (cf. also Bennis & Hoekstra (1984) for similar evidence from Dutch), scrambling can license parasitic gaps, and thus again patterns with *wh*-movement and topicalization, rather than with A-movement. Consider a typical instance of a parasitic gap construction licensed by A-bar movement in German ((173-a) involves *wh*-movement, and (173-b), topicalization):

(173) a. [ Welches Buch ]<sub>i</sub> haben alle [<sub>CP</sub> ohne e<sub>i</sub> zu lesen ] t<sub>i</sub> ins  
 which book have all<sub>nom</sub> without to read into-the  
 Regal gestellt ?  
 shelf put  
 b. [ Dieses Buch ]<sub>i</sub> haben alle [<sub>CP</sub> ohne e<sub>i</sub> zu lesen ] t<sub>i</sub> ins  
 this book have all<sub>nom</sub> without to read into-the  
 Regal gestellt  
 shelf put

The following example illustrates that A-movement in German does not license parasitic gaps in non-finite adjunct clauses:<sup>55</sup>

- (174) \*daß [ dieses Buch ]<sub>i</sub> [<sub>CP</sub> ohne e<sub>i</sub> zu lesen ] dem Peter t<sub>i</sub> gegeben  
 that this book without to read ART Peter<sub>dat</sub> given  
 wurde  
 PASS

Crucially, the examples in (175-ab) show that scrambling (to IP or VP) licenses parasitic gaps in German; (175-ab) are as good as (173-ab):

- (175) a. daß [ dieses Buch ]<sub>i</sub> alle [<sub>CP</sub> ohne e<sub>i</sub> zu lesen ] t<sub>i</sub> ins  
 that this book all<sub>nom</sub> without to read into-the  
 Regal gestellt haben  
 shelf put have
- b. daß alle [ dieses Buch ]<sub>i</sub> [<sub>CP</sub> ohne e<sub>i</sub> zu lesen ] t<sub>i</sub> ins  
 that all<sub>nom</sub> this book without to read into-the  
 Regal gestellt haben  
 shelf put have

Finally, note that (175-ab) are ungrammatical if no scrambling occurs, as expected:

- (176) \*daß alle [<sub>CP</sub> ohne e<sub>i</sub> zu lesen ] [ dieses Buch ]<sub>i</sub> ins Regal  
 that all<sub>nom</sub> without to read this book into-the shelf  
 gestellt haben  
 put have

It seems, then, that the evidence from parasitic gaps is decisive as regards the question of whether scrambling is A- or A-bar movement. Indeed, this point is emphasized in practically all of the literature where it is assumed that scrambling is A-bar movement (cf. the list in section 1 above).<sup>56</sup> Accordingly, proponents of the A-movement approach to scrambling in German often have resorted to a re-evaluation of the data, which is, however, at odds with the judgements of the vast majority of speakers.<sup>57</sup>

But, as noted by Fanselow (1991a: 8ff), the conclusion drawn from the parasitic gap phenomenon for the nature of scrambling might be premature. It holds only as long as one assumes that examples like (171), (172-b), and (174) are ruled out because the respective parasitic gaps are bound from an A-position. But other accounts are in principle conceivable, and these might well turn out to be compatible with the idea that scrambling is A-movement.

Thus, Chomsky (1986: 63ff) suggests an account according to which principle C is not relevant for the distribution of parasitic gaps; and this approach

is also pursued by Fanselow (1991a: 8ff). It is based on the following two assumptions:

- (177) a. A-chains are maximal and obey a local binding requirement (Chomsky (1981), Rizzi (1986)).  
 b. A maximal A-chain  $\langle \alpha_1, \dots, \alpha_n \rangle$  has exactly one Case-marked position, and exactly one  $\Theta$ -marked position (Chomsky (1986; 1986a)).

According to (177-a), in examples like (171) (repeated here as (178)), a complex A-chain  $\langle t, e \rangle$  arises, because every member of the composed A-chain must locally bind its successor in the chain.

- (178) \*Who<sub>i</sub> [<sub>IP</sub> t<sub>i</sub> met you [<sub>CP</sub> before you recognized e<sub>i</sub> ] ] ?

But, due to the local binding requirement, the chain  $\langle t, e \rangle$  has two  $\Theta$ -roles (both t<sub>i</sub> and e<sub>i</sub> are  $\Theta$ -marked), in violation of (177-b), ultimately, the  $\Theta$ -criterion. If, on the other hand, the “real” trace does not c-command the parasitic gap, as in (172-a), repeated here as (179), there arise two maximal A-chains (viz.,  $\langle t \rangle$  and  $\langle e \rangle$ , according to (177-a)), neither of which violates (177-b):

- (179) What<sub>i</sub> did you file t<sub>i</sub> [<sub>CP</sub> before reading e<sub>i</sub> ] ?

What remains to be accounted for under these assumptions, then, is the fact that A-movement does not license parasitic gaps, even if the trace of the moved item does not c-command the parasitic gap. Thus, consider again (172-b) and (174), repeated here:

- (180) a. \*[ This book ]<sub>i</sub> was filed t<sub>i</sub> [<sub>CP</sub> before reading e<sub>i</sub> ]  
 b. \*daß [ dieses Buch ]<sub>i</sub> [<sub>CP</sub> ohne e<sub>i</sub> zu lesen ] dem Peter t<sub>i</sub>  
 that this book without to read ART Peter<sub>dat</sub>  
 gegeben wurde  
 given PASS

Again, t<sub>i</sub> does not enter the chain of the parasitic gap, according to the local binding constraint on chain formation (177-a). But A-movement in the matrix clause as, e.g., in (180-a), gives rise to a chain  $\langle \text{this book}, e \rangle$ , in addition to the chain  $\langle \text{this book}, t \rangle$  – *this book* locally A-binds e<sub>i</sub>, and thus has to enter the same chain, due to the maximality requirement. And the chain  $\langle \text{this book}, e \rangle$  violates (177-b) – it has two Case-marked positions.

Finally consider scrambling, as in (175-a), repeated here as (181):

- (181) daß [ dieses Buch ]<sub>i</sub> alle [CP ohne e<sub>i</sub> zu lesen ] t<sub>i</sub> ins Regal  
 that this book all<sub>nom</sub> without to read into-the shelf  
 gestellt haben  
 put have

Here, given the hypothesis that scrambling is A-movement, two chains result, namely <*dieses Buch*,t>, and <*dieses Buch*,e>. However, as noticed by Fanselow (1991a: 9), neither of these chains violates (177-b); in particular, in the chain <*dieses Buch*,e>, the parasitic gap e<sub>i</sub> is the unique Case-marked (and Θ-marked) member, just as t<sub>i</sub> is in the chain <*dieses Buch*,t>. Thus, according to Fanselow, the fact that the A-movement type scrambling, unlike other A-movement types which involve raising to SpecI, licenses parasitic gaps, follows from (177-ab) – in a nutshell, scrambling, unlike raising, is not Case-driven, and only Case-driven movement is incompatible with parasitic gap licensing.

Although I believe that this analysis works rather well, as concerns the parasitic gap examples discussed in this section, and although I am prepared to admit that the evidence for scrambling as A-bar movement to be gained from the parasitic gap phenomenon is not as compelling as the evidence discussed in the previous sections, I still think there is reason not to adopt Fanselow's (1991a) proposal. The main problem with it is this: The analysis crucially rests on Chomsky's (1981) and Rizzi's (1986) chain formation algorithms, as in (177-a), according to which chain formation may not proceed freely (requiring only c-command) but is rather subject to (a) a local binding constraint, and (b) a maximality constraint. Only under these assumptions can parasitic gap licensing via A-movement to a Case-position be excluded (by the requirement (177-b), according to which no chain may have more than one Case-position). However, there is reason to reject the constraints on chain formation in (177-a). Recall from section 7 that A-movement across a co-indexed intervening anaphor may give rise to new binding options. Relevant examples from German which show this are given in (182), where (182-a) is identical to (143-a).

- (182) a. daß der Fritz<sub>i</sub> sich<sub>i</sub> [AP t<sub>i</sub> schlau ] vorkommt  
 that ART Fritz REFL intelligent appears/strikes-as  
 b. daß die Teilnehmer<sub>i</sub> einander<sub>i</sub> [IP t<sub>i</sub> unglücklich zu sein ]  
 that the participants RECIP unhappy to be  
 schienen  
 appeared

Sternefeld (1985; 1991a) observes that if (177-a) were valid, both (182-a) and (182-b) should violate the requirements in (177-b); i.e., in, e.g., (182-a), a maximal A-chain <*Fritz*,*sich*,t> arises, due to the local binding requirement,

which violates both the  $\Theta$ -criterion, and the requirement that a chain can have only one Case-position. As already remarked in note 42, I will consider the local binding constraint on chain formation in some detail later, in section 6 of chapter 4. There, I present additional counter-evidence against Chomsky's and Rizzi's theory of chain formation, and argue that the local binding requirement must be either substantially weakened, or even dropped entirely.

If this is so, however, the local binding requirement on chain formation cannot be invoked to account for the distribution of parasitic gaps. But then, Fanselow's (1991a) explanation of the capability of the purported A-movement type scrambling to license parasitic gaps (and the inability of the clear A-movement type raising to do the same) crumbles; if chain formation does not necessarily involve local binding, a "problematic" local binder (like *sich* in (182-a), *einander* in (182-b), or *this book* and *dieses Buch* in (180-ab)) can be skipped in the process of chain formation. Thus, (182-ab) are predicted to be grammatical, which indeed they are, whereas we are left without an explanation in the case of the ungrammatical (180-ab) – here, the parasitic gap can form an A-chain of its own, with a unique  $\Theta$ -position and a unique Case-position. Hence, as long as no alternative account for the scrambling/raising asymmetry with respect to parasitic gaps is given within the A-movement approach to scrambling, I conclude that the classic approach to parasitic gaps, in terms of principle C, is empirically superior, and should be maintained. Then, the evidence from parasitic gaps clearly suggests that scrambling is A-bar movement, and not A-movement.

Let me summarize this section. We have seen that scrambling in German, like *wh*-movement and topicalization, but unlike raising, licenses parasitic gaps. Given the standard approach to parasitic gaps, which invokes principle C, this means that scrambling is A-bar movement, and not A-movement. A potential way out for the A-movement approach to scrambling, pursued by Fanselow (1991a), rests on a suggestion of Chomsky's (1986), according to which the distribution of parasitic gaps can be accounted for by (inter alia) invoking the theory of chain formation, instead of principle C. Under this view, scrambling patterns with A-bar movement types, and not with raising, with respect to parasitic gaps, ultimately because it is not Case-driven (and not because it is A-bar movement). This approach, however, could be shown not to be viable, because there is independent counter-evidence against a theory of chain formation which incorporates a maximality requirement, and a local binding constraint.

## 11. Reconstruction

It has been claimed that the issue of reconstruction bears on the problem of classifying scrambling as A- or A-bar movement.<sup>58</sup> Thus, Moltmann (1990)

and Santorini (1990), among others, have pointed out that reconstruction is not very well possible in the case of scrambling to VP. Consider the following examples:

- (183) a. daß der Arzt<sub>j</sub> sich\*<sub>i/j</sub> den Patienten<sub>i</sub> t<sub>i</sub> im Spiegel  
 that the doctor<sub>nom</sub> REFL<sub>dat</sub> the patient<sub>acc</sub> in-the mirror  
 gezeigt hat  
 shown has
- b. ??daß die Gastgeber seine<sub>i</sub> Tanzpartnerin [ jedem Mann ]<sub>i</sub> t<sub>j</sub>  
 that the hosts<sub>nom</sub> his dancing-partner<sub>acc</sub> every man<sub>dat</sub>  
 vorgestellt haben  
 introduced-to have

In (183-a), the anaphor *sich* is adjoined to VP; given a strict notion of c-command, it is not A-bound by the DO *den Patienten* at S-structure (although its trace is). Accordingly, it is very difficult to interpret *sich* and *den Patienten* as coreferential in (183-a); on the other hand, binding by the subject *der Arzt* is possible. Essentially the same situation occurs in (183-b). In this case, the bound variable pronoun *seine* included in the scrambled DO is not bound at S-structure. Now, if reconstruction were an option in these examples, and the scrambled items could be interpreted as if they were located in the positions of their respective traces, the deviance of these examples could not be accounted for. Thus, Moltmann and Santorini conclude that scrambling does not allow reconstruction. Furthermore, they postulate that reconstruction is a property of A-bar movement types. Pertinent examples involve topicalization of items that depend on S-structural binding, as in (184):

- (184) a. Sich<sub>i</sub> (selbst) hat Fritz<sub>i</sub> schon immer t<sub>i</sub> gemocht  
 REFL self has Fritz always liked
- b. [ Seine<sub>i</sub> Tanzpartnerin ]<sub>j</sub> muß [ jeder Mann ]<sub>i</sub> selbst t<sub>j</sub>  
 his dancing-partner must every man himself  
 aussuchen  
 choose

In (184-a), the topicalized anaphor *sich* apparently fulfills condition A of the binding theory; i.e., it behaves as though it would occupy the position of its trace in this respect. Similarly, the bound variable reading in (184-b) is possible, which suggests that reconstruction is an option. The contrast between (183) and (184) is then taken to show that scrambling is not A-bar movement, but A-movement.

However, there is substantial evidence against such a conclusion. First, scrambling to IP, unlike scrambling to VP, seems to permit reconstruction (cf. note 51):

- (185) a. daß sich<sub>i</sub> der Fritz<sub>i</sub> t<sub>i</sub> schlau vorkommt  
 that REFL ART Fritz intelligent appears  
 b. daß seine<sub>i</sub> Schwester jeder<sub>i</sub> t<sub>i</sub> mag  
 that his sister<sub>acc</sub> everyone<sub>nom</sub> likes

By the logic of Moltmann's and Santorini's argument, this would imply that scrambling to IP is A-bar movement. In order to avoid this conclusion, Santorini (1990: 5ff) resorts to the hypothesis that I itself can act as a binder for the items adjoined to IP (i.e., the anaphor *sich* and the bound variable pronoun *seine* in (185-a) and (185-b), respectively). (Cf. also Frey (1989) for a similar approach). But it is evident that a more straightforward and natural assumption would be that reconstruction is in fact possible with scrambling in (185), just like it is with topicalization in (184).

Second, it turns out that topicalization, like scrambling, does not appear to easily permit reconstruction in cases which are completely parallel to (183-ab):

- (186) a. ?\*Sich<sub>i</sub> (selbst) hat der Arzt den Patienten<sub>i</sub> t<sub>i</sub> im Spiegel  
 REFL self has the doctor the patient<sub>acc</sub> in-the mirror  
 gezeigt  
 shown  
 b. ??[ Seine<sub>i</sub> Tanzpartnerin ]<sub>j</sub> haben die Gastgeber [ jedem Mann ]<sub>i</sub>  
 his dancing-partner have the hosts every man<sub>dat</sub>  
 t<sub>j</sub> vorgestellt  
 introduced-to

This again shows that it is not the nature of the movement type which is responsible for the availability or lack of reconstruction options.

Note finally that the assumption that A-movement does not permit reconstruction is itself not well supported. As noticed by May (1977; 1985), reconstruction may indeed apply to typical instances of A-movement. Consider (187) as a case in point:

- (187) A unicorn<sub>i</sub> seems [IP t<sub>i</sub> to be in the garden ]

This sentence is ambiguous. On the one hand, it can have a reading with wide scope of the quantified NP *a unicorn*. A (simplified) paraphrase then would be "There is a unicorn, and it seems that it is in the garden." But (187) can also have a reading that does not presuppose the existence of unicorns. This reading (which is probably the preferred one) can roughly be paraphrased as "It seems that there is a unicorn in the garden." In this case, however, reconstruction of *a unicorn* into the lower SpecI position, followed by quantifier raising within the embedded clause, is required at LF. A (simplified) LF representation of (187) in this case looks as is shown in (188):

(188) [IP e seems [IP a unicorn<sub>i</sub> [IP t<sub>i</sub> to be in the garden ]]]

In conclusion, it has turned out that scrambling does not substantially differ from topicalization with respect to reconstruction options; rather, certain types of both topicalization and scrambling permit reconstruction (cf. (184) and (185)), whereas other instances of these movements do not (cf. (183) and (186)). Furthermore, the hypothesis that what might be relevant is the classification of movement types as A- or A-bar movement is falsified by the availability of reconstruction with raising, in cases like (187). Thus, the question of whether reconstruction may or may not apply is clearly independent of the A- or A-bar nature of the landing site; in particular, it does not help to decide whether scrambling is A- or A-bar movement, the data being compatible with both analyses. Of course, this leaves the (near) impossibility of reconstruction in (183) and (186) unaccounted for, and I will not try to put forward an explanation here; more pertinent data would have to be taken into consideration. As a first approximation, it seems promising to relate the impossibility of reconstruction in (183) and (186) to the presence of a subject as a “potential” binder which blocks binding by some other item; cf. Frank, Lee & Rambow (1992: 144ff) for an elaborated account which incorporates this insight.

## 12. Conclusion

Undoubtedly, the foregoing discussion of scrambling has still left open many questions. For instance, it has already been noted by Ross (1967/1986: 52) that one must prevent scrambling from applying “an indefinite number of times to its own output,” so as to preclude sentences in free word order languages from “having an infinite number of derivations.” I have nothing to say about this issue here; cf. Frey & Tappe (1991) for some pertinent remarks. (Ultimately, they suggest a representational version of Chomsky’s (1991) derivational “last resort” condition, which blocks cases of vacuous scrambling.)

Furthermore, in the literature cited in this chapter, a number of asymmetries between scrambling and other movement types are documented which I have not mentioned (let alone discussed) so far. In some of these cases, I do not know how to account for the asymmetries observed; in others, I will address the relevant issues in later parts of this book. Thus, a number of issues pertaining to the scrambling debate have to do with double object constructions; these will be taken up in the following chapter. Further problems having to do with scrambling of *wh*-phrases will be discussed in some detail in chapter 5.

More generally, then, I would like to contend that there is reason to assume that all apparent peculiarities exhibited by the movement type scrambling

can be explained along the lines indicated in this chapter, by assuming that scrambling is a well-behaved A-bar movement type, just like topicalization or *wh*-movement, and that no recourse to either construction-specific assumptions, or to the hypothesis that scrambling is an instance of A-movement, is called for by the data. Under this view, basic properties of scrambling, like its optionality and its iterability, follow straightforwardly from its status as an adjunction operation, and do not set it apart from topicalization or *wh*-movement in any interesting respect. The availability of landing sites for scrambling is subject to parameterization (some languages have more scrambling than others, and some do not exhibit scrambling at all); again, this constraint on landing sites has parallels in other A-bar movement types, like *wh*-movement. As concerns the locality of scrambling, it emerged that in some languages, scrambling is more local than *wh*-movement or topicalization (German, Korean, etc.), whereas it is less constrained than other A-bar movement types in Russian. These A-bar movement asymmetries could be shown to follow in a natural way from the interaction of the PUB, the availability of adjunction sites in a language, and the principle of Full Representation, according to which adjunction sites must be used whenever this is possible, at the level where the PUB applies. The idea that the PUB is parameterized (it applies at S-structure and LF in German, but at S-structure only in Korean, Japanese, or Russian), received further support from the phenomenon of operator scrambling – operator scrambling is impossible in languages where the PUB applies at LF (German), and possible (Korean, Japanese), or even obligatory (Russian) in languages where the PUB applies at S-structure only. The ban against operator scrambling instantiates one case of apparent categorial selectivity of scrambling in German. I have suggested that other cases might also result from the fact that the scrambled item counts as an operator (due to focusing); if on the right track, this approach would make it possible to eventually dispense with the idea that scrambling is any more categorially selective than other A-bar movement types in German, like topicalization or *wh*-movement. Similarly, it could be shown that the behaviour of scrambling with respect to the issues of strong crossover, weak crossover, parasitic gaps, and reconstruction, upon closer scrutiny, is exactly as one would expect if scrambling is an A-bar movement type; however, the pertinent facts must remain a mystery under the view that scrambling is an instance of A-movement. As concerns the case of anaphoric binding, I have tried to show that an A-movement approach to scrambling invariably makes unwanted empirical predictions. However, I have also indicated that a dilemma arises in an A-bar movement approach to scrambling – the binding data suggest that DOs asymmetrically c-command IOs at D-structure in German, which is not compatible with the evidence from unmarked word order, and the theory of barriers. This apparent conflict will be taken up, and resolved, in the following

chapter, by introducing a more articulated structure of VP, along the lines of Larson (1988). Thus, all in all, I conclude that the hypothesis that scrambling is subject to exactly the same constraints as other A-bar movement types can be regarded as well established – construction-specific assumptions are not necessary to account for asymmetries between scrambling and other A-bar movement types.



# Chapter 4

## Dative movement

### 1. Introduction and overview

I will now turn to yet another type of A-bar movement (albeit one which – as will become obvious very soon – shares a number of properties with classic A-movement). The movement type under consideration has become known in the literature as “dative shift” or “dative movement.” Based on the assumption that dative movement is in fact a *syntactic*, rather than *lexical*, phenomenon, I will present a cross-linguistic analysis of double object constructions in the Germanic languages which is designed to substantiate the following claims:

a. There is conflicting evidence as regards the hierarchical position of direct objects (DOs) and indirect objects (IOs). Data involving extraction and data involving anaphoric binding suggest conflicting structure assignments. My aim is to show that this apparent paradox can be resolved in a purely structural fashion only if a rather abstract structure of VP is assumed, along the lines of Larson (1988; 1990). In particular, the peculiar binding facts from German pointed out in the last chapter will receive an explanation which is entirely consistent with (and in fact necessitates) the assumption that scrambling is uniformly an A-bar movement process, and does not give rise to new A-binding options.

b. IOs bearing structural dative Case do not occupy an A-position. Rather, they are the result of Case-driven movement to the specifier position of a *VP-shell* (which is a VP headed by an empty verbal category  $\mu$  at D-structure that in turn selects the “real” VP). This position is formally an A-bar position, but it shares some properties with A-positions. This is due to the fact that *Spec $\mu$*  is a Case position, in contrast to other A-bar positions. Accordingly, this means that the A-/A-bar distinction does not suffice (cf. Mahajan (1990)), and must be replaced by a more fine-grained system involving the combination of the features  $[\pm A]$  and  $[\pm \text{Case}]$  (cf. Rizzi (1991a)).

c. Case-driven movement of the IO implies the existence of an IO-trace. I will present a number of arguments to support this claim.<sup>1</sup>

I will proceed as follows. In section 2, I briefly discuss the problem raised by the conflicting demands of the theories of movement and binding with respect to DOs and IOs. Recall that this problem was encountered in the last chapter already, but could not be resolved there. In order to solve it, I then develop a more articulated theory of VP-structure in the ensuing sections.

As a starting point, I consider Larson's (1988; 1990) account of the double object construction in English. In sections 3.1 and 3.2, I argue that a number of features of Larson's analysis are problematic for empirical as well as conceptual reasons (as pointed out by Jackendoff (1990) and Speas (1990)), and hence should be given up and replaced by different assumptions which are not subject to the above-mentioned criticism. Nevertheless, what I take to be Larson's most important claim, viz., that the formation of double object constructions with a bare IO involves Case-driven movement, will remain untouched, and will in fact be supported by a great deal of additional evidence in the following sections.<sup>2</sup>

In sections 3.3 and 3.4, I will accordingly develop an approach to double objects, and, more generally, VP-structures in the Germanic SOV and SVO languages, which preserves the idea of dative movement to a VP-internal specifier position, but differs crucially from Larson's analysis in that Case-driven movement of the IO does not end in the "lower" VP, but rather in the specifier of the "higher" VP, i.e., the VP-shell. In accordance with that, I abandon the idea of VP-internal base-generation of subjects of transitive and unergative intransitive verbs, and continue to assume that subjects are base-generated in SpecI. As concerns the DO, I assume that it is base-generated in the specifier position of the lower VP, where it may remain in principle, since this is the position where structural accusative Case is assigned.

After laying down the foundations of a theory of double object constructions, in section 4 I return to the issue of movement transparency of DO and IO, and more specifically, to the theory of barriers. It turns out that all arguments of the verb, as well as adjuncts, are invariably barriers for movement unless they are included in the lower VP. In particular, dative NPs are always islands, since they occupy the specifier of the VP-shell. On the other hand, *all* elements included within the lower VP, no matter whether they are arguments or non-arguments, can in principle (modulo lexical factors, cf. chapter 2) be made transparent for movement by means of (abstract) incorporation. In particular, this holds for DOs (unless they have undergone scrambling), for PP arguments, and for adverbs of place, direction, and manner. It emerges that an adequate analysis of the extraction facts calls for a revision of the theory of barriers as it was presented in chapter 2. Accordingly, I develop two alternative theories of barriers and proper government which are both based

on the theory of chapter 2, and which can be shown to make the correct predictions.

Section 5 then covers the notorious phenomena involving anaphoric binding in German. The basic idea is that dative NPs in German normally cannot A-bind a DO anaphor, since they occupy an A-bar position, whereas an accusative DO may bind an IO anaphor, since anaphors in German (reflexive *sich* as well as reciprocal *einander*) do not need to receive Case (for which there is independent evidence), and may thus remain in situ within the lower VP without undergoing Case-driven movement to the specifier of the external VP-shell, which is not c-commanded by the DO in its base position. It turns out then that there is some cross-linguistic variation concerning the (im-) possibility of dative NPs binding DO anaphors, and that even for some speakers of German, datives may bind DO anaphors. In order to account for this, I exploit the peculiar status of the specifier of the VP-shell – I argue that a parameter exists according to which either A-binding or so-called “GF-binding” (i.e., binding from an A-position or from a position where structural Case can be assigned) is relevant for anaphors.

In section 6, I turn to the behaviour of referential pronouns in double object constructions. As one might expect, pronouns and anaphors – as co-arguments – are (for most speakers) in complementary distribution within the VP in German. Although this state of affairs looks very simple from a pre-theoretical point of view, it turns out that an explanation is by no means straightforward, and requires some non-trivial changes in the theory of chain formation.

After that (section 7), I discuss the VP-internal distribution of bound variable pronouns, which fits into the general framework without too much complication. Furthermore, a solution of “Webelhuth’s paradox” is presented.

The role of the PUB in the syntax of double objects is explored in section 8. There, I argue that the well-known constraint against A-bar movement of an NP that has undergone dative shift, which holds in some Germanic languages, cannot possibly be due to a violation of locality constraints, and should not be accounted for by ad hoc filters; rather, it should be analysed as an instance of improper movement, ultimately reducible to a PUB violation.

In section 9, focus is shifted to A-movement options of DO and IO, and, more precisely, to passivization. Here, I present arguments against a priori disallowing passivization of IO or DO for some universal (or at least very general) reason, and develop a theory of Case-absorption which is flexible enough to allow cross-linguistic variation.

Finally, in section 10 I turn to an analysis of what have been called “free” or “possessive” datives in the literature. It emerges that these dative NPs behave differently from the typical GOAL datives in a number of respects, most notably as concerns PUB effects. This will be accounted for by the assumption

that “free” datives, although they occupy the specifier of the VP-shell (i.e., Spec $\mu$ ) and receive structural Case there, are not arguments of the verb, and are thus freely inserted into that position. Accordingly, there is no evidence for a trace as a result of Case-driven movement in these constructions, and the PUB is simply inoperative here.

In the appendices 1-4, I briefly discuss some consequences and open questions pertaining to VP-shell projection, particle movement, the empty preposition hypothesis, and focus projection.<sup>3</sup>

## 2. The paradox: movement vs. binding

Abstracting away from the more elaborate version of the theory of barriers developed in chapter 2 for the time being (but cf. section 4 below), one may state the following generalization, which appears to be – by and large – correct (cf., e.g., Cinque (1990)):

- (1) XPs which are not in a position locally selected by a [+V] category are always barriers.

Consider now the examples involving extraction from NP in (2).

- (2) a. \* $[_{PP} \text{Über wen}]_i$  hat  $[_{NP} \text{ein Buch } t_i]$  den Fritz  
 about whom has a book<sub>nom</sub> ART Fritz<sub>acc</sub>  
 beeindruckt ?  
 impressed
- b. \* $[_{PP} \text{Über wen}]_i$  hat der Verleger  $[_{NP} \text{einem Buch } t_i]$  keine  
 about whom has the editor<sub>nom</sub> a book<sub>dat</sub> no  
 Chance gegeben ?  
 chance given
- c.  $[_{PP} \text{Über wen}]_i$  hat der Fritz der Anna  $[_{NP} \text{ein Buch } t_i]$   
 about whom has ART Fritz<sub>nom</sub> ART Anna<sub>dat</sub> a book<sub>acc</sub>  
 gegeben ?  
 given
- d. \* $[_{PP} \text{Über wen}]_i$  hat der Fritz  $[_{NP} \text{ein Buch } t_i]$  der  
 about whom has ART Fritz<sub>nom</sub> a book<sub>acc</sub> ART  
 Anna gegeben ?  
 Anna<sub>dat</sub> given

As pointed out in chapter 2, subjects of transitive and unergative intransitive verbs are barriers for extraction (cf. (2-a)), as are scrambled DOs (cf. (2-d)). DOs in situ may be transparent for extraction (if abstract noun incorporation occurs) (cf. (2-c)); but interestingly, IOs never are (cf. (2-b)), although the

verb in question would in principle allow abstract noun incorporation. Given the statement in (1), this indicates that the IO occupies a position more remote from the verb than the DO. Hence, one might be led to attribute a structure like (3) to the double object construction in German, as I have indeed done in the preceding chapters:

(3) [IP subject [VP IO [V' DO V ]]]

Unfortunately, as noted in chapter 3, evidence from binding theory gives a different picture (cf. Grewendorf (1984; 1988: 57ff), Webelhuth (1989: 407; 1992), and Primus (1991: 90), among others). First recall that DO anaphors cannot be bound by IOs, cf.:

- (4) a. daß der Arzt<sub>i</sub> dem Patienten<sub>j</sub> sich<sub>i/\*j</sub> im Spiegel zeigte  
 that the doctor<sub>nom</sub> the patient<sub>dat</sub> REFL<sub>acc</sub> in-the mirror showed  
 b. \*daß man den Gästen<sub>i</sub> einander<sub>i</sub> vorgestellt hat  
 that one<sub>nom</sub> the guests<sub>dat</sub> RECIP<sub>acc</sub> introduced-to has

IO anaphors, on the other hand, can be bound by DOs:

- (5) a. daß der Arzt<sub>i</sub> den Patienten<sub>j</sub> sich<sub>i/j</sub> im Spiegel zeigte  
 that the doctor<sub>nom</sub> the patient<sub>acc</sub> REFL<sub>dat</sub> in-the mirror showed  
 b. daß man die Gäste<sub>i</sub> einander<sub>i</sub> vorgestellt hat  
 that one<sub>nom</sub> the guests<sub>acc</sub> RECIP<sub>dat</sub> introduced-to has

Given (4) and (5), it looks as though the DO asymmetrically c-commands the IO at D-structure, and one might want to attribute a structure like (6) to the double object construction in German on the basis of evidence from binding theory.

(6) [IP subject [VP DO [V' IO V ]]]

Thus, we end up with a dilemma of conflicting structure assignments to a particular construction. In the framework of Generative Grammar, the classic way to cope with paradoxes like the one at hand is to assume that both structures are correct in a way – one is derived from the other by means of movement. Indeed, this is the approach I want to pursue in what follows; but it requires as a prerequisite an articulated theory of how VPs are built up, of which of the two possible structures ((3) vs. (6)) is the D-structural one, and of what kinds of VP-internal movements there are. Therefore, I will first address these questions in the next section, before I return to the paradox and present a solution for it.

### 3. VP-structure

#### 3.1. Larson's approach

Following traditional assumptions within Generative Grammar, Larson (1988; 1990) postulates that double object constructions as in (7-ab) are transformationally related.

- (7) a. John gave a book to Mary  
 b. John gave Mary a book

More precisely, he assumes that (7-a) and (7-b) share the same D-structure, which essentially corresponds to the S-structural representation of (7-a) (as far as the order of arguments is concerned). The idea that (7-a) and (7-b) are derived from the same D-structure follows immediately from Baker's *Uniformity of Theta Assignment Hypothesis* (UTAH) (according to which identical thematic relationships between items are represented by identical structural relations), which Larson adopts. (7-a) and (7-b) have roughly the same meaning (ideally, they do not differ in truth conditions), and hence, they share the same D-structure, given the UTAH. In addition, Larson assumes that there is a universal thematic hierarchy which looks as follows (Larson (1988: 382)):

- (8) *Thematic Hierarchy:*  
 AGENT > THEME > GOAL > OBLIQUES

Items which occur in the  $\Theta$ -grids of predicates are then projected into syntax at D-structure according to this hierarchy. As far as the arguments of a triadic verb (i.e., AGENT, THEME, and GOAL) are concerned, they are inserted as shown in (9). The GOAL (i.e., the IO) is realized as a daughter of V', the THEME (i.e., the DO) is inserted into the position immediately dominated by VP, and the subject, since there is no position left within the "regular" VP projected by the verb, is inserted into the specifier of a VP-shell, i.e., another VP headed by an empty verb, which dominates the "regular" VP, and which is made available in double object constructions. The subject is then moved to the SpecI position in English in order to receive structural (nominative) Case, whereas the IO may receive Case in situ by virtue of the preposition *to*. The DO, finally, stays in situ and receives structural Case from the verb, after verb raising to an empty verbal category (which we may call  $\mu$ ) that is the head of the VP-shell.

- (9) [<sub>IP</sub> John<sub>k</sub> [<sub>I'</sub> I [<sub>VP</sub> t<sub>k</sub> [<sub>V'</sub> [ <sub>$\mu$</sub>  give<sub>i</sub> ] [<sub>VP</sub> [<sub>NP</sub> a book ] [<sub>V'</sub> [<sub>V</sub> t<sub>i</sub> ] [<sub>PP</sub> to Mary ]]]]]]]]]

This gives us (7-a). As regards the dative shift construction (7-b), Larson assumes that it results from a passive-like operation within the VP. Due to a

lexical process (see below), the DO *a book* is “demoted” (just like the subject in ordinary passives in the theory of Chomsky (1981)), and realized as a V'-adjunct. In addition, the Case of the IO (i.e., the preposition *to*) is absorbed by the verb (in analogy to the accusative Case in simple passives), and the IO has to move to a Case-marked position in order to escape the Case Filter. Hence, it moves into the SpecV position, which is of course empty since the DO has been demoted. As before, the verb moves into the empty verbal head, the subject is raised into the SpecI position, and thus (7-b) is derived as shown in (10):

- (10) [IP John<sub>k</sub> [I' I [VP t<sub>k</sub> [V' [<sub>μ</sub> give<sub>i</sub> ] [VP [NP Mary<sub>j</sub> ] [V' [V' [V t<sub>i</sub> ] [NP t<sub>j</sub> ] [NP a book ]]]]]]]]]

The major achievement of this treatment of the double object construction is that it meets two requirements which appear to be incompatible, although they both receive independent justification. On the one hand, the idea can be maintained that the thematic hierarchy in (8) is always respected in the mapping from the lexicon to D-structure (note that the THEME asymmetrically c-commands the GOAL in both (9) and (10) at D-structure). On the other hand, at S-structure the THEME asymmetrically c-commands the GOAL in (9), whereas the opposite holds in (10) – here, the GOAL asymmetrically c-commands the THEME. This situation corresponds exactly to what has been observed by Barss & Lasnik (1986) concerning the c-command relations in double object constructions. Consider, e.g., the distribution of *negative polarity items*. Negative polarity items such as *anything* are licensed only in the c-command domain of a monotone decreasing operator (cf. Ladusaw (1979)) such as negation. Given the S-structural representations in (9) and (10), this immediately accounts for the following examples:

- (11) a. I sent [VP no presents [V' to any of the children ]]  
 b. \*I sent [VP any of the packages [V' to none of the children ]]  
 c. I showed [VP no one<sub>i</sub> [V' [V' t<sub>i</sub> ] anything ]]  
 d. \*I showed [VP anyone<sub>i</sub> [V' [V' t<sub>i</sub> ] nothing ]]

In the unshifted versions (11-ab), the DO asymmetrically c-commands the IO. Hence, an IO negative operator cannot license a DO negative polarity item, due to a lack of c-command. In contrast to this, the IO asymmetrically c-commands the DO after dative movement in (11-cd). Therefore, DO polarity items, but not IO polarity items can be licensed here.

In conclusion, Larson's analysis maintains a restrictive theory of mapping from the lexicon to D-structure (which respects the hierarchy (8) and the UTAH), and still predicts the c-command relations that hold at S-structure in the shifted and unshifted versions of double object constructions. Nonethe-

less, a number of arguments against this approach have been raised in the literature. To these I will turn now.

### 3.2. Arguments against Larson's approach

One can distinguish between two kinds of objections to Larson's analysis. First, there exist some objections that are due to the fact that Larson's approach is *syntactic* (at least partially, see below), rather than *lexical* in nature. These objections are centred around the observation that dative shift is not fully productive and appears to be susceptible to lexical idiosyncrasies. Thus, some verbs optionally induce dative shift (such as *give*, *send*, or *show* in the examples above); some verbs seem to obligatorily induce dative shift (such as *cost* or *allow* in (12)); and finally, some verbs do not permit dative shift at all (such as *donate* in (13)) (cf., among others, Oehrle (1976), Czepluch (1982), Baker (1988), and Jackendoff (1990) for discussion):

- (12) a. \*The orange socks cost [<sub>VP</sub> two dollars [<sub>V'</sub> to/for Linda ]]  
 b. The orange socks cost [<sub>VP</sub> Linda<sub>i</sub> [<sub>V'</sub> [<sub>V'</sub> t<sub>i</sub> ] two dollars ] ] (Baker (1988: 287))  
 c. \*John allowed [<sub>VP</sub> another drink [<sub>V'</sub> to Mary ]]  
 d. John allowed [<sub>VP</sub> Mary [<sub>V'</sub> another drink ] ] (Czepluch (1982: 4))
- (13) a. I donated [<sub>VP</sub> money [<sub>V'</sub> to charity ]]  
 b. \*I donated [<sub>VP</sub> charity<sub>i</sub> [<sub>V'</sub> [<sub>V'</sub> t<sub>i</sub> ] money ] ] (Larson (1988: 371))

However, Larson (1988; 1990) has argued that this kind of lexical variation does not really pose an unsurmountable problem for a syntactic approach to double object constructions. I find his arguments (which, i.a., depend on the requirement of recoverability of deletion) convincing for the most part, and will therefore not make an attempt here to review them in detail or comment upon them. The analysis to be developed later in this chapter will be subject to exactly the same kinds of objections that Larson's theory faces with respect to lexical variation. Accordingly, the solutions proposed by Larson are either directly transferable to my approach, or can at least be accommodated in an obvious way. Therefore, I will say nothing about this issue in the remainder of this chapter.

More important, I believe, is the second set of objections to Larson's approach. These arguments have to do with syntactic problems inherent to Larson's analysis of double objects.

#### 3.2.1. Dative shift as passive

Jackendoff (1990) and Speas (1990) unanimously point out that although Larson (1988) explicitly adheres to the UTAH, his analysis is actually not consis-

tent with it as it stands. Recall that the UTAH requires that thematic paraphrases have *identical*, and not just *similar*, D-structures. But whereas Larson considers (7-a) and (7-b) to be thematic paraphrases, he ascribes slightly different D-structure representations to them; cf. (9) vs. (10). It is obvious that this problem is due to the view of dative shift as a passive-like operation – the DO in dative shift constructions is “demoted” and thus does not occupy the same D-structure position as in the unshifted version. Larson (1990: 600ff) acknowledges this problem and responds to it by invoking a “relativized,” rather than “absolute” version of the UTAH which looks as follows:

(14) *Relativized UTAH:*

Identical thematic relationships are represented by identical *relative* hierarchical relations between items at D-structure.

The relativized UTAH is of course respected in (9) and (10) – in both cases, the arguments are projected according to the thematic hierarchy (8), albeit into different positions as far as the THEME is concerned. This solution works, but it would obviously be preferable on conceptual grounds to maintain the UTAH in its strongest possible form, i.e., as requiring identical thematic relationships to involve identical D-structures, including an invariant and fixed association of certain kinds of arguments with certain positions.

In order to motivate the relativized UTAH, Larson resorts to what has become the “standard” theory of passive (cf. Chomsky (1981)), and points out that there is a complete analogy to his dative shift analysis. In both cases, the relevant sentence pairs (active vs. passive sentences, and shifted vs. unshifted versions of double object constructions) do not have identical D-structures. Admittedly, this is true, but it points to a more general problem – Chomsky’s (1981) analysis of passive is actually lexical, and not syntactic. Of the two properties commonly associated with passive, viz., the demotion of the subject and the promotion of the object, the former appears to be the distinctive “core” property of passive, whereas the latter is indeed a very peripheral aspect of passive. (As pointed out by, e.g., Baker, Johnson & Roberts (1989), there are many languages where passive does not go hand in hand with Case absorption, and hence the object retains accusative Case and does not become the “subject” of the clause in any respect.) But “suppression” of the subject is handled in the lexicon in Chomsky’s analysis, and so is “DO demotion” in Larson’s analysis of double object constructions. Hence, it makes perfect sense to call these analyses “lexical” in a way. It is worth noting, though, that there have in fact been attempts to develop a purely *syntactic* analysis of passive (cf. Baker (1988) and Baker, Johnson & Roberts (1989)), where corresponding active/passive sentences have identical, rather than just similar, D-structures, which thus conforms to a strong version of the UTAH.

Notwithstanding this option, however, it is by no means obvious that dative shift is to be treated along the lines of passive in the first place. Given that the core property of passive is the demotion of an argument, one would expect to find some evidence for this demotion process in the case of double object constructions as well. But, as will become evident later, there is no evidence for the purported demotion of the DO in dative shift constructions. On the contrary, all available evidence points to the conclusion that the DO occupies exactly the same position in shifted and unshifted variants of double object constructions.

What is more, argument demotion in languages like English is usually indicated by some morphological reflex. There is, however, no visible “passive-like” morphology in dative shift constructions. The only thing that remains of the analogy to passives is what looks like Case absorption in the shifted version of double object constructions – the preposition disappears. I will return to this issue below; it may suffice for the time being to note that Larson’s passive-like analysis eventually requires some non-trivial modifications of the theories of Case-assignment and Case-absorption, including the idea that normal passive simultaneously absorbs two cases (one inherent, one structural), and that Case-assignment to the DO in dative shift constructions crucially depends on (non-structure preserving) reanalysis of a trace of a raised verb and the trace of a raised IO (cf. Larson (1988: 359ff)).

From all this I conclude that a passive-like analysis of dative shift is not on the right track.

### 3.2.2. The single complement/single specifier hypothesis

A different, but related set of objections to Larson’s approach is again raised by Speas (1990) and Jackendoff (1990). It concerns the structure of VPs where elements other than AGENTS, THEMES, or GOALS appear (although maybe in addition to them), viz., OBLIQUES (such as manner adverbs, adverbs of place, time, and direction, or PP arguments). According to the thematic hierarchy in (8), all of these categories are inserted into D-structural positions that are c-commanded by THEMES and GOALS. Now, Larson (1988: 380) adopts what can be called the “single complement/single specifier” hypothesis. (Larson himself dubs this hypothesis “single specifier hypothesis”; the term “single complement/single specifier hypothesis” comes from Speas (1990).) This hypothesis basically says that all XPs look as in (15) at D-structure (linear order being irrelevant):

(15)  $[_{XP} \text{ Spec } [_{X'} \text{ X complement } ]]$

From this requirement and the thematic hierarchy in (8), it immediately follows that the only way to assign a well-formed D-structure to a sentence



relative, rather than absolute – what is a complement in one case becomes a specifier in the other, without any difference in semantic relations.

### 3.2.3. The VP-shell

A minor problem concerns the status of the VP-shell in “simple” double object constructions like (9) or (17). At first sight, it looks as though the “VP-over-VP” analysis is in fact the decisive element of Larson’s theory. Upon closer inspection, however, it turns out that the essentials of Larson’s approach can be easily maintained in a theory that does without VP-shells. The Spec $\mu$  position, for one thing, serves only one purpose, viz., to provide a position for the placement of the subject at D-structure. But of course, there are alternatives available. On the one hand, one can make the classic assumption that subjects are base-generated as truly external arguments in SpecI, as I do throughout this book. On the other hand, one can follow Koopman & Sportiche (1991), Sportiche (1988a), and Speas (1990), among others, in postulating that the subject is base-generated in a VP-adjoined position, and then obligatorily undergoes movement to SpecI in English in order to receive Case.

Now, as far as the empty verbal head is concerned, its only purpose is to make a landing site available for verb movement (so that the verb occurs to the left of the DO and the IO in an SVO language). But again, alternative solutions of this problem are conceivable. Although Pollock (1989) and Chomsky (1991) assume that the finite verb does not leave the VP in English, Ouhalla (1990) and Johnson (1991) argue that the hypothesis that the finite verb leaves the VP in English, too, can be maintained after all.

In conclusion, neither the existence of Spec $\mu$ , nor the existence of an empty verbal head is particularly important for Larson’s analysis of double object constructions to work. Hence, one might assume that it would be best to dispense with VP-shells altogether, and develop a simpler theory. However, I think that one should refrain from doing so, and later will accordingly try to assign the VP-shell and its head  $\mu$  a new role.

### 3.2.4. Dative shift as A-movement

Finally, consider the status of the position occupied by the IO after dative shift. This position unambiguously qualifies as an A-position in Larson’s framework, simply because it is the position where the DO is base-generated in unshifted double object constructions. I will show below, on the basis of evidence from German, that this statement is not tenable as it stands, and that a more fine-grained distinction is necessary. This of course implies that a shifted IO does not occupy the same position as a DO in unshifted double object constructions; but recall that this is exactly the conclusion I arrived at

in section 3.2.1, where I argued that the DO is located in the same position in shifted and unshifted versions of double object constructions.

### 3.2.5. Conclusion

In what follows, I will present a modification of Larson’s analysis which differs from it in the following respects (and thus escapes the objections raised in sections 3.2.1 - 3.2.4).

Firstly, I cling to the hypothesis that subjects are base-generated in SpecI. Then, the specifier of the VP-shell becomes available for some other element. I assume that this position is an A-bar position, where dative Case is assigned. In dative shift constructions, the IO moves into that position.

Secondly, I assume that dative movement has nothing to do with passive. In particular, an IO which has undergone dative shift does not occupy the same position as a DO in the unshifted variant, and a DO occupies the same position in the shifted and unshifted variant at D-structure.

Thirdly, I reject the single complement/single specifier hypothesis and claim that, whereas VP-specifiers are unique, there is V'-recursion at D-structure. Thus, there is no upper bound on the depth of embedding of OBLIQUES below the THEME and GOAL arguments, but this does not imply that there is a proliferation of empty verbal heads. Together with the assumption that dative shift is not related to passive, this means that one can adhere to the UTAH in its strongest form – thematic paraphrases have identical, not just similar, D-structural representations.

In what follows, I will first consider the structure of double object constructions in German, or more generally the Germanic SOV languages (section 3.3), and then turn to SVO languages like English (section 3.4).

### 3.3. VP-structure in SOV languages

As a point of departure, I adopt the thematic hierarchy (8) proposed by Larson (1988). Now, recall from the last chapter that Webelhuth (1989; 1992), Moltmann (1990) and Santorini (1990), following basically Lenerz (1977), consider it an “uncontroversial assumption” that IOs precede DOs at D-structure in German. In chapter 3, I tried to show that this assumption is by no means uncontroversial, and can indeed be called into question, on the basis of evidence from anaphoric binding. Given the validity of (8), one is even forced to give it up – THEMES (i.e., DOs) are base-generated above GOALS (i.e., IOs) at D-structure.

Thus, consider the following more articulated structure of VP in German:

- (18) [IP [NP subject ] [I' [VP [SpecV  $\alpha$  ] [V' [VP [SpecV  $\beta$  ] [V'  $\delta$  [V'  $\gamma$  V ]]]] [V  $\mu$  ]]  
I ]]

$\alpha$  = A-bar, [+Case:dat];

$\beta$  = A (GF-DO), [+Case:acc];

$\delta$  = A (GF-IO), [-Case];

$\gamma$  = PP-arguments, adverbs of place, direction, manner, etc., (negation?), [-Case]

Here,  $\beta$  is the position where DOs are generated;  $\delta$  is the D-structural position of IOs; prepositional arguments of the verb and certain non-argument PPs (such as some adverbs of time, place, direction, and manner) are located in  $\gamma$ , a type of position that arises as a consequence of the option of V' recursion in the base. All other adverbs are adjoined to VP or IP. Note that, at D-structure, no argument can ever be located in  $\alpha$ , the specifier of the VP-shell projected by the empty verbal head  $\mu$ . Hence, this position cannot be classified as an A-position.

As has been argued by Reis (1985), Czepluch (1988), and Stechow (1990a), among others, the dative Case in double object constructions is a structural Case in German. (Inherent dative Case which occurs with verbs that do not have a DO will be ignored here; also see note 3.) Now suppose that structural Case, in contrast to inherent Case, can only be assigned to a specifier position under agreement with the Case-assigning head in the unmarked case (cf. Chomsky & Lasnik (1993)). Suppose further that  $\alpha$  is just the position where structural dative Case can be assigned, in general after V-raising to the empty head  $\mu$  of the VP-shell.<sup>6</sup>

Then, it follows that at S-structure, Case-dependent IOs can never show up in the position where they are base-generated (i.e., in  $\delta$ ), and must raise to  $\alpha$ , where they receive Case under specifier-head agreement after finite verb raising to  $\mu$  (recall, however, that the finite verb itself ends up in I in German at S-structure in verb-final clauses, and in C in verb-second clauses). Thus, a dative NP in double object constructions in German always occupies a derived position, both to the left of and higher than the position where accusative objects are generated. The latter position, in turn, precedes and c-commands PP-arguments and VP-internal non-arguments (OBLIQUES). This state of affairs corresponds more or less to the traditional assumptions about the order of arguments in German, directly reflecting the "unmarked" linearization, which is as in (19) (cf. Lenerz (1977), among others); cf. also Frey & Tappe (1991) for a similar view (and a very different implementation) of the D-structural order of arguments and non-arguments in the VP in (languages like) German.

(19) Subject > IO > DO > OBLIQUES > V

As in English, there generally seems to be an option for the IO to stay in its base position if it can somehow escape the Case Filter there. This can be

accomplished via insertion of a preposition (like *an* ('to')) which is compatible with the GOAL interpretation of the IO (cf. Larson (1988; 1990) for more discussion of this issue). Cf.:<sup>7</sup>

- (20) a. daß der Fritz [VP - [VP [NP einen Brief ] [V' [PP an den  
that ART Fritz<sub>nom</sub> a letter<sub>acc</sub> to the  
Vermieter ] geschickt ]]] hat  
landlord sent has
- b. daß der Fritz [VP [NP dem Vermieter ]<sub>i</sub> [VP [NP einen  
that ART Fritz<sub>nom</sub> the landlord<sub>dat</sub> a  
Brief ] [V' t<sub>i</sub> geschickt ]]] hat  
letter<sub>acc</sub> sent

According to the above assumptions, (20-a) directly reflects the hierarchical order of arguments at D-structure, and (20-b) is derived by means of Case-driven movement into the Spec $\mu$  position. At this point, a remark is in order on the role the preposition *an* ('to') plays in Case-assignment to the IO in situ. Two alternatives arise.

On the one hand, it is conceivable that German *an* and English *to* in double object constructions are not actually Case-assigning elements, but merely Case-markers, which can be optionally inserted in the  $\delta$ -position and are controlled by the verb. Movement of the IO bearing this Case-marker *an* into the  $\alpha$ -position (i.e., Spec $\mu$ ) is then prohibited by whatever excludes movement of an element bearing Case into a Case-position. (Alternatively, there might be a general incompatibility of PPs with Case-marked NP positions, as evidenced by the general ban against movement of a PP into the SpecI position; cf. Chomsky (1986a) for a discussion of these matters.)

On the other hand, one could follow Baker (1988: 286ff) in assuming that dative movement is a subcase of the more general phenomenon of applicative constructions. In these constructions, the head of a PP is incorporated into the verb. As a result of incorporation, the NP selected by P does not receive Case from P (or its trace) anymore (cf. chapter 2 above), and thus has to receive structural Case from the verb. Applying such an analysis to dative movement is of course possible only if one assumes that the preposition *an* (or *to* in English) somehow disappears after incorporation into the verb, for dative shift does not have any morphological reflex whatsoever in German (or English), as mentioned above. Again, the incompatibility of the Spec $\mu$  position with an IO which emerges as a PP must be guaranteed, just as in the first proposal.

Baker's analysis may be preferable on conceptual grounds, but as the two alternatives do not appear to make different predictions, I do not take a firm stand on the issue, and will leave the matter here.<sup>8</sup>

For the sake of completeness, consider the following example from German:

- (21) daß der Fritz [PP an den Vermieter] [NP einen Brief ]  
 that ART Fritz<sub>nom</sub> to the landlord a letter<sub>acc</sub>  
 geschickt hat  
 sent has

At first sight, this looks like a counter-example to the claim that an IO which occurs as a PP may not undergo raising to the specifier of the VP-shell. But upon closer inspection, it turns out that the correct analysis of (21) is of course one in which the PP *an den Vermieter* is scrambled, i.e., adjoined to VP (either the VP-shell or the lower VP). This analysis is corroborated by the fact that only in languages which allow scrambling to VP may a PP bearing the GF IO precede the DO. Consider, e.g., the contrast between the scrambling languages German (cf. (21)) and West Flemish (cf. (22-a)) on the one hand, and English, which does not allow adjunction to VP (cf. (22-b)), on the other. (This contrast is noted by Haegeman (1985/86: 284f).)

- (22) a. dan-ze [PP an Marie ] [NP nen boek ] gegeven een  
 that-they to Mary a book<sub>acc</sub> given have  
 b. \*John gave [PP to Mary ] [NP a book ]

Now I turn to the structure of VP in Germanic SVO languages. The analysis will be essentially the same.

### 3.4. VP-structure in SVO languages

Consider (23), which I take to be the structure of double object constructions in the Germanic SVO languages, such as English.

- (23) [IP subject [I' I [VP [SpecV  $\alpha$ ] [V' [V  $\mu$ ] [VP [SpecV  $\beta$ ] [V'  $\delta$  [V'  $\gamma$  V ]]]]]]]]  
 $\alpha$  = A-bar, [+Case:dat];  
 $\beta$  = A (GF-DO), [+Case:acc];  
 $\delta$  = A (GF-IO), [-Case];  
 $\gamma$  = PP-arguments, adverbs of place, direction, manner, etc., [-Case]

As in German, DOs are base-generated and receive structural accusative Case in  $\beta$ , IOs are base-generated in  $\delta$  and may be realized in a PP there, OBLIQUES occur in a  $\gamma$ -position (again due to the option of D-structural V' recursion), subjects are base-generated VP-externally in the SpecI position, and finally,  $\alpha$  is an position where structural dative Case is assigned, and where the IO is moved in dative shift constructions.

At this point a terminological clarification is in order. In the literature on double objects in English, the notion "dative" is often used in an ambiguous way to refer either to the IO which occurs as a PP headed by *to*, or to the shifted "bare" IO. For reasons of uniformity and perspicuity, I will throughout

restrict the term “dative” in English double object constructions to the “bare” IO which has undergone raising to the specifier of the VP-shell. Thus, the idea is that in English, too, there are two structural Cases controlled by triadic verbs like *give* or *show*, viz., a structural dative Case (assigned to the  $\alpha$ -position under specifier-head agreement after verb movement to  $\mu$ ), and a structural accusative Case (assigned to the  $\beta$ -position under specifier-head agreement). There is a lot of terminological and/or substantial variation in the literature as concerns the status of the two Cases controlled by the verb in English dative shift configurations (e.g., with respect to their being *structural*, *objective*, *inherent*, and so forth). In analogy to German, I will simply assume that both Cases are structural, and that one should distinguish between an abstract structural dative Case, and a structural accusative Case for reasons of cross-linguistic uniformity alone, even if the dative in English does not have any morphological reflex anymore. I will return to this issue in section 9, where I discuss the options of passivization in double object constructions.

Consider now the position of the heads in (23). Following Koster (1988) and Klein & Stechow (1991), I assume that English has a “residual SOV-structure,” but only in the lower VP. Such an analysis is empirically motivated by the behaviour of verb-particle constructions, to which I will briefly turn in appendix 2 (cf. Koster (1988)), as well as by c-command properties of scope-bearing adverbs (cf. Klein & Stechow (1991)). However, in the present context, an SOV structure of the lower VP is in addition required on theoretical grounds. There seems to be no other way to combine the V' recursion analysis with the empirical evidence that, given two arbitrarily selected XPs within the English VP, the left one always c-commands the right one (cf. Jackendoff (1990)). Suppose for the sake of the argument that V were to the left of V' daughters in a VP that exhibits V' recursion, as in (24).

(24)  $[_{VP} XP_1 [V' [V' [V' V XP_4 ] XP_3 ] XP_2 ]]$

Here,  $XP_2$  asymmetrically c-commands  $XP_3$ , which in turn asymmetrically c-commands  $XP_4$ , but given the linear order  $[ XP_1 XP_4 XP_3 XP_2 ]$ , one wants  $XP_4$  to asymmetrically c-command  $XP_2$  and  $XP_3$ , and  $XP_3$  to asymmetrically c-command  $XP_2$  in the light of the empirical evidence (cf. Koster (1988), who makes this point very clear).<sup>9</sup> Hence, an SOV structure in the lower VP is required. Of course, the verb may never emerge in its base-position – it always undergoes raising.

Turning now to the VP-shell, I would like to propose that the empty verbal head  $\mu$  selects its phrase-structural complement (viz., VP) to the right, and not to left. Furthermore, let us now assume (in contrast to the assumption in section 3.1 of chapter 2) that the verb always leaves VP in English, and moves to either I (as argued by Ouhalla (1990)), or at least to some other VP-external functional head position (as argued by Johnson (1991)). Now, it seems at first

sight that the direction of VP-selection by  $\mu$  does not really play a role, and amounts to an arbitrary stipulation with no empirical impact. However, the motivation again comes from the behaviour of verb-particle constructions. This issue will be discussed in appendix 2.

Summarizing, this means that (7-ab) have the following representations:

- (25) a. John gave<sub>j</sub> [VP - t'<sub>j</sub> [VP a book [V' [PP to Mary ] t<sub>j</sub> ]]]  
 b. John gave<sub>j</sub> [VP Mary<sub>i</sub> t'<sub>j</sub> [VP a book [V' t<sub>i</sub> t<sub>j</sub> ]]]

With this analysis of double object constructions in mind, let us now return to the paradox presented in section 2. First, I will give an account of the barrierhood of IOs that have undergone Case-driven movement to Spec $\mu$ .

## 4. Barriers revisited

In this section, I want to show that cross-linguistically, an IO bearing structural dative Case (i.e., occupying the Spec $\mu$  position, according to the above assumptions) invariably turns into a barrier, whereas XPs included in the lower VP may resolve barrierhood by means of incorporation. First, I present the relevant data in section 4.1, and then I modify the theory of minimality barriers developed so far in order to account for these data in section 4.2.

### 4.1. The islandhood of dative NPs

As a first set of examples, consider again the data involving extraction from NP in German (cf. (2), repeated here):

- (26) a. \*[PP Über wen ]<sub>i</sub> hat [NP ein Buch t<sub>i</sub> ] den Fritz  
           about whom has a book<sub>nom</sub> ART Fritz<sub>acc</sub>  
           beeindruckt ?  
           impressed
- b. \*[PP Über wen ]<sub>i</sub> hat der Verleger [NP einem Buch t<sub>i</sub> ] keine  
           about whom has the editor<sub>nom</sub> a book<sub>dat</sub> no  
           Chance gegeben ?  
           chance given
- c. [PP Über wen ]<sub>i</sub> hat der Fritz der Anna [NP ein Buch  
           about whom has ART Fritz<sub>nom</sub> ART Anna<sub>dat</sub> a book<sub>acc</sub>  
           t<sub>i</sub> ] gegeben ?  
           given

- d. \*<sub>[PP Über wen ]<sub>i</sub></sub> hat der Fritz <sub>[NP ein Buch t<sub>i</sub> ]</sub> der  
 about whom has ART Fritz<sub>nom</sub> a book<sub>acc</sub> ART  
 Anna gegeben ?  
 Anna<sub>dat</sub> given

Subjects, DOs which have undergone scrambling, and, most importantly, IOs always block extraction, whereas DOs in their base-position permit extraction (given that abstract noun incorporation may take place).

A similar asymmetry between subjects, scrambled DOs, and IOs on the one hand, and DOs in situ on the other hand emerges in the case of the *was-für-* ('what for') split (subextraction) construction in German (cf. section 3.8.2. of chapter 2):

- (27) a. \*Was<sub>i</sub> haben [ t<sub>i</sub> für Leute ] <sub>[NP dem Fritz ]</sub> einen Brief  
 what have for people<sub>nom</sub> ART Fritz<sub>dat</sub> a letter<sub>acc</sub>  
 geschickt ?  
 sent
- b. \*Was<sub>i</sub> hat der Fritz <sub>[ t<sub>i</sub> für Leuten ]</sub> <sub>[NP Briefe ]</sub> geschickt ?  
 what has ART Fritz<sub>nom</sub> for people<sub>dat</sub> letters sent
- c. Was<sub>i</sub> hat der Fritz <sub>[NP den Leuten ]</sub> [ t<sub>i</sub> für Briefe ]  
 what has ART Fritz<sub>nom</sub> the people<sub>dat</sub> for letters<sub>acc</sub>  
 geschickt ?  
 sent
- d. \*Was<sub>i</sub> hat [ t<sub>i</sub> für Briefe ] der Fritz <sub>[NP den Leuten ]</sub>  
 what has for letters<sub>acc</sub> ART Fritz<sub>nom</sub> the people<sub>dat</sub>  
 geschickt ?  
 sent

As noted in chapter 2, IO clauses are barriers for extraction in Italian (cf. Cinque (1990)):

- (28) \*La ragione per la quale<sub>i</sub> <sub>[VP vi informo [CP che me ne andro' t<sub>i</sub> ]]</sub>  
 the reason why you I-inform that I will leave

In chapter 2, I have also remarked that while it is unclear whether German has true IO clauses, it is at least worth noting that examples which are analogous to (28) are also ill formed in this language; the data exhibit an argument/adjunct asymmetry, as expected under the theory of proper government and Subjacency presented in chapter 2 above.<sup>10</sup>

- (29) a. \*Warum<sub>i</sub> hat der Fritz [VP dich informiert [CP t'<sub>i</sub> daß [IP er  
 why has ART Fritz<sub>nom</sub> you<sub>acc</sub> informed that he  
 t<sub>i</sub> wieder arbeiten will ]]] ?  
 again work wants-to
- b. ??Wen<sub>i</sub> hat man [VP die Anna gezwungen [CP t'<sub>i</sub> daß [IP sie  
 who<sub>acc</sub> has one<sub>nom</sub> ART Anna<sub>acc</sub> forced that she  
 t<sub>i</sub> heiratet ]]] ?  
 marries

Thus, it appears that IO clauses obligatorily undergo the same kind of Case-driven movement to the specifier of the VP-shell as IO NPs (before extraposition occurs). This of course is not surprising given the hypothesis that all finite clauses are NPs and hence, as indicated in chapter 2 (cf. also Müller & Sternefeld (1995)), must be assigned abstract Case.

The evidence from German is mirrored in other Germanic languages. Consider, e.g., extraction from NP in English (cf. Kuno (1973), Fanselow (1991)):

- (30) a. \*Who<sub>i</sub> did [NP a book about t<sub>i</sub> ] impress John ?  
 b. \*Who<sub>i</sub> did you give [VP [NP a friend of t<sub>i</sub> ]<sub>j</sub> [VP [NP a present ] t<sub>j</sub> ] ] ?  
 c. Who<sub>i</sub> did you give [VP [NP them ]<sub>j</sub> [VP [NP a photo of t<sub>i</sub> ] t<sub>j</sub> ] ] ?

Here, subjects (cf. (30-a)) and IOs bearing dative Case (cf. (30-b)) are islands for extraction, but DOs can be made transparent if abstract incorporation is possible (cf. (30-c)). (Note in passing that (30-b) and (30-c) involve the same verb; hence, the contrast cannot be due to lexical factors.)

Similarly, subextraction in mainland Scandinavian is possible only with DOs, and never with IOs (cf. Hellan (1988), Vikner (1990: ch. 4)):

- (31) a. Hvad<sub>i</sub> viste du [VP [NP Sofie ]<sub>j</sub> [VP [ t<sub>i</sub> for en bog ] t<sub>j</sub> ] ] ?  
 what showed you Sofie<sub>dat</sub> for a book<sub>acc</sub>
- b. \*Hvad<sub>i</sub> viste du [VP [NP t<sub>i</sub> for en pige ]<sub>j</sub> [VP [NP bogen ] t<sub>j</sub> ] ] ?  
 what showed you for a girl<sub>dat</sub> book-the<sub>acc</sub>

Next, consider (non-DO) XPs which are dominated by the lower VP, e.g., non-argument PPs that are base-generated under V' under present assumptions. It turns out that extraction is possible even if the PP is not L-marked in Chomsky's (1986) sense, as long as it stays in its base position within the lower VP (cf. Koster (1987); recall also the discussion of extraction from PP in chapter 2 above):

- (32) a. Wo<sub>i</sub> hat Fritz [VP α [VP β [V' [PP t<sub>i</sub> unter ] gelegen ]]] ?  
 what has Fritz under lain
- b. Wo<sub>i</sub> hat sie [VP α [VP den Sekt [V' [PP t<sub>i</sub> für ] gekauft ]]] ?  
 what has she the champagne for bought

- c. \*Wo<sub>i</sub> hat sie [PP t<sub>i</sub> für ]<sub>j</sub> [VP den Sekt [V' t<sub>j</sub> gekauft ] ] ?  
 what has she for the champagne bought

Based on Baker's (1988) UTAH one can construct an even more direct argument for the structure of VP adopted here, and for Case-driven movement of the IO. According to this hypothesis, the D-structure of the applicative construction (33-a) must be identical to the structure of (33-b), since the sentences are thematic paraphrases:

- (33) a. daß wir [NP *den Blumen* ] Wasser überschütteten  
 that we the flowers<sub>dat</sub> water<sub>acc</sub> poured-over  
 b. daß wir Wasser [PP über *die Blumen* ] schütteten  
 that we water<sub>acc</sub> over the flowers poured

Optional P-incorporation gives rise to complex verb formation as in (33-a); the NP left behind in the PP will not get Case in this position, since traces of incorporated heads cannot assign Case anymore (cf. Baker (1988)). Therefore, it has to move into a Case-marked position, and the only one that is available is the specifier of the VP-shell. Here, the NP receives structural dative Case.<sup>11</sup>

But whereas the dative NP in (33-a) is opaque for extraction (cf. (34-a) vs. (34-b)), the PP in (33-b) is not (cf. (34-c)), just as expected:

- (34) a. Von wem<sub>i</sub> hast du [VP α [VP [NP die Blumen t<sub>i</sub> ] gesehen ] ] ?  
 of whom have you the flowers<sub>acc</sub> seen  
 b. \*Von wem<sub>i</sub> hast du [VP [NP den Blumen t<sub>i</sub> ] [VP Wasser  
 of whom have you the flowers<sub>dat</sub> water<sub>acc</sub>  
 übergeschüttet ] ] ?  
 poured-over  
 c. Wo<sub>i</sub> hast du [VP α [VP Wasser [V' [PP t<sub>i</sub> über ] geschüttet ] ] ] ?  
 what have you water<sub>acc</sub> over poured

Finally, note that adjacency to the verb is not a necessary condition for a category included in the lower VP to resolve barrierhood and allow extraction (cf. Koster (1987: 181)):

- (35) a. Wo<sub>i</sub> ist er [VP - [VP [V' [PP t<sub>i</sub> mit ] [V' [PP zum Doktor ]  
 what is he with to-the doctor  
 gegangen ] ] ] ?  
 gone  
 b. Wo<sub>i</sub> ist er [VP - [VP [V' [PP damit ] [V' [PP t<sub>i</sub> hin ]  
 where is he that-with to  
 gegangen ] ] ] ?  
 gone

- c. \*Wo<sub>i</sub> ist [IP [PP t<sub>i</sub> mit ]<sub>j</sub> [IP der Fritz t<sub>j</sub> zum Doktor  
 what is with ART Fritz<sub>nom</sub> to-the doctor  
 gegangen ]] ?  
 gone

In (35-a), the PP allows postposition stranding although it is not adjacent to the verb, just as the PP in (35-b) does, which is adjacent to the verb. (35-c) shows that if the PP is scrambled out of the VP (in front of the subject, in this case), it turns into a barrier and blocks postposition stranding.

From these data, a very simple generalization emerges: XPs included in the lower VP are transparent for movement (modulo lexical factors in the case of NPs), and XPs external to the lower VP (or adjoined to it) are barriers. Unfortunately, the theory of barriers developed so far does not yet correctly account for these data. Recall that according to this theory, XPs in specifier positions are invariably barriers. Hence, the theory of barriers and antecedent-government has to be modified in a way that allows DOs (which are now analysed as specifiers of the lower VP) to resolve barrierhood via incorporation. At the same time, it must be guaranteed that the strict barrierhood of subjects (i.e., specifiers of I), IOs (specifiers of  $\mu$ ), and categories in SpecC can be maintained.

I will present two possible modifications in the next two sections. Before doing so, however, it should be pointed out that the data presented in this section clearly prove that an IO in dative shift configurations occupies a position different from that of a DO in unshifted double object constructions, and that a DO (which has not undergone scrambling) occupies the same position in both types of double object constructions. (This point is also emphasized by Fanselow (1991: 102).) Thus, the pertinent claims of sections 3.2.1 and 3.2.4. are substantiated by empirical evidence.

## 4.2. The role of selection

In Müller & Sternefeld (1994), the problem of making DOs in SpecV positions transparent is solved by introducing the notion of “direct selection” in the definition of barrier. Suppose that the definitions of “escape hatch,” “proper government,” “Subjacency,” etc. all stay the same. The notion of barrier, however, is modified as follows (I accommodate differing but irrelevant details of the definition of barrier in Müller & Sternefeld (1994) to the present framework, as it was developed in the preceding chapters):

- (36) *Barrier* (Müller & Sternefeld (1994: 335)):  
 For every  $\alpha$  included in XP, XP is a barrier iff (a) and (b) hold:
- a.  $\alpha$  does not occupy an escape hatch in XP.
  - b. If XP is directly selected by Y, then X is distinct from Y.

Direct selection is understood as follows.

(37) *Direct Selection:*

A zero-level category Y directly selects XP iff (a) or (b) holds:

- a. Y assigns a  $\Theta$ -role to XP within YP.
- b. Y' immediately dominates XP.

According to (37-b), C directly selects IP, and I directly selects VP, whether or not VP is  $\Theta$ -marked. V directly selects every element within VP that it  $\Theta$ -marks. Moreover, V directly selects everything immediately included in V', whether  $\Theta$ -marked or not. Note, however, that a category in SpecI, which, by assumption, is selected by I (cf. chapter 2), is not directly selected – neither by I, nor by V. Similarly, items in SpecC and adjuncts to an XP are not directly selected. Hence, it follows that subjects, categories located in SpecC, and structural adjuncts are always barriers for elements included in their respective “opaque domains” – i.e., for elements which do not occupy an escape hatch of these categories. Similarly, IOs which have undergone Case-driven movement and occupy the Spec $\mu$  position are always barriers, according to (36) and (37) – they are not directly selected in this position. On the other hand, categories which are directly selected are barriers for elements which do not occupy an escape hatch unless their head is non-distinct from the head they are directly selected by. From this it follows that DOs (in situ) and XPs dominated by V' still depend on (abstract) incorporation of their head into the verb. In order to permit this incorporation from specifiers, then, the notion of p-command adopted so far must be abandoned, and replaced by the more liberal notion of m-command in the definition of antecedent-government; see below.

From a meta-theoretical point of view, this revision of the theory of barriers has exactly the right consequences for two reasons. First, direct selection is defined in such a way that only those XPs in specifier positions are directly selected that receive a  $\Theta$ -role from the particular head to which the specifier belongs. This distinguishes between DOs on the one hand, and elements in SpecI, SpecC, or Spec $\mu$  on the other. And second, the definition of barrier in a way re-introduces Chomsky's notion of L-marking (or, more accurately, Cinque's (1990) and Rizzi's (1990) notion of “selection”). Note that (36-b) is formulated as a material implication. A logical implication of course always holds true if the *if*-part is false, and the *if*-part is false when the XP under consideration is not directly selected. This kind of solution (which was developed by Wolfgang Sternefeld; cf. Sternefeld (1991)) strikes me as rather elegant, but there is no denying that the (by now classic) idea that categories are barriers if they are not “selected” (in some sense) has returned. Although it is not mentioned explicitly that XPs are barriers if they are not “selected,”

minimality barriers can be resolved by incorporation only when they are “selected.”

As can be seen from the definition of “direct selection” proposed in Müller & Sternefeld (1994), XPs may still become transparent without being assigned a  $\Theta$ -role if they are “close enough” to the verb (i.e., dominated by  $V'$ ); hence, the objections that can be raised against the concept of “L-marking” in the light of data such as (32-ab), which involve extraction from non-arguments, do not carry over to this theory. Nevertheless, it seems to me to be preferable for conceptual reasons to not re-introduce the notion of “selection” as a necessary condition for the removal of barrierhood, and try to account for the transparency of DOs in a purely minimality-based approach to barriers such as the one assumed so far.

### 4.3. Incorporation from specifier positions

Recall the definitions of barrier, antecedent-government, and p-command developed in chapter 2, and adopted so far:

(38) *Barrier:*

For every  $\alpha$  included in XP, XP is a barrier iff (a) and (b) hold:

- a.  $\alpha$  does not occupy an escape hatch in XP.
- b. X is distinct from Y, where Y is the head of YP, and YP is the minimal maximal projection which does not exclude XP.

(39) *Antecedent-Government:*

$\alpha$  antecedent-governs  $\beta$  iff

- a.  $\alpha$  p-commands  $\beta$ .
- b.  $\alpha$  and  $\beta$  are co-indexed.
- c. There is no barrier  $\gamma$  for  $\beta$  which excludes  $\alpha$ .

(40) *P-Command* (‘projection-command’):

$\alpha$  p-commands  $\beta$  iff (a) and (b) hold:

- a. No segment of  $\alpha$  dominates  $\beta$ .
- b. If  $\gamma$  is the first projection such that all segments of  $\gamma$  dominate  $\alpha$ , then all segments of  $\gamma$  dominate  $\beta$ .

Recall further that the notion of p-command has an intermediate status between classic c-command and Chomsky’s (1986) notion of m-command. It is more liberal than c-command in that it allows a head  $\alpha$  adjoined to another head  $\beta$  to antecedent-govern its trace, as long as this trace is dominated by  $\beta'$ . On the other hand, it is more restrictive than m-command in that elements included in SpecX can never be antecedent-governed from below X'. The notion of p-command was essential in order to derive the barrierhood of, e.g., subjects, elements in SpecC, and adjuncts, for in all these cases, incorporation

of the head of the subject or adjunct into the head of the next XP above it (i.e., the next XP which does not exclude the subject or adjunct) is ruled out due to a lack of p-command – the incorporated item cannot antecedent-govern its own trace, and hence, the two relevant heads cannot be made non-distinct.

In contrast to this approach, the work of deriving (e.g.) the Subject Condition and the Adjunct Condition in the framework of Sternefeld (1991) and Müller & Sternefeld (1994) is done solely by the definition of barrier, as in (36). Therefore, one can (in fact, must) dispense with a notion like p-command in that theory, and rather adopt the more simple notion of m-command, which is also used for the definition of government. Thus, antecedent-government and government can be unified, and antecedent-government can simply be defined via the notion of government, as in (41) (cf. Chomsky (1986: 17)):

(41) *Antecedent-Government* (simplified version):

$\alpha$  antecedent-governs  $\beta$  iff

- a.  $\alpha$  governs  $\beta$ .
- b.  $\alpha$  and  $\beta$  are co-indexed.

(42) *Government*:

$\alpha$  governs  $\beta$  iff

- a.  $\alpha$  m-commands  $\beta$ .
- b. There is no barrier  $\gamma$  for  $\beta$  which excludes  $\alpha$ .

Now, what happens if one dispenses with the notions of antecedent-government and p-command as defined in (39) and (40), and assumes rather the version of antecedent-government as presented in (41), but nevertheless maintains the definition of barrier in (38)? A first attractive result is that the barrierhood of DOs (as specifiers of the lower VP) can be resolved by incorporation. A less attractive, in fact disastrous result is that now, the barrierhood of subjects, IOs bearing dative Case, and, indeed, specifiers in general, can also be resolved by incorporation. Cf.:

(43)  $[_{YP} [_{XP} [x t_i]] [_{Y'} [Y Y_j X_i] ZP ]]$

Here  $X_i$  may now antecedent-govern its trace if m-command, rather than p-command is the relevant notion for antecedent-government.

Adjuncts, at least, continue to be barriers under the present assumptions. In that case, an incorporated head does not m-command its trace, since by definition (cf. Chomsky (1986))  $\alpha$  m-commands  $\beta$  only if the next XP which includes  $\alpha$  also includes  $\beta$ . Cf.:

(44)  $[_{YP} [_{YP} \dots [_{Y'} [Y Y_j X_i] \dots ] ] [_{XP} [x t_i]]]$

In (44),  $X_i$  does not m-command its trace  $t_i$  because YP does not include  $t_i$ . Now suppose that incorporation from specifiers is allowed in principle.

Then how can incorporation from subjects, IOs bearing dative Case (i.e., IOs in Spec $\mu$ ), categories located in SpecC, etc. be excluded? I think an at least tentative answer to this problem can be given by invoking the notions of m-selection (i.e., morphological selection) and c-selection (i.e., categorial selection) we have already encountered in chapter 2. For concreteness, I would like to postulate the following principle:

(45) *The Uniformity Constraint on M-Selection:*

An X<sup>0</sup>-category of type  $\alpha$  is able to *m-select* another X<sup>0</sup>-category  $\beta$  with the categorial features F only if a category of type  $\alpha$  may *c-select* a maximal projection  $\gamma$  with the categorial features F.

This means that, e.g., a verb can m-select only categories which it c-selects. Since V can c-select PPs, NPs, VPs, and APs, X<sup>0</sup>-categories of type P, N, V, or A may be incorporated into verbs if m-command of their traces occurs in the resulting configuration. This accounts for the ability of heads of DOs to (abstractly) incorporate into the verb and resolve the barrierhood of the DO, although a DO occupies a specifier position. (Note in passing that (45) contains an “only if.” This implies that other conditions may have to be met in order for m-selection (and this means incorporation) to apply legitimately. It is exactly here where the lexical variation discussed in chapter 2 comes into play.)

Consider now the empty verbal head  $\mu$ , in contrast to a lexical verb. Such a head c-selects a VP complement, but of course it never c-selects an NP. Therefore, according to (45), a verb may incorporate into the empty verbal head of the VP-shell, but the head of an NP (such as the IO) may not. Hence, IOs are always barriers.

Turning next to I, let us assume that I c-selects only VP, and not the subject. Then, heads of subjects may not incorporate into I, and, as a consequence, NP subjects always block extraction (recall that bare CP subjects, i.e., infinitives, have an escape hatch, and thus do not block *wh*-movement or topicalization even though incorporation may not occur). At this point, it becomes evident that c-selection takes place in exactly the same environments where direct selection (as defined in (37)) does – the difference concerning the SpecI position (selection but no c-selection) is obviously the same as the one we encountered in the last section (selection but no direct selection). Hence, there is no reason not to identify the notions of *categorial selection* and *direct selection*, and I will therefore use only the former notion in what follows.

C categorially selects IP, and nothing else. This predicts that the only element which may incorporate into C is I. In particular, the head of an NP, PP, AP, VP or CP located in SpecC may never incorporate into C. Thus, the barrierhood of XPs located in SpecC is derived (cf. chapter 2 above):

- (46) a. \*Worüber<sub>i</sub> meinst du [<sub>CP</sub> [<sub>NP</sub> ein Buch t<sub>i</sub> ]<sub>j</sub> habe [<sub>IP</sub> keiner t<sub>j</sub>  
 about-what think you a book has<sub>subj</sub> no-one  
 gelesen ]] ?  
 read
- b. \*Antje<sub>i</sub> glaube ich [<sub>CP</sub> [<sub>VP</sub> t<sub>i</sub> geküßt ]<sub>j</sub> hat [<sub>IP</sub> hier t<sub>j</sub> heute jemand ]]  
 Antje believe I kissed has here today someone

Of course, C never selects VP. This makes an interesting prediction. Consider the following examples from Chomsky (1986: 68):

- (47) a. How tall<sub>i</sub> will<sub>j</sub> John t<sub>j</sub> be t<sub>i</sub> ?  
 b. \*How tall<sub>i</sub> be<sub>j</sub> John will t<sub>j</sub> t<sub>i</sub> ?

(47-b) is a violation of the Head Movement Constraint (HMC). As noted in chapter 2 already, a complete derivation of the HMC is by no means trivial, and does not immediately follow from the theory of minimality barriers. However, it is worth noting that (45) straightforwardly excludes HMC violations like (47-b) – here, a verb is raised to C, although C never selects VP, and hence does not allow incorporation of a verb.

So far, I have assumed that the only categories c-selectable by V are the lexical ones, i.e., N, P, V and A. But now recall that the analysis of infinitives developed so far crucially depends on their being bare CPs without an NP-shell. This suggests that incorporation of C into V should in principle be possible. Of course, in control infinitives, this has to be precluded in order to maintain the PRO theorem (i.e., to guarantee an ungoverned PRO). But Baker (1988) proposes that C-to-V incorporation lies at the heart of certain causative constructions, and indeed, Grewendorf (1991) presents a Baker-style analysis of the German *lassen*-construction according to which there is (abstract) head movement of the embedded verb from V to I, then from I to C, and finally from C to the matrix verb. So it might best be postulated that certain verbs (viz., ECM verbs like *lassen* in German) permit incorporation of an empty infinitival C node as a lexical property, whereas control verbs do not allow C incorporation, although this would neither contradict the theory of proper government, nor principle (45).

In conclusion, a slightly simplified version of the theory of barriers and proper government (compared to that of chapter 2), augmented by a principle like (45), seems to work just as well as the theory developed in Müller & Sternefeld (1994) that was discussed in section 4.2. In fact, it seems that in general, each distinction which can be expressed in the one approach can equally well be expressed in the other one. Of course, this is due to the fact that, as pointed out above, the notion of c-selection crucially occurs in both theories. Thus, whenever one postulates that a category X does not c-select a category YP (where XP is the next maximal projection above YP), YP

invariably turns into a barrier – in the first framework, because it is claimed that all maximal projections are barriers if they are not c-selected (or directly selected); and in the second framework, because then (45) predicts that m-selection is not possible.

Thus, it looks as though, by and large, the two theories are equivalent. One subtle but, I believe, interesting difference is that in the second approach, one does not have to stipulate that incorporation of Y into X is impossible if YP is not selected by X. Rather, in the formulation of (45), it is implied that m-selection of a category with certain categorial features (say, the feature set F) by a particular head is impossible unless this head is *in principle* able to c-select an XP with the same set of categorial features. Note that it is not implied that a head can m-select another head only if it actually c-selects the maximal projection of *that latter head*.

I am not sure whether there is decisive evidence which speaks for or against either one of the two theories as far as this issue is concerned. Highly relevant is of course the case of ECM constructions. As pointed out in chapter 2 (section 3.4.1), ECM subjects block extraction in English and German. (48-b) (= (ii-a) from note 26 of chapter 2) is a relevant example:

- (48) a. Ich habe [IP [NP ein Buch über die Liebe ] die Welt erobern ]  
 I have a book<sub>acc</sub> about the love the world conquer  
 sehen  
 seen
- b. \*Worüber<sub>i</sub> hast du [IP [NP ein Buch t<sub>i</sub> ] die Welt erobern ]  
 about-what have you a book<sub>acc</sub> the world conquer  
 sehen ?  
 seen

In order to become well formed, (48-b) would require abstract noun incorporation into I, which is precluded since I does not c-select NPs.

In contrast to this, Baker (1988: 135ff) has argued that there are in fact cases of overt incorporation of an ECM subject into the matrix verb. Baker's examples involve antipassive formation in Chamorro. In his analysis, the antipassive morpheme is analysed as a nominal affix which usually is the head of a DO at D-structure, and which then, being an affix, obligatorily undergoes incorporation into the governing verb. The following example, however, indicates that the antipassive morpheme is "usually," but eventually not always the head of a DO. Here, an ECM subject acts as the antipassive morpheme, and undergoes incorporation, obviously without violating any principle of grammar:

- (49) Kao man-ekspekta hao pāra un ma'-ayuda ?  
 Q APASS-expect you<sub>abs</sub> IRREAL-2s-PASS-help  
 "Do you expect SOMEONE to help you?"

Towards a preliminary account of this, suppose that in Chamorro, both I and C (the latter only in ECM contexts) are *positional* categories, rather than categories which independently *project* features (cf. Stechow & Sternefeld (1988) for this terminology). Suppose furthermore that positional categories are in a sense too "weak" to erect barriers. Then, neither IP nor CP (in ECM constructions) is a barrier. (I will return to this issue in more detail in the following chapters.) Given this state of affairs, the head of an ECM subject may legitimately incorporate into the matrix verb, according to the theory of proper government developed in this section, because verbs clearly are able to c-select NPs, and the incorporated nominal affix simultaneously m-commands and is not separated by a barrier from its trace in the SpecI position. The theory presented in section 4.2, however, predicts that (49) will be ungrammatical, no matter whether I and C (in ECM contexts) erect barriers or not; for under those assumptions, an NP in SpecI is *never* c-selected, and its barrierhood accordingly can never be resolved.

After this slight detour, I will now return to the original topic, viz., the apparent conflict between the requirements of the theories of barriers and binding in double object constructions. Thus far, I have accounted for the extraction facts; now I will address the issue of anaphoric binding. Before that, however, I would like to again stress that the strict barrierhood of dative NPs in double object constructions clearly supports the analysis of dative shift as Case-driven A-bar movement. I have argued that a shifted IO exhibits a kind of *Freezing* effect with respect to the theory of barriers, in the same way as a DO which has undergone scrambling. Note that if dative movement were A-movement ending in the position occupied by the DO in unshifted versions of double object constructions (as Larson (1988) assumes), we would expect shifted IOs to behave like DOs with respect to barrierhood, contrary to fact. Similar considerations apply if one were to assume that dative shift is a lexical phenomenon, and that a dative IO in front of a DO occupies a base-position. Summarizing, IOs bearing dative Case are invariably barriers, and the most straightforward explanation of this is that they have undergone Case-driven A-bar movement.

## 5. Anaphoric binding

### 5.1. Binding of anaphors in German

Consider again the data involving anaphoric binding in double object constructions, as they were pointed out in chapter 3 and, more concisely, in section 2 of this chapter. First, binding of IO anaphors by DOs (or by subjects) is relatively unproblematic:

- (50) a. daß der Arzt<sub>i</sub> den Patienten<sub>j</sub> sich<sub>i/j</sub> im Spiegel zeigte  
 that the doctor<sub>nom</sub> the patient<sub>acc</sub> REFL<sub>dat</sub> in-the mirror showed  
 b. daß man die Gäste<sub>i</sub> einander<sub>i</sub> vorgestellt hat  
 that one<sub>nom</sub> the guests<sub>acc</sub> RECI<sub>dat</sub> introduced-to has

On the other hand, DO anaphors generally may not be bound by IOs (although they can be bound by subjects).

- (51) a. daß der Arzt<sub>i</sub> dem Patienten<sub>j</sub> sich<sub>i/\*j</sub> im Spiegel zeigte  
 that the doctor<sub>nom</sub> the patient<sub>dat</sub> REFL<sub>acc</sub> in-the mirror showed  
 b. \*daß man den Gästen<sub>i</sub> einander<sub>i</sub> vorgestellt hat  
 that one<sub>nom</sub> the guests<sub>dat</sub> RECI<sub>acc</sub> introduced-to has

An explanation of (51) is straightforward, given the assumptions so far. The IO bears dative Case. This implies that it has undergone Case-driven movement to the position where dative Case is assigned, i.e., to Spec $\mu$ . This position is an A-bar position (albeit one where Case is assigned), and hence anaphoric binding is impossible from here. Note in addition that the trace of the IO, which of course occupies an A-position, cannot bind the DO due to a lack of c-command (assuming, following Reinhart (1976), Chomsky (1986) and others, that the notion of c-command relevant for binding theory is defined in terms of the “first branching node,” as opposed to, e.g., m-command). Finally, binding by the subject is of course possible, since it occupies an A-position (i.e., SpecI), by assumption. Thus, the relevant part of the structure of, e.g., (51-a) looks like this:

- (52) \* ... [VP IO<sub>i</sub> [VP sich<sub>i</sub> [v' t<sub>i</sub> ... ]]] ...

If this explanation of (51) is correct, one expects shifted IOs to be able to bind anaphors which are more deeply embedded, i.e., c-commanded by the IO-trace in A-position. As noted by Grewendorf (1984; 1988: 58), this is the case:

- (53) a. daß Maria<sub>j</sub> ihr<sub>i</sub> die Augen [<sub>PP</sub> über sich<sub>j/i</sub>] öffnete  
 that Maria<sub>nom</sub> her<sub>dat</sub> the eyes<sub>acc</sub> about REFL opened

- b. daß der Mann [VP den Fritz<sub>i</sub> [V' [PP mit sich<sub>i</sub> ]  
 that the man<sub>nom</sub> ART Fritz<sub>acc</sub> with REFL  
 konfrontierte ]]  
 confronted

In (53), the anaphor *sich* is contained in a PP which occupies a  $\gamma$ -position (in the sense of (18)); therefore, anaphoric binding by the IO is possible, in spite of dative movement:

- (54) ... [VP IO<sub>i</sub> [VP DO [V' t<sub>i</sub> [V' [PP ... sich<sub>i</sub> ]]]]] ...

An explanation of the possibility of anaphoric binding in (50) is slightly more involved. The data indicate that the DO asymmetrically *c*-commands the IO anaphor. I have indeed assumed, following Larson (1988), that IOs are base-generated below DOs. But I have also assumed that they are then raised to Spec $\mu$  in order to receive structural dative Case (unless they can receive Case from a preposition). Now, imagine that an IO for some reason does not have to receive Case. Then, there is nothing that precludes it from staying in situ, where it could be A-bound by a DO even at S-structure. Thus, in what follows, I would like to argue, based on Müller & Sternefeld (1994), that the reflexive anaphor *sich* and the reciprocal anaphor *einander* in German do not depend on the assignment of structural Case. This implies that they can remain in their base-position if they occur as IOs. In this position, then, they can be bound both by subjects and DOs.

The first relevant observation concerns middle constructions. Stechow (1990a: 176ff) and others have noted that *sich* appears to be able to escape the Case Filter in German middle constructions, where structural accusative Case is absorbed. This indicates that *sich* simply does not need Case; cf.:

- (55) a. Hier lebt es *sich* sehr gut  
 here lives it REFL very well  
 b. Das Buch verkauft (*sich*) schlecht  
 the book sells REFL badly

Even more intriguing is the case of the passive. Apparently, anaphoric *sich* and reciprocal *each other* are not affected by Case-absorption in the passive (cf. (56-b) & (57-b)), in contrast to other NPs (cf. (56-a) & (57-a)). Again this suggests that these categories do not need Case in the first place, and therefore are immune to Case-absorption:

- (56) a. \*daß den Fritz jetzt gewaschen wird  
 that ART Fritz<sub>acc</sub> now washed PASS  
 b. daß *sich* jetzt gewaschen wird  
 that REFL now washed PASS

- (57) a. \*Hier wird *den Fritz* nicht verprügelt  
 here PASS ART *Fritz<sub>acc</sub>* not beaten  
 b. Hier wird *einander* nicht verprügelt  
 here PASS RECIP not beaten

Hence, it can be concluded that *sich* and *einander* generally do not need structural Case in German. But then, the reflexive or reciprocal element in examples like (50-ab) does not have to undergo Case-driven movement to the specifier of the VP-shell. Accordingly, no movement of either IO or DO is necessary to derive the surface word order; therefore, the relevant configuration of (50-a) will be as follows:

- (58) ... [VP - [VP DO<sub>i</sub> [V' *sich<sub>i</sub>* ... ]]] ...

The IO anaphor is a daughter of V', and can be A-bound within its governing category, either by the subject or by the DO. Thus, the apparent paradox from section 2 is resolved.<sup>12</sup>

An immediate consequence of the analysis presented so far is this: anaphors *contained* in shifted IOs cannot be bound by DOs in German, whereas anaphors contained in unshifted IOs can be (just like bare IO anaphors). This prediction is borne out:

- (59) ?\*daß wir den *Fritz<sub>i</sub>* [NP einer alten Freundin von *sich<sub>i</sub>*] geschickt  
 that we ART *Fritz<sub>acc</sub>* an old friend<sub>dat</sub> of REFL sent  
 haben  
 have  
 (60) daß wir den *Fritz<sub>i</sub>* [PP zu einer alten Freundin von *sich<sub>i</sub>*] geschickt  
 that we ART *Fritz<sub>acc</sub>* to an old friend of REFL sent  
 haben  
 have

In (59), dative movement has applied; hence, the anaphor *sich* is not A-bound by the DO, which must have undergone scrambling, i.e., A-bar movement (cf. (61-a)). The IO in (60), on the other hand, is assigned Case by a preposition, and may thus stay in situ. Then, the DO A-binds the anaphor within the IO (cf. (61-b)):

- (61) a. ?\*... [VP<sub>1</sub> DO<sub>i</sub> [VP<sub>1</sub> [NP ... *sich<sub>i</sub>* ]<sub>j</sub> [VP<sub>2</sub> t<sub>i</sub> [V' t<sub>j</sub> ]]]] ...  
 b. ... [VP<sub>1</sub> - [VP<sub>2</sub> DO<sub>i</sub> [V' [PP zu ... *sich<sub>i</sub>* ]]]] ...

## 5.2. Parametric variation

There appears to be some parametric variation with anaphoric binding in double object constructions. Barss & Lasnik (1986) and Larson (1988) observe



excludes (65-d) if one assumes that lexical anaphors do not need Case in English – the subject position is filled by an expletive, which (as seen above) is allowed in principle, and the sentence should therefore be well formed. Thus, one may conclude that reciprocals and reflexives in English must receive Case.

Finally, a rather obvious indication that this conclusion is true can be gained from the simple fact that the morphologically complex reflexive pronouns of English *overtly* show Case-marking (cf. *HIM-self*, *HER-self*, *THEM-selves*), again in contrast to their German counterparts. This clearly suggests that they must be assigned Case; it seems plausible to assume, then, that this conclusion generalizes to reciprocals, even though *each other* is not overtly Case-marked.

Then, what remain to be accounted for are the data (62-ab). In the present context, an example like (62-a) is interesting only insofar as it shows that the English preposition *to* is compatible with a broader class of triadic verbs – examples like (62-a) are ungrammatical in German, but I contend that this has nothing to do with reflexivization options; rather, this is due to the fact that German analogues to, e.g., *present* (like *vorstellen*) or *show* (*zeigen*) do not tolerate a preposition *an* (or, indeed any other preposition) as a Case-assigning (or Case-realizing, see above) element for an IO in situ, i.e., in the lower VP. An example like (60) in German, though, is structurally completely analogous, and well formed, as expected.

The last case to be considered is (62-b). The crucial question is this: Why is anaphoric binding from Spec $\mu$  generally judged grammatical in English (and Dutch)? Recall that Spec $\mu$  is an A-bar position, and therefore should not allow anaphoric binding. As a first step towards a solution, recall that the specifier position of the VP-shell differs from other types of A-bar positions in one respect – structural Case can be assigned to this position.<sup>13</sup>

This indicates that the A-/A-bar distinction does not suffice, and must be augmented in one way or another (as argued, among others, by Déprez (1989), Mahajan (1990), and Chomsky & Lasnik (1993)). Thus, suppose that we differentiate between A-positions, A-bar positions (both in the classic sense), Case-positions, and, finally, Case-bar positions, where the latter two are defined in complete analogy to A- and A-bar positions:

(66) *A-Position* (Chomsky (1981)):

A position is an A-position iff it can be assigned a  $\Theta$ -role, and an A-bar position otherwise.

(67) *Case-Position*:

A position is a Case-position iff it can be assigned structural Case under specifier-head agreement, and a Case-bar position otherwise.

Now, one can combine the features  $[\pm A]$  and  $[\pm \text{Case}]$ , and define, inter alia, a class of positions where either structural Case or a  $\Theta$ -role is assignable. Some-

thing along these lines is done by Rizzi (1991a). He assumes that  $\Theta$ -positions and specifiers of heads which bear agreement features form a natural class. Rizzi maintains the name "A-position" for the resulting new type of position, though. In order to avoid confusion, and to guarantee compatibility with the classic terminology, I prefer to call the new type of position "GF-position." This is meant to correspond to the (somewhat pre-theoretical) intuition that "Case" and " $\Theta$ -role" encode the basic grammatical functions (GFs).<sup>14</sup>

(68) *GF-Position:*

A position is a GF-position iff it is an A-position or a Case-position.

Now, it is straightforward to postulate that English (or Dutch) reflexives, in contrast to German reflexives, have to be GF-bound in their governing categories, which is a less strict requirement than the one to be met by German anaphors, which must be A-bound.

Or do they? Some German speakers appear to make judgements on examples involving reflexive binding in double object constructions which are similar to those attested for English – they allow binding of a DO reflexive by an IO. This holds for Frey (1989) and, to some extent, Fanselow (1987; 1991). Thus, Fanselow (1991: 108) presents examples like (69), which he considers grammatical:

- (69) Als Reiseleiter empfehle ich [VP dem Bürgermeister<sub>i</sub> [VP [NP  
as guide recommend I<sub>nom</sub> the mayor<sub>dat</sub>  
sich<sub>i</sub> und seine Frau ] [V' t<sub>i</sub> ]]]  
REFL<sub>acc</sub> and his wife<sub>acc</sub>

These facts can be explained if one assumes that there is dialectal variation in German with respect to the type of position relevant for the formulation of principle A. More rigid speakers do not permit binding of a DO reflexive by an IO, whereas liberal speakers do – in the first case, proper A-binding is required for reflexives, in the latter case, it suffices if the reflexive is GF-bound, just as in English.<sup>15</sup>

### 5.3. Binding of reciprocals

Manzini & Wexler (1987) have developed a theory of parametric variation according to which parameters are not simply set differently from one language to another. Rather, parametric variation is handled in the lexicon – different lexical items may induce different parameter values even in one and the same language. As regards lexical anaphors, Manzini & Wexler (1987) show that different anaphors may have different binding domains in a given language.<sup>16</sup> Indeed, Lebeaux (1983) has observed that the distribution of reflexives and reciprocals is not strictly identical in English. Thus, it is perfectly conceivable

that reciprocals behave differently from reflexives in double object constructions. In English, however, this appears not to be the case – as pointed out by Chris Wilder, there is no systematic difference between reciprocals and reflexives in this domain. Consider the following examples (from Chris Wilder (p.c.); cf. also Koster (1988: 8)):

- (70) a. I assigned [<sub>NP</sub> the twins ]<sub>i</sub> [<sub>NP</sub> each other ]<sub>i</sub> t<sub>i</sub> (as dance partner)  
 b. I assigned [<sub>NP</sub> the twins ]<sub>i</sub> [<sub>PP</sub> to each other<sub>i</sub> ] (to dance with)
- (71) a. I sent [<sub>NP</sub> the girls ]<sub>i</sub> [<sub>NP</sub> each other's<sub>i</sub> books ] t<sub>i</sub>  
 b. I sent [<sub>NP</sub> the girls ]<sub>i</sub> [<sub>PP</sub> to each other's<sub>i</sub> parents ]

These examples indicate that reciprocals in English need a binder in a GF-position, and not necessarily in an A-position. This means that the parameter values of reciprocals and reflexives as regards the position of the antecedent are identical in English. The same seems to be the case in Dutch; cf. Koster (1988).

Now recall that for a number of German speakers (the less liberal ones), reflexives require an antecedent in A-position, whereas others tolerate binding of a reflexive DO by an IO which has undergone dative movement, and hence occupies an A-bar GF-position. Interestingly, *all* speakers of German appear to disallow binding of a reciprocal DO by a dative-moved IO. I.e., there is a sharp contrast between examples like (50-b) and (51-b) (repeated here), even for more liberal speakers (cf. Frey (1989)):

- (72) a. daß man die Gäste<sub>i</sub> einander<sub>i</sub> vorgestellt hat  
 that one<sub>nom</sub> the guests<sub>acc</sub> RECIP<sub>dat</sub> introduced-to has
- b. \*daß man den Gästen<sub>i</sub> einander<sub>i</sub> vorgestellt hat  
 that one<sub>nom</sub> the guests<sub>dat</sub> RECIP<sub>acc</sub> introduced-to has

This implies that reciprocals require a binder in A-position in all dialects of German, even if reflexives require a binder in GF-position only. Thus, the conclusion that an IO bearing dative Case occupies an A-bar position is supported even by the evidence from the more liberal German dialects – otherwise, the ungrammaticality of (72-b) would remain a mystery in this dialect.

This conclusion is questioned by Hubert Haider (p.c.). He argues that one should not trust the binding facts in (72), because a DO reciprocal cannot refer to the subject either in the presence of an IO bearing dative Case. I do not agree with this intuition. Given a suitable context, co-indexing of a DO reciprocal becomes possible with the subject, whereas it remains impossible with the IO throughout. Consider, e.g., the following sentences ((73-b) is provided by Hans-Peter Kolb (p.c.)), which are perfectly well formed under co-indexing of subject and DO reciprocal:

- (73) a. Die Schüler<sub>i</sub> sollen den Lehrern<sub>j</sub> [VP einander<sub>i/\*j</sub> t<sub>j</sub> ]]  
 the pupils<sub>nom</sub> shall the teachers<sub>dat</sub> RECI<sub>acc</sub>  
 vorstellen  
 introduce-to
- b. Die Mädchen<sub>i</sub> präsentierten den Jungen<sub>j</sub> einander<sub>i/\*j</sub> t<sub>j</sub> als  
 the girls<sub>nom</sub> presented the boys<sub>dat</sub> RECI<sub>acc</sub> as  
 Tanzpartner  
 dance partners

To summarize: The behaviour of reciprocals in double object constructions, although it may differ from the behaviour of reflexives in a given language, again suggests that there is Case-driven movement of an IO which ends in an A-bar position.

In conclusion, two arguments in support of dative shift as Case-driven A-bar movement can be gained from evidence involving anaphoric binding. First, the fact that IOs bearing dative Case cannot A-bind a DO anaphor (although they can GF-bind it, which in some languages suffices to fulfill principle A) follows from the assumption that shifted IOs occupy an A-bar position. And second, the fact that IOs bearing dative Case at the same time are able to A-bind V'-internal anaphors is explained by the assumption that an IO-trace exists.

## 6. Pronominal reference

It is well known that pronouns in natural languages may have different semantic functions. Some pronouns are *referential* expressions; they then refer to some entity provided by a given model. In contrast to this, there are pronouns which are interpreted as *variables*, bound by an operator.<sup>17</sup> The difference is illustrated by the sentence pair in (74):

- (74) a. Wer<sub>i</sub> mag t<sub>i</sub> [NP seine<sub>i</sub> Schwester ] ?  
 who likes his sister
- b. Wer<sub>i</sub> mag t<sub>i</sub> [NP seine<sub>j</sub> Schwester ] ?

In (74-a), the pronoun *seine* is co-indexed with a c-commanding operator, and is consequently interpreted as a variable in logical form. The pronoun in (74-b), on the other hand, does not share an index with the operator – it refers autonomously to some contextually fixed entity. It appears to be the case that both types of pronouns obey principle B of the binding theory. An additional restriction on the occurrence of bound variable pronouns has been introduced in the last chapter. There, a modification of Heim's (1989)

Condition on Bound Variable Pronouns was proposed in order to account for the distribution of weak crossover effects with *wh*-movement and scrambling.

Postponing the discussion of bound variable pronouns until section 7, I will, in what follows, first consider referential pronouns in German double object constructions, and discuss a number of solutions to the problem of how to account for the complementary distribution of pronouns and anaphors which have an antecedent within the VP. It turns out that this problem, innocent-looking though it may be, is by no means trivial. Ultimately, however, the evidence is shown to corroborate the existence of Case-driven movement of the IO in dative shift constructions.

Abstracting away from some special cases which will not concern me here, anaphors and pronouns tend to be in complementary distribution.<sup>18</sup> Therefore, it does not come as a surprise that, as far as coreference within the German VP is concerned, pronominal coreference appears to be possible if and only if anaphoric binding is impossible (in the more rigid dialect). I substantiate this claim by introducing the relevant data in the next section, and then try to give an explanation.

### 6.1. The data

Grewendorf (1984; 1988: 58) points out that a pronoun contained in a VP-internal PP can never corefer with the subject, DO, or IO (in contrast, recall the examples in (53-ab) above that involve anaphoric binding):

- (75) a. \*daß Maria<sub>j</sub> ihr<sub>i</sub> die Augen [PP über sie<sub>i/j</sub>] öffnete  
           that Maria<sub>nom</sub> her<sub>dat</sub> the eyes<sub>acc</sub> about her opened
- b. \*daß der Mann<sub>j</sub> [VP den Fritz<sub>i</sub> [V' [PP mit ihm<sub>i</sub> ]  
           that the man<sub>nom</sub> ART Fritz<sub>acc</sub> with him  
           konfrontierte ]]  
           confronted

This follows immediately since the PP, by assumption, is base-generated in a position dominated by the lower V'. Thus, if the PP-internal pronouns in (75) are bound within their respective governing categories by subjects, DOs, or IOs, they are A-bound, in violation of principle B; cf.:

- (76) ... [VP IO<sub>i</sub> [VP DO [V' t<sub>i</sub> [V' [PP ... pronoun ]]]]] ...

Furthermore, Grewendorf (1984; 1988: 57ff) notes that DO pronominals, unlike DO anaphors (in the more rigid variety of German) can be bound by IOs, but not by subjects:

- (77) daß der Arzt<sub>i</sub> dem Fritz<sub>j</sub> ihn<sub>j/\*i</sub> im Spiegel zeigte  
           that the doctor<sub>nom</sub> ART Fritz<sub>dat</sub> him<sub>acc</sub> in-the mirror showed

Since a Case-dependent IO occupies the specifier of the VP-shell (possibly a higher position, after scrambling or operator movement), and since this position is an A-bar position by assumption, a DO pronominal underlying principle B can be bound by an IO which precedes and c-commands it. (It can, of course, not be bound by a subject, since the latter occupies an A-position, and the pronoun is not A-free within its governing category in this case.) Thus, (78) (which is the relevant part of (77)) is well formed, in contrast to structures like (52):

(78) ... [VP IO<sub>i</sub> [VP ihn<sub>i</sub> [V' t<sub>i</sub> ... ]]] ...

Again, this clearly indicates that a shifted IO does not occupy an A-position; otherwise, (78) should be ruled out. A problem, however, is posed by IO pronominals. As observed by Grewendorf, they can never corefer with a subject or a DO:

(79) \*daß der Arzt<sub>i</sub> den Fritz<sub>j</sub> ihm<sub>i/j</sub> im Spiegel zeigte  
 that the doctor<sub>nom</sub> ART Fritz<sub>acc</sub> him<sub>dat</sub> in-the mirror showed

As far as subjects are concerned, they guarantee A-binding just as in the case of DO pronouns, hence disjoint reference is required by principle B of the binding theory. The impossibility of coreference with a DO in (79) does not really come as a surprise either, given the strong tendency of anaphors and pronouns to occur in complementary distribution, and given the well-formedness of (50-a). But recall what has been said about anaphoric *sich* and *einander* in German – they do not have to receive Case and may, therefore, stay in situ even if they are IOs. This means that in order to account for (79) in a straightforward way, one would have to guarantee two things. First, the IO pronoun *ihm* ('him') must somehow be exempt from Case requirements, too, so that it *can* remain in situ. And second, one has to make sure that the IO pronoun *may not* even leave its base position – otherwise, (79) could possibly have a well-formed derivation, with the IO and the DO both leaving their respective base-positions (thereby producing a vacuous movement configuration), where the IO pronoun is not A-bound by the DO anymore. Thus, in order to exclude co-indexing of DO and IO pronoun in (79) via principle B, the following structure must be forced:

(80) \* ... [VP – [VP DO<sub>i</sub> [V' ihm<sub>i</sub> ... ]]] ...

However, apart from the problem that it is by no means obvious why the IO pronoun should *have to* stay in situ, and may not undergo scrambling in order to render the sentence grammatical, it turns out that there is evidence that it *may not* stay in its base position, the reason being that German pronouns behave differently from anaphors with respect to Case requirements. The fol-

lowing examples show that pronouns are affected by Case-absorption in the passive:

- (81) a. \*daß *den Wagen* jetzt gewaschen wird  
           that the car<sub>acc</sub> now washed PASS  
       b. \*daß *ihn* jetzt gewaschen wird  
           that him now washed PASS  
       c. daß *er* jetzt gewaschen wird  
           that he now washed PASS

(81-b) is just as ungrammatical as (81-a). Note in addition that pronouns in German are overtly Case-marked, even more clearly than their English counterparts (and English anaphors, for that matter), since there is an overt accusative/dative distinction. This indicates that pronouns do indeed depend on the assignment of structural Case. Thus, in passive constructions, the pronoun has to show up in nominative form (as in (81-c)).

By my previous reasoning, this state of affairs implies that IO pronouns obligatorily undergo raising to the specifier of the VP-shell, where structural dative Case is assigned. But then the DO must be scrambled, i.e., adjoined to VP, in order to derive the word order illustrated in (79); cf.:

- (82) \* ... [VP<sub>1</sub> DO<sub>i</sub> [VP<sub>1</sub> ihm<sub>i</sub> [VP<sub>2</sub> t<sub>i</sub> [V' t'<sub>i</sub> ... ]]]] ...

Now it seems that although the dative pronoun is A-bound by the subject, it is no longer A-bound by the DO, and should thus be able to corefer with the latter. Since this is not the case, one has to find an independent explanation (independent of a straightforward application of principle B, that is) for the ungrammaticality of examples like (79). To this end, I consider a number of alternative solutions in the next sections.

## 6.2. Blocking coreference with an IO pronoun

### 6.2.1. Strong crossover

At first sight, (82) resembles a typical strong crossover configuration. Hence, if the trace of the IO pronoun can be classified as a variable, one could hope to derive a violation of principle C in (82) due to A-binding from the DO position. In essence, then, the ungrammaticality of (82) under co-indexing of DO and IO would be due to the same factor as the crossover effect with scrambling or topicalization in (83):

- (83) a. \*daß [IP ihn<sub>i</sub> [IP der Fritz<sub>i</sub> t<sub>i</sub> nicht mag ]]  
           that him<sub>acc</sub> ART Fritz<sub>nom</sub> not likes

- b. \* $[_{CP} \text{Ihn}_i \text{ mag } [_{IP} \text{der Fritz}_i \text{ t}_i \text{ nicht } ]]$   
 $\text{him}_{\text{acc}} \text{ likes ART Fritz}_{\text{nom}} \text{ not}$

However, it is hard to see how an analogous result could be circumvented in the case of (78). Thus, the following generalization suggests itself:

- (84) Traces of Case-driven movement do not induce strong crossover effects (of the type reducible to principle C of the binding theory).

According to (84), traces of dative movement (in contrast to traces of *wh*-movement or scrambling) do not exhibit crossover effects, irrespective of the classification of empty categories one ultimately adopts. Of course, (84) should be derived by some deeper generalization. Here, I will simply take (84) for granted; see Müller (1993) for extensive discussion. Thus, for the time being, (84) suffices to allow structures like (78). Unfortunately, the problem posed by the contrast between (78) and (82) is not yet solved by this step. Now, *both* examples should be well formed.<sup>19</sup>

### 6.2.2. Chain formation

One might then try to exclude (82) by invoking some sort of chain formation algorithm (as developed by Chomsky (1981) and Rizzi (1986)). Note that (82) is similar to an illicit crossover configuration discussed in Rizzi (1986: 71ff):

- (85) \* $\text{Gianni}_i \text{ si}_i \text{ è stato } [_{VP} \text{affidato } \text{t}_i \text{ t}'_i ]$   
 $\text{Gianni REFL was entrusted}$

Examples like (85), which involve a combination of passivization (i.e., A-movement to SpecI) and *si*-cliticization (which I take to be an instance of head movement to I), are ungrammatical in Italian. Rizzi (1986: 66) excludes (85) by adopting the following notion of chain:

- (86) *Chain*:  
 $C = \langle \alpha_1, \dots, \alpha_n \rangle$  is a chain iff, for  $1 \leq i < n$ ,  $\alpha_i$  is the *local binder* of  $\alpha_{i+1}$ .

This definition has the effect that it imposes a local binding constraint on chain formation. In particular, even “intervening” co-indexed elements have to enter a chain they intuitively do not belong to. If the intervening element occupies a  $\Theta$ -position, the resulting chain will violate the  $\Theta$ -criterion, since it contains two  $\Theta$ -roles. As concerns (85), this chain formation algorithm makes the correct predictions. Here,  $t_i$  and  $t'_i$  must enter the same chain due to the local binding requirement in (86). Both  $t_i$  (the trace of the passive subject *Gianni*) and  $t'_i$  (the trace of the IO clitic *si*) occupy  $\Theta$ -positions, according to Rizzi. Thus, a violation of the  $\Theta$ -criterion results.

By the same reasoning, (82) can be excluded. The IO-trace is separated from its antecedent in  $\text{Spec}\mu$  by an intervening binder, viz., the trace of the DO. Hence, a violation of the  $\Theta$ -criterion should result due to the local binding constraint on chain formation. This solution, however, is not compatible with the analysis given in (78), which then should also involve a violation of the  $\Theta$ -criterion, given (86) – according to the chain formation algorithm, it does not matter whether the co-indexed A-position which is crossed by movement contains a lexical NP (as in (78)) or its trace (as in (82)). Intuitively, it should be this very difference that is relevant for the contrast between (78) and (82). Moreover, I argued that structures like (52) are grammatical in English and in some dialects of German; hence, (52) must not be excluded by the  $\Theta$ -criterion either. In addition, there are a number of independent arguments which show that the chain formation algorithm developed by Chomsky and Rizzi is too strong; cf. section 10 of chapter 3, Sternefeld (1985; 1991a), and Müller (1993).

For the time being, two alternatives suggest themselves. If my conclusions so far are tenable, then the chain formation algorithm either must be revised properly, or it must be given up entirely. I will first present a revision, and then pursue an alternative approach which dispenses with any kind of chain formation algorithm in the next section.

Sten Vikner (p.c.) has pointed out that Rizzi's and Chomsky's chain formation algorithm might account for the data under consideration after all, if it is properly revised. Note that ungrammatical configurations involving illicit dative movement across a co-indexed DO trace of scrambling (as in (82)) and illicit *si*-cliticization across a co-indexed DO trace of NP-movement (as in (85)) both have the form (87), in contrast to structures like (78) and (52):

- (87)  $*[. \alpha \dots t_1 \dots t_2 .]$ , where  $\alpha$  locally A-binds  $t_1$ ,  $t_1$  locally A-binds  $t_2$ , and both  $t_1$  and  $t_2$  are assigned  $\Theta$ -roles.

This means that a configuration which minimally differs from (87) in that  $t_1$  is replaced by a non-trace  $\beta_1$  must not be ruled out, contrary to (86). The following modification of Rizzi's notion of chain achieves this:

- (88) *Chain* (revised):  
 $C = \langle \alpha_1, \dots, \alpha_n \rangle$  is a chain iff, for all  $1 \leq i < n$ ,  $\alpha_i$  is a *local trace-binder* of  $\alpha_{i+1}$ .

(88) differs from (86) in that "local binding" is replaced by "local trace-binding," which is a more liberal notion:

- (89) *Local Trace-Binding*:  
 $\alpha$  locally trace-binds  $\beta$  iff (a) and (b) hold:  
 a.  $\alpha$  binds  $\beta$ , and  $\beta$  is a trace.  
 b. If  $\alpha$  binds  $\gamma$ , and  $\gamma$  binds  $\beta$ , then  $\gamma \neq \text{trace}$ .

This reformulation may have some unwanted consequences if one tries to generalize the concept of “chain” to the concept of “CHAIN” (cf. Chomsky (1981; 1986a)), by including expletive-argument pairs. But apart from that, (88) makes exactly the right predictions. It excludes all representations which have the form (87), and does not affect constructions where the intervening  $\Theta$ -role bearing local binder is a lexical NP, as in (78) and (52); for only in the former cases will an intervening  $\Theta$ -role bearing element enter the chain and induce a violation of the  $\Theta$ -criterion. In the latter cases, chain formation may skip the intermediate local binder.

If this approach is on the right track, (78) should become ungrammatical as soon as the DO *ihn* undergoes movement. This prediction is confirmed. Consider the following examples (the DO pronoun is scrambled to VP in (90-a), scrambled to IP in (90-b), and topicalized in (90-c)):

- (90) a. \*daß der Arzt ihn<sub>i</sub> dem Fritz<sub>i</sub> im Spiegel gezeigt hat  
 that the doctor him<sub>acc</sub> ART Fritz<sub>dat</sub> in-the mirror shown has  
 b. \*daß ihn<sub>i</sub> der Arzt dem Fritz<sub>i</sub> im Spiegel gezeigt hat  
 that him<sub>acc</sub> the doctor ART Fritz<sub>dat</sub> in-the mirror shown has  
 c. \*Ihn<sub>i</sub> hat der Arzt dem Fritz<sub>i</sub> im Spiegel gezeigt  
 him<sub>acc</sub> has the doctor ART Fritz<sub>dat</sub> in-the mirror shown

The relevant structure of, e.g., (90-a) is the following:

- (91) \* ... [VP ihn<sub>i</sub> [VP IO<sub>i</sub> [VP t<sub>i</sub> [V' t'<sub>i</sub> ... ]]]] ...

Here, the scrambling trace  $t_i$  of the DO intervenes between the IO and its trace  $t'_i$ , so that the IO is not a local trace-binder of  $t'_i$ . Then, according to the revised definition of *chain*,  $t_i$  enters the IO-chain, and the  $\Theta$ -criterion is violated.

### 6.2.3. A Crossing Constraint on binding

Let us now consider the envisaged alternative to the chain formation algorithm. Chomsky (1986a: 181ff) maintains that ideally there should not be any specific constraints on chain formation. He writes: “It may be that these phenomena can be explained, in part at least, in terms of a crossing constraint on binding” (Chomsky (1986a: 217, note 115)). In Müller & Sternefeld (1994: 366), we pursue this idea and propose the following:

- (92) *Crossing Constraint:*  
 Intersecting co-indexed paths must not overlap.

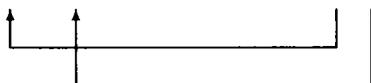
The notions “intersection,” “path” and “overlap” are understood as in Pesetsky (1982) and May (1985). From (92) it follows that there are no crossing

dependencies unless the two paths under consideration bear different indices. This is of course the normal case. Note that (92) is not meant to exclude crossing in general; the Crossing Constraint differs from the Path Containment Condition (as developed by Pesetsky (1982)) in that it crucially depends on the identity of the indices of the paths involved. In fact, examples like those in (93) (with a combination of clause-bound scrambling and long *wh*-movement in (93-a), and a combination of dative movement and scrambling in (93-b)) clearly show that the Path Containment Condition is too strong:

- (93) a. Welches Buch<sub>i</sub> meinst du [CP t'<sub>i</sub> daß [IP zum Spielen<sub>j</sub> [IP der  
which book think you that to play-with ART  
Fritz seinem Kind [VP t<sub>i</sub> [V' t<sub>j</sub> gekauft ]] hat ]]] ?  
Fritz his child bought has
- b. daß der Arzt den Fritz<sub>i</sub> [VP [dem Kollegen<sub>j</sub>] [VP t<sub>i</sub> [V' t<sub>j</sub> [V'  
that the doctor ART Fritz<sub>acc</sub> the colleague<sub>dat</sub>  
im Spiegel zeigte ]]]]  
in-the mirror showed

Returning to the main plot, reconsider first the Italian example (85). Given that IOs are c-commanded by DOs at D-structure in the SVO language Italian, as they are in English (which certainly makes sense from the point of view adopted in section 3.4 above), the co-indexed chains  $\langle Gianni_i, t_i \rangle$  and  $\langle si_i, t'_i \rangle$  intersect and overlap, which leads to a violation of (92) (the path of the IO-clitic *si* is not contained in the path of *Gianni*, but it shares some nodes with the latter – hence, illicit overlapping occurs):

- (94) \*Gianni<sub>i</sub> si<sub>i</sub> è stato [VP affidato t<sub>i</sub> t'<sub>i</sub> ]



In the same way, there is a crossing of co-indexed paths in (82). The relevant part looks as follows:

- (95) \* ... den Fritz<sub>acc</sub> [VP ihm<sub>dat</sub> [VP t [V' t ...

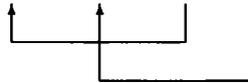


On the other hand, no crossing occurs in (78), since the DO pronoun may remain in its base position. Thus, the DO forms a path which contains only one node; and it can be derived as a theorem from Pesetsky's (1982) theory of paths that a path with only one node can not even intersect with another

path, let alone induce a Path Containment Condition violation (intersection requires a path with at least two nodes, a lack of overlapping then can occur only when a path has at least three nodes).

Again, it follows that if the DO pronoun undergoes movement in examples like (78), ungrammaticality results (see (90)). This time, the construction is ruled out because neither of the two co-indexed paths contains the other:

(96) \* ... [VP  $ihn_i$  [VP IO $_i$  [VP  $t_i$  [V'  $t'_i$  ... ]]]] ...



The choice between the two proposed analyses (i.e., the revised chain formation approach, and the Crossing Constraint) is an intricate matter, and it is not a priori clear that there is actually an empirical issue involved here. One would have to find constructions that are almost exactly like (87), the only difference being that no crossing occurs, and see whether they are grammatical or not; cf.:

- (97) a. [ ...  $\alpha_1$  ...  $\beta_2$  ...  $t_1$  ...  $t_2$ ..], where linear order corresponds to local binding, and both  $t_1$  and  $t_2$  are assigned  $\Theta$ -roles.
- b. [ ...  $\alpha_1$  ...  $\beta_2$  ...  $t_2$  ...  $t_1$  ..], where linear order corresponds to local binding, and both  $t_1$  and  $t_2$  are assigned  $\Theta$ -roles.

The revised chain formation approach predicts that both (97-a) and (97-b) will be ungrammatical, whereas the Crossing Constraint rules out only (97-a). Unfortunately, it seems hard to construct relevant examples; by and large, the approaches make the same predictions.<sup>20</sup> Hence, for lack of decisive empirical evidence, I will not pursue this matter any further here.

Summarizing this section, the restrictions on pronominal coreference in double object constructions further support the claim that dative shift is Case-driven A-bar movement. First, the possibility of coreference of a DO pronoun and an IO which precedes it indicates that the IO occupies an A-bar position. Second, the impossibility of coreference of an IO pronoun and a DO which precedes it does not follow from principle B of the binding theory. However, it can be explained as a crossover effect akin to Italian examples involving passivization and *si*-cliticization if there are two movement chains present in examples like (82) – either by a revised chain formation algorithm, or by a Crossing Constraint on binding. However, both solutions imply that an IO-trace is present in dative shift constructions.

## 7. Weak crossover

### 7.1. The VP-internal distribution of bound-variable pronouns

First recall from the previous chapter that (in the less liberal dialect of German) weak crossover effects are induced by both scrambling and *wh*-movement across a pronoun included in the subject:

- (98) a. ??daß jeden<sub>i</sub> seine<sub>i</sub> Mutter t<sub>i</sub> mag  
           that everyone<sub>acc</sub> his mother<sub>nom</sub> likes  
       b. ??Wen<sub>i</sub> hat seine<sub>i</sub> Mutter t<sub>i</sub> nicht gemocht ?  
           who<sub>acc</sub> has his mother<sub>nom</sub> not liked

Pronouns included in DOs do not give rise to weak crossover effects in the case of A-bar movement of the subject:

- (99) a. daß jeder<sub>i</sub> seine<sub>i</sub> Mutter mag  
           that everyone<sub>nom</sub> his mother<sub>acc</sub> likes  
       b. Wer<sub>i</sub> mag t<sub>i</sub> seine<sub>i</sub> Mutter nicht ?  
           who<sub>nom</sub> likes his mother<sub>acc</sub> not

Now consider object-contained pronouns which are bound by another object. The data here are somewhat murky, and there is always the possibility that some independent factor intervenes, but on the whole the following generalizations seem to be valid. All native speakers agree that a pronoun within a DO can be bound by a dative-shifted IO, whether the latter is in situ (cf. (100-a)), adjoined to IP (as in (100-b)), or *wh*-moved (as in (100-c)):

- (100) a. daß die Gastgeber jedem Mann<sub>i</sub> seine<sub>i</sub> Tanzpartnerin  
           that the hosts<sub>nom</sub> every man<sub>dat</sub> his dance partner<sub>acc</sub>  
           vorgestellt haben  
           introduced-to have  
       b. daß jedem Mann<sub>i</sub> die Gastgeber t<sub>i</sub> seine<sub>i</sub> Tanzpartnerin  
           that every man<sub>dat</sub> the hosts<sub>nom</sub> his dance partner<sub>acc</sub>  
           vorgestellt haben  
           introduced-to have  
       c. Wem<sub>i</sub> haben die Gastgeber t<sub>i</sub> seine<sub>i</sub> Tanzpartnerin  
           whom<sub>dat</sub> have the hosts<sub>nom</sub> his dance partner<sub>acc</sub>  
           vorgestellt ?  
           introduced-to

As pointed out by Barss & Lasnik (1986), the same holds for English:

(101) I gave [<sub>VP</sub> every worker<sub>i</sub> [<sub>VP</sub> his<sub>i</sub> paycheck [<sub>V'</sub> t<sub>i</sub> ]]]

The converse situation, with an IO-contained pronoun bound by a DO, is more complicated in German. Judgements vary to a certain extent. Speakers who do not observe a weak crossover effect in the case of pronouns contained in subjects (cf. chapter 3) generally find the relevant examples uncontroversial; however, rigid speakers who find (98) deviant (with the indexing given, i.e., with a bound-variable interpretation of the pronoun) tend to detect a rather weak crossover effect here:

- (102) a. ?daß die Gastgeber jeden Mann<sub>i</sub> seiner<sub>i</sub> Tanzpartnerin  
 that the hosts<sub>nom</sub> every man<sub>acc</sub> his dance partner<sub>dat</sub>  
 vorgestellt haben  
 introduced-to have
- b. ?daß jeden Mann<sub>i</sub> die Gastgeber seiner<sub>i</sub> Tanzpartnerin t<sub>i</sub>  
 that every man<sub>acc</sub> the hosts<sub>nom</sub> his dance partner<sub>dat</sub>  
 vorgestellt haben  
 introduced-to have
- c. ?Wen<sub>i</sub> haben die Gastgeber seiner<sub>i</sub> Tanzpartnerin t<sub>i</sub>  
 who<sub>acc</sub> have the hosts<sub>nom</sub> his dance partner<sub>dat</sub>  
 vorgestellt ?  
 introduced-to

Turning to (100) first, one has to guarantee that these examples are perfectly well formed in every dialect of German. For the purpose of this discussion, it may suffice to again abstract away from the more complex  $\delta$ -marking mechanism introduced in chapter 3, and simply adopt a slightly modified version of Heim's (1989) weak crossover constraint, with "GF-position" substituting for "A-position."

- (103) *Condition on Bound Variable Pronouns* (revised):  
 A bound variable pronoun must be GF-bound at LF.

This implies that dative movement does not induce weak crossover effects.

As concerns examples like (102), where a pronoun is included in an IO, the problem is how to account for the fact that they do exhibit a "slight" weak crossover effect if understood as being bound by a DO (in the restrictive dialect currently under discussion). Here, the pronoun – as part of a Case-dependent NP – is located in a position where the only c-commanding GF-position available is the subject (recall that a DO that precedes a Case-dependent IO must have been GF-bar moved, according to previous assumptions). Thus, the relevant part of the structures of (102-abc) is this:

(104) ? ... DO<sub>i</sub> ... [<sub>VP</sub> [<sub>NP</sub> seiner<sub>i</sub> ... ]<sub>j</sub> [<sub>VP</sub> t<sub>i</sub> [<sub>V'</sub> t<sub>j</sub> ]]] ...

This would account for the deviant status of (102). However, as noted above, these examples are not as unacceptable as weak crossover effects with subject-contained pronouns. Thus, it appears that there is an option to save the bound-variable reading. It seems to be most plausible to assume that this option is due to the fact that the IO has undergone Case-driven movement – an IO-contained pronominal in (104) can find a GF-binder only via the trace of the IO, i.e., via reconstruction or chain-binding (in Barss' (1984; 1986) sense). Given Barss' definition of chain-binding in (105), the pronouns in (102) are chain-bound by the trace of the DO, which occupies a GF-position.

(105) *Chain-Binding* (Barss (1984)):

X chain-binds Y iff X and Y are co-indexed, and

a. X c-commands Y, or

b. X c-commands a trace of Z, where  $Z = Y$  or Z contains Y.

Assuming this process to be a last resort operation, the reduced acceptability of (102) is accounted for. In conclusion, both the occurrence of weak crossover effects in sentences with an IO-contained pronoun, *and* the fact that these effects are not as strong as in the case of subject-contained pronouns, indicate that dative movement exists (so that a DO preceding a dative IO is in an A-bar position), and that it leaves a VP-internal IO-trace which is A-bound by the (trace of the) DO.

As regards parametric variation, note that given the previous chapter's remarks on why there are no weak crossover effects in the more liberal variety of German (provided that c-command of the pronoun by its binder occurs), it is obvious why IO-contained pronouns can be interpreted as variables bound by a preceding DO without a decrease in acceptability in this dialect – they are bound at S-structure, and hence receive a  $\delta$ -feature at S-structure, thus fulfilling the feature-based version of the Condition on Bound Variable Pronouns at S-structure.

Finally, consider pronouns which are contained within a category dominated by the lower V'. According to the present approach, no problem should arise with binding by either the DO, or the IO. This is the case:

(106) a. Man schickte [NP jedes Kind<sub>i</sub> ] [PP zu seiner<sub>i</sub> Familie ] heim  
 one sent every child<sub>acc</sub> to its family home

b. Die Wahrsagerin hat [NP jeder Frau<sub>i</sub> ] die Augen [PP über  
 the soothsayer has every woman<sub>dat</sub> the eyes<sub>acc</sub> about  
 ihren<sub>i</sub> Mann ] geöffnet  
 her husband opened

Thus, the basic distribution of bound variable pronouns in double object constructions is accounted for; now I turn to what has been called "Webelhuth's

paradox," i.e., to a purported ability of scrambled phrases to provide both A-binding of a bound-variable pronoun, and A-bar binding of a parasitic gap simultaneously.

## 7.2. Webelhuth's paradox

Let us consider the two kinds of examples Webelhuth (1989; 1992) presents in order to show that after scrambling, "both A- and A-bar binding is possible at the same time" (Webelhuth (1989: 412)). First, he observes that a scrambled quantified expression appears to be able to simultaneously license a parasitic gap (which is a typical A-bar movement property), and A-bind a pronoun, so that a weak crossover effect can be circumvented:

- (107) ?weil Fritz jeden Gast<sub>i</sub> [CP ohne e<sub>i</sub> anzuschauen ] seinem<sub>i</sub>  
 because Fritz every guest<sub>acc</sub> without to-look-at his  
 Nachbarn vorgestellt hat  
 neighbour<sub>dat</sub> introduced-to has

Given what has been said so far, it is obvious why, for many speakers, this sentence is no more marked than other parasitic gap constructions in German. The DO must occupy a VP-adjoined position, since DOs cannot precede Case-dependent IOs unless they have been scrambled. But from a scrambling position, the DO may A-bar bind and thus license the parasitic gap:

- (108) ... jeden Gast<sub>i</sub> [CP ohne e<sub>i</sub> anzuschauen ] [VP [ seinem<sub>i</sub> Nachbarn ]<sub>j</sub>  
 [VP t<sub>i</sub> [V' t<sub>j</sub> vorgestellt ]]] ...

The pronoun within the IO, on the other hand, can be related to a GF-position via the trace  $t_j$ , i.e., via reconstruction to a position where it can be bound by  $t_i$  (or via chain-binding). Given that this operation is a kind of "last resort," (107) might sound somewhat peculiar for some rigid speakers, for the same reasons that examples such as (102-abc) do.

Turning next to Webelhuth's (1989; 1992) second example, (109) is taken to show that the DO must be in a position that simultaneously allows anaphoric binding of the reflexive and licensing of a parasitic gap:

- (109) weil Fritz die Gäste<sub>i</sub> [CP ohne e<sub>i</sub> anzuschauen ] einander<sub>i</sub>  
 because Fritz the guests<sub>acc</sub> without to-look-at RECIP  
 vorgestellt hat  
 introduced-to has

But according to the above assumptions, this sentence has the following structure.

- (110) ... die Gäste<sub>i</sub> [CP ohne e<sub>i</sub> anzuschauen ] [VP t<sub>i</sub> [V' einander<sub>i</sub> vorgestellt ] ] ...

Here, the reciprocal expression *einander* is A-bound by the trace of the scrambled DO; the latter in turn occupies an A-bar position and thus licenses the parasitic gap.

Now, Mahajan (1990: 60f) presents an example like the following, which differs from (107) only minimally, in that the relative order of IO and adjunct clause is reversed. Nonetheless, ungrammaticality results:

- (111) ?\*weil Fritz jeden Gast<sub>i</sub> seinem<sub>i</sub> Nachbarn [CP ohne e<sub>i</sub>  
because Fritz every guest<sub>acc</sub> his neighbour<sub>dat</sub> without  
anzuschauen ] vorgestellt hat  
to-look-at introduced-to has

Mahajan accounts for this as follows. If *jeden Gast* is to license *seinem* as a bound-variable pronoun, it must occupy a (kind of) A-position. But then, the parasitic gap is A-bound, and the sentence is ruled out. On the other hand, if it occupies an A-bar position, so as to license the parasitic gap, it may not at the same time A-bind the pronoun; again, ungrammaticality results. According to the analysis presented above, (111) cannot be excluded along these lines – since the IO bears structural Case, the DO *jeden Gast* occupies a scrambling (i.e., A-bar) position in (111), and the pronoun can be interpreted as a bound variable only via the trace of the IO (in the more rigid dialect). In order to make e<sub>i</sub> bound by an element in GF-position or A-position (so as to induce strong ungrammaticality), one would have to assume that the adjunct clause in (111) is base-generated below the D-structural position of the DO, whereas it must be base-generated above this position in (107). This clearly would be unmotivated.

However, there is good evidence that Mahajan's explanation is not on the right track. Crucially, note that (111) does not improve if the pronoun is *not* interpreted as a bound variable, but as a referring expression bearing a different index. Similarly, (112) is just as ungrammatical, although the IO is an R-expression, and the problem of bound variable pronoun licensing does not occur:

- (112) ?\*weil Fritz jeden Gast<sub>i</sub> der Maria [CP ohne e<sub>i</sub>  
because Fritz every guest<sub>acc</sub> ART Maria<sub>dat</sub> without  
anzuschauen ] vorgestellt hat  
to-look-at introduced-to has

This shows two things. First, the failure of the current approach to predict the ungrammaticality of (111) turns out not to be a failure after all, for it is highly unlikely that (111) with a bound-variable reading on the one hand,

and (111) without a bound-variable reading and (112) on the other hand, are equally unacceptable, but for different reasons. And second, a satisfying explanation of why (111) and (112) are ungrammatical has yet to be found. I cannot provide such an explanation here; I shall merely point out at this point that it looks as though the IO which intervenes between the DO and the adjunct clause (wherein the DO is to license a parasitic gap) somehow blocks the constitution of the correct filler-(parasitic-)gap relationship. That it is not just an adjacency requirement which is violated in (111) and (112) is proven by examples like (113), where an adjunct intervenes between the DO and the adjunct clause which contains the parasitic gap, without inducing a decrease in acceptability. For further discussion, cf. appendix 3 and Fanselow (1991a).

- (113) weil Fritz jeden Gast<sub>i</sub> gestern [CP ohne e<sub>i</sub> anzuschauen ]  
 because Fritz every guest<sub>acc</sub> yesterday without to-look-at  
 beleidigt hat  
 offended has

Now I will return to the main issue of this chapter, which is to investigate the behaviour of the IO and the DO in double object constructions, and to find arguments for the existence of Case-driven A-bar movement of the IO. In the following two sections, I address in turn the issues of A-bar movement and A-movement (of IOs and DOs) in dative shift constructions in some Germanic languages.

## 8. A-bar movement

### 8.1. The data

In German, dative movement may feed subsequent A-bar movement. Consider, e.g., instances of (clause-bound and successive-cyclic) *wh*-movement (as in (114) and (115)), scrambling (as in (116)), and (clause-bound and successive-cyclic) topicalization (as in (117)) of a shifted IO in German:

- (114) Wem<sub>i</sub> hat der Fritz [VP t'<sub>i</sub> [VP ein Buch [V' t<sub>i</sub> gegeben ]]] ?  
 who<sub>dat</sub> has ART Fritz<sub>nom</sub> a book<sub>acc</sub> given
- (115) Wem<sub>i</sub> meinst du [CP t''<sub>i</sub> daß der Fritz [VP t'<sub>i</sub> [VP ein Buch  
 who<sub>dat</sub> think you that ART Fritz<sub>nom</sub> a book<sub>acc</sub>  
 [V' t<sub>i</sub> gegeben ]]] hat ] ?  
 given has

- (116) daß dem Wolfgang<sub>i</sub> der Fritz [VP t'<sub>i</sub> [VP ein Buch [V' t<sub>i</sub>  
 that ART Wolfgang<sub>dat</sub> ART Fritz<sub>nom</sub> a book<sub>acc</sub>  
 gegeben ]]] hat  
 given has
- (117) a. Niemandem<sub>i</sub> hat der Fritz [VP t'<sub>i</sub> [VP ein Buch [V' t<sub>i</sub>  
 no-one<sub>dat</sub> has ART Fritz<sub>nom</sub> a book<sub>acc</sub>  
 gegeben ]]]  
 given
- b. Meinem Chef<sub>i</sub> glaube ich [CP t''<sub>i</sub> hat der Fritz [VP t'<sub>i</sub> [VP  
 my boss<sub>dat</sub> believe I has ART Fritz<sub>nom</sub>  
 ein Buch [V' t<sub>i</sub> gegeben ]]]]  
 a book<sub>acc</sub> given

Similarly, both IOs and DOs can undergo A-bar movement in double object constructions in Danish (cf. Vikner (1990: sec. 4.3.2)):

- (118) a. Hvad<sub>i</sub> viste du [VP Sofie<sub>j</sub> [VP t<sub>i</sub> [V' t<sub>j</sub> ]]] ?  
 what<sub>acc</sub> showed you<sub>nom</sub> Sofie<sub>dat</sub>
- b. Hvem<sub>i</sub> viste du [VP t'<sub>i</sub> [VP bogen [V' t<sub>i</sub> ]]] ?  
 who<sub>dat</sub> showed you<sub>nom</sub> book-the<sub>acc</sub>

Also, A-bar movement of shifted IOs is permitted in Norwegian (Larson (1988: 356)):

- (119) a. Ingen studenter<sub>i</sub> har vi lånt [VP t'<sub>i</sub> [VP romaner [V' t<sub>i</sub> ]]]  
 no student<sub>dat</sub> have we<sub>nom</sub> lent books<sub>acc</sub>
- b. Jon<sub>i</sub> sa Marit t'<sub>i</sub> at hun ga [VP t'<sub>i</sub> [VP en presang [V'  
 Jon<sub>dat</sub> said Marit that she<sub>nom</sub> gave a present<sub>acc</sub>  
 t<sub>i</sub> ]]]
- c. Hvem<sub>i</sub> sa Marit [CP t''<sub>i</sub> at hun ga [VP t'<sub>i</sub> [VP en  
 who<sub>dat</sub> said Marit that she<sub>nom</sub> gave a  
 presang [V' t<sub>i</sub> ]]]] ?  
 present<sub>acc</sub>

However, an IO in dative shift constructions may not undergo subsequent A-bar movement for many speakers of English (cf. Stowell (1981: ch. 4), Czepluch (1982), Kayne (1984), and Larson (1988)). Compare (120-ab), where dative movement has not applied, with (121-abc):

- (120) a. To whom<sub>i</sub> did John give [VP - [VP a book [V' t<sub>i</sub> ]]] ?  
 b. Who<sub>i</sub> did John give [VP - [VP a book [V' [PP to t<sub>i</sub> ]]]] ?
- (121) a. \*Who<sub>i</sub> did John give [VP t'<sub>i</sub> [VP a book [V' t<sub>i</sub> ]]] ?

- b. \*Who<sub>i</sub> did Mary say [<sub>CP</sub> t'<sub>i</sub> that she gave [<sub>VP</sub> t'<sub>i</sub> [<sub>VP</sub> a present [<sub>V'</sub> t<sub>i</sub> ]]]] ?  
 c. \*John<sub>i</sub>, Mary said [<sub>CP</sub> t'<sub>i</sub> that she gave [<sub>VP</sub> t'<sub>i</sub> [<sub>VP</sub> a present [<sub>V'</sub> t<sub>i</sub> ]]]]

The same contrast shows up in West Flemish (cf. Haegeman (1985/86: 284)):

- (122) a. An wien<sub>i</sub> een-ze [<sub>VP</sub> - [<sub>VP</sub> nen boek [<sub>V'</sub> t<sub>i</sub> gegeven ]]] ?  
 to whom have-they a book<sub>acc</sub> given  
 b. An eur<sub>i</sub> een-ze [<sub>VP</sub> - [<sub>VP</sub> nen boek [<sub>V'</sub> t<sub>i</sub> gegeven ]]]  
 to her have-they a book<sub>acc</sub> given  
 (123) a. \*Wien<sub>i</sub> een-ze [<sub>VP</sub> t'<sub>i</sub> [<sub>VP</sub> nen boek [<sub>V'</sub> t<sub>i</sub> gegeven ]]] ?  
 who<sub>dat</sub> have-they a book<sub>acc</sub> given  
 b. \*Eur<sub>i</sub> een-ze [<sub>VP</sub> t'<sub>i</sub> [<sub>VP</sub> nen boek [<sub>V'</sub> t<sub>i</sub> gegeven ]]]  
 her<sub>dat</sub> have-they a book<sub>acc</sub> given

A-bar movement (*wh*-movement or topicalization) of an IO which has not undergone dative movement and is realized within a PP is unproblematic in West Flemish (cf. (122-ab)). However, *wh*-movement (123-a) or topicalization (123-b) of an IO which bears abstract dative Case (and has therefore been raised to the Spec $\mu$  position, according to the above assumptions) is illicit.

In what follows, I want to argue that dative-shifted IOs in English and West Flemish may not undergo subsequent A-bar movement because this movement would be improper – traces of dative movement obey the PUB in these languages. Before I execute this idea, however, I will discuss some of the approaches proposed in the literature to account for the constraint at hand.

## 8.2. Previous analyses

Stowell (1981: ch. 4) has suggested an account of the immobility of dative NPs in double object constructions along the following lines. In dative shift configurations, the IO is incorporated into the verb (otherwise the DO is not adjacent to its Case assigner anymore, and thus violates the Case Filter). Since words are strict islands, the IO may not undergo further movement. But this theory has a number of drawbacks. First, incorporation of an XP into a X<sup>0</sup>-category is not structure-preserving. (This, by the way, also holds true for Larson's (1988) rule of "reanalysis" of IO(-trace) and V-(trace), which – just like Stowell's analysis – is designed mainly (but not entirely) to guarantee adjacency of the DO and its Case-assigner V in dative shift constructions.) And second, the dative NP in double object constructions does not behave as incorporated in any other respect (an anaphor within the lower V', e.g., can always be bound by it, and in some languages this even holds for DO anaphors, as discussed above in some detail; but X<sup>0</sup>-categories are strict anaphoric islands (at least in English) – anaphors cannot refer to the part of a word).

From a more general point of view, it is hardly conceivable that the examples in (121) and (123) violate some kind of locality constraint. The IO in dative shift constructions is even closer to the SpecC position than a DO – hence it is unlikely that a barrier blocks short IO-movement and at the same time permits longer DO-movement.

Baker (1988: 294ff) gives a detailed critical survey of the literature on this phenomenon. Eventually, he concludes that all analyses that derive the ungrammaticality of IO-movement in dative shift constructions from some kind of locality constraint, or from a constraint on the moved item (such that the IO, e.g., bears the “wrong Case” for A-bar movement, cf. Larson (1988)) are on the wrong track. Baker suggests that the impossibility of IO-movement in dative shift constructions should be traced back to a licensing violation of the IO-trace. I fully agree with this line of reasoning, and will not repeat Baker’s arguments in support of it. However, it seems to me that his own solution is not yet fully satisfactory either, as it stands. Since Baker elaborates on an earlier proposal of Czepluch’s, I will turn to that theory first.

Czepluch (1982: 18ff) proposes an analysis of dative shift according to which even a bare-NP IO is governed by a preposition, albeit an empty one (cf. appendix 3 for some discussion). In addition, he assumes a filter of the form (124), which blocks movement of the IO:<sup>21</sup>

- (124) *Czepluch’s Filter:*  
 \*[ e [NP t ] ]

Of course, this does not yet suffice to exclude (121) and (123) – in addition, one has to stipulate that the empty preposition may not pied-pipe the NP in the case of A-bar movement, in which case only the trace of a PP would be left in accordance with (124). Cf. (125-a) and (125-b), which are two a priori conceivable derivations of (121-a), vs. (125-c), which is an example of A-bar movement of a PP, as in (120-a). Whereas the filter (124) suffices to exclude (125-a), some additional constraint must be invoked in order to rule out derivation (125-b), while at the same time allowing (125-c).

- (125) a. \*[NP Who ]<sub>i</sub> did John give [PP e [NP t<sub>i</sub> ] ] a book ?  
 b. \*[PP e [NP Who ]]<sub>i</sub> did John give [PP t<sub>i</sub> ] a book ?  
 c. [PP To [NP whom ]]<sub>i</sub> did John give [PP t<sub>i</sub> ] a book ?

Czepluch achieves this by stipulating that an empty preposition must be adjacent to the verb. (Ultimately, Czepluch (1982: 19) assumes that this statement can be derived from the ECP.)

A similar approach, again utilizing an empty preposition, is pursued by Haegeman (1985/86: 285f) in order to exclude examples like (123-ab) in West Flemish. She postulates that the empty preposition is “only able to assign Case when governed by a Case-assigning verb.” Since she furthermore assumes

that an empty preposition in a PP which has undergone A-bar movement is “outside the government domain of the verb,” structures like (125-b) are ruled out because the *wh*-phrase does not receive Case.<sup>22</sup>

Now, Baker (1988: 299) revises Czepluch’s approach. As noted above, he assumes that the phenomenon of dative shift is due to invisible preposition incorporation. His “Non-Oblique Trace Filter” (126), then, rules out all representations where an NP trace is the sister of an empty prepositional or nominal X<sup>0</sup>-category:

- (126) *Baker’s Non-Oblique Trace Filter:*  
 \*[O<sub>i</sub> ... X<sub>j</sub> ... [ [-V]<sub>j</sub> t<sub>i</sub> ] ... ]

“where O stands for an operator, [-V] for a nonverbal category (i.e., a P or an N), and X for a lexical category (usually V) which is coindexed with the [-V] element through Reanalysis or Incorporation.” Baker’s idea is that verb incorporation, as in causative constructions, does not block A-bar movement of the NPs governed by the incorporated verb at D-structure, whereas noun incorporation and preposition incorporation both lead to immobility of their respective D-structural NP-complements. In a way, then, Baker’s approach is a weaker version of Czepluch’s proposal.

However, Baker’s and Czepluch’s analyses face a number of objections, both conceptual and empirical. An empirical objection is that, as has been argued in detail in chapter 2, noun incorporation and preposition incorporation do not only fail to block A-bar movement of an XP, they are indeed indispensable for A-bar movement of an XP from NP and PP. Furthermore, it is not easy to see how Baker’s and Czepluch’s analyses could be accommodated to languages like German, Norwegian, or Danish, where, as we have seen, A-bar movement of an IO in dative shift constructions is unproblematic.

Even more important is the main conceptual problem. Both Czepluch’s and Baker’s filters are quite ad hoc. Hence, to the extent that they make correct empirical predictions, they should be derivable from some deeper principle (as Baker himself admits).

### 8.3. A PUB account

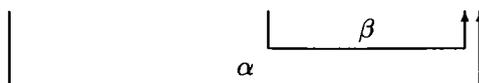
Here I will pursue what strikes me as the most straightforward and natural approach to (121) and (123), viz., to try to exclude these examples as cases of improper movement, i.e., as violations of the PUB.<sup>23</sup> First recall that we are dealing with an instantiation of A-bar movement in the case of dative shift – hence, it is not a priori inconceivable that IO-traces in double object constructions should obey the PUB.

For concreteness, suppose that traces of dative movement are classified as variables. Then, in the case of subsequent A-bar movement of an IO, the

IO-traces in the base-position are clearly bound from two different positions simultaneously, viz., by an intermediate trace  $t'_i$  in  $\text{Spec}\mu$ , and by one (or more) element(s) in  $\text{Spec}C$ , and thus violate the unambiguous binding requirement. I assume that this situation holds in West Flemish or English. But given the possibility of a combination of dative shift and A-bar movement in languages like German, Danish, and Norwegian, the task now is to make traces of dative movement turn out as variables in English or West Flemish, but not in the languages just mentioned.

Let us start with a naive notion of “variable,” according to which a trace is a variable if its local chain-antecedent occupies an A-bar position (i.e., let us adopt a contextual classification of variables that differs from Chomsky’s (1981; 1982) classification in not requiring local binding). According to the assumptions so far, dative movement is A-bar movement; hence an IO-trace would qualify as a variable. Recall however that  $\text{Spec}\mu$  differs from other A-bar positions in that it is assigned structural Case. Thus, we might say that there are “weak” (classic) A-bar positions (which may or may not be Case positions), as opposed to “strong” A-bar positions (where Case is never assigned), i.e., GF-bar positions. It seems that languages differ with respect to the notion of “A-bar” position relevant for the definition of variables – variables are defined as traces the local chain-antecedent of which is in an A-bar position in English and West Flemish, and in a GF-bar position in German, Danish, and Norwegian. Then, only in English and West Flemish do the traces of dative movement qualify as variables, and have to meet the unambiguous binding requirement, which they do not in (121) and (123); cf. for instance:

(127) \*Who<sub>i</sub> did John give [<sub>VP</sub> t'<sub>i</sub> [<sub>VP</sub> a book [<sub>V'</sub> t<sub>i</sub> ]]] ?



In conclusion, the occurrence of improper movement effects in dative shift constructions can be viewed as yet another indication that dative movement does indeed exist. Since improper movement effects are reducible to PUB violations, and the PUB only holds for variables, we can conclude furthermore that dative movement (in some languages) leaves a variable behind, i.e., is an instantiation of A-bar movement. Finally, the lack of improper movement effects with traces of dative movement in some Germanic languages (German, Norwegian, Danish) again shows that dative movement shares some properties with classic A-movement, too, viz., that it is Case-driven.

## 9. Passivization

The main purpose of this section is to show that passivization facts are fully compatible with the analysis of double object constructions developed so far. What is more, it turns out that the relatively large amount of cross-linguistic variation in this domain is best described in a framework where double object constructions are analysed in terms of a rich, highly articulated VP-structure like the one assumed here.

At the outset, let me state a few premises. The first is that there are always *two* structural Cases assigned VP-internally in dative shift constructions in the languages considered so far. In principle, each of these two structural Cases can be absorbed in the course of passivization, and there is no deeper reason why a particular “passivizing morpheme” (PASS) in a given language absorbs the case of the IO, rather than that of the DO (or vice versa). This claim will be supported by the data.<sup>24</sup>

Suppose further the following approach to Case-absorption. A participle and a passive auxiliary obligatorily undergo co-indexing and abstract incorporation. The passive auxiliary heads its own verbal projection; at S-structure, it selects as a complement a VP, the head of which bears the past participle features (these features percolate up to the VP, where they can be locally checked by the passive auxiliary).

According to Baker’s (1988) analysis, (abstract or overt) incorporation precludes Case-assignment by the incorporated item (and its trace). In chapter 2, I have modified this theory, and have assumed that whether Case-absorption occurs or not depends on the properties of the incorporation host – lexical categories block the transmission of Case-assignment capability to the X<sup>0</sup>-trace, but functional categories do not block this transmission. Now suppose that in the case of incorporation into PASS heads, Case-absorption is subject to parameterization. Following Stechow (1992), I will furthermore postulate that this parameterization of Case-absorption does not simply vary from language to language, but rather from lexical item to lexical item. Hence, in the same language different passive auxiliaries may differ with respect to the Case(s) they absorb after incorporation. Moreover, incorporation may have the effect that some but not all Cases usually assignable by the incorporated item become unassignable. Taken together, this implies that it is possible that one passive auxiliary in a given language blocks assignment of a certain Case, whereas another passive auxiliary in the same language blocks assignment of a different, or all, or no Case(s).

As concerns subject demotion, the passive auxiliary blocks the assignment of the subject  $\Theta$ -role to an NP in the SpecI position. I will not address this question in what follows; for concreteness, I assume the UTAH-compatible theory of Baker, Johnson & Roberts (1989), with the proviso that it is not

some “passive morphology” on the verb which bears the subject  $\Theta$ -role, but rather the passive auxiliary.<sup>25</sup>

Let me now turn to the data.

### 9.1. Passivization in German double object constructions

In German, there are two passive auxiliaries. The auxiliary *werden* (PASS<sub>1</sub>) absorbs structural accusative after (abstract) incorporation (i.e., S-structural co-indexing) with the participle. Hence, only the DO, but not the IO, can be affected by passivization and become a “subject” by bearing nominative Case (cf. (128-b)). If the IO bears nominative Case, the DO ends up Case-less and violates the Case Filter (cf. (128-a)). As argued by Haider (1985), Grewendorf (1989) and others, there is no obligatory NP-movement in German passive and unaccusative constructions. I assume here (as in chapters 2 & 3) that if raising to SpecI does not occur, there is an empty expletive *pro* in the SpecI position which receives nominative Case and is co-(super-)indexed with the NP in the DO position, to which it transfers its Case. Cf. Grewendorf (1989) for an extensive discussion, and the pertinent remarks in appendix 4 below. Since nothing in the present context hinges on it, I will ignore this issue for the remainder of this chapter, assuming that actual NP-movement to SpecI and CHAIN-formation (cf. Chomsky (1986a)) in the case of *pro*-NP pairs can be treated on a par. (In the following examples, though, I will assume that NP-movement to SpecI has in fact not occurred.)

- (128) a. \*daß <sup>j</sup>*pro* [VP <sup>j</sup>*der* Fritz<sub>i</sub> [VP einen Roman [V' t<sub>i</sub>  
 that EXPL ART Fritz<sub>nom</sub> a novel<sub>acc</sub>  
 geschenkt ]]] wird  
 given PASS<sub>1</sub>
- b. daß <sup>j</sup>*pro* [VP dem Fritz<sub>i</sub> [VP <sup>j</sup>*ein* Roman [V' t<sub>i</sub>  
 that EXPL ART Fritz<sub>dat</sub> a novel<sub>nom</sub>  
 geschenkt ]]] wird  
 given PASS<sub>1</sub>

Interestingly, there is a second passive auxiliary in German, viz., *bekommen/kriegen* (PASS<sub>2</sub>). It occurs in double object constructions and forms the so-called “recipient passive.”<sup>26</sup> This passive auxiliary absorbs the Case of the IO in dative movement configurations, but not accusative Case.<sup>27</sup>

- (129) a. daß <sup>j</sup>*pro* [VP <sup>j</sup>*der* Fritz<sub>i</sub> [VP einen Roman [V' t<sub>i</sub>  
 that EXPL ART Fritz<sub>nom</sub> a novel<sub>acc</sub>  
 geschenkt ]]] bekommt/kriegt  
 given PASS<sub>2</sub>

- b. \*daß <sup>j</sup>pro [VP dem Fritz<sub>i</sub> [VP <sup>j</sup>ein Roman [V' t<sub>i</sub>  
 that EXPL ART Fritz<sub>dat</sub> a novel<sub>nom</sub>  
 geschenkt ]]] bekommt/kriegt  
 given PASS<sub>2</sub>
- c. daß <sup>j</sup>pro [VP <sup>j</sup>der Fritz<sub>i</sub> [VP eine Frau [V' t<sub>i</sub>  
 that EXPL ART Fritz<sub>nom</sub> a woman<sub>acc</sub>  
 vorgestellt ]]] bekam/kriegte  
 introduced-to PASS<sub>2</sub>
- d. \*daß <sup>j</sup>pro [VP dem Fritz<sub>i</sub> [VP <sup>j</sup>eine Frau [V' t<sub>i</sub>  
 that EXPL ART Fritz<sub>dat</sub> a woman<sub>nom</sub>  
 vorgestellt ]]] bekam/kriegte  
 introduced-to PASS<sub>2</sub>

(129-ac) are well formed since the IO, the Case of which is absorbed by *bekommen* or *kriegen*, receives nominative Case (either by movement to SpecI, or by co-indexing with an empty expletive in SpecI). (129-bd), on the other hand, are ruled out as Case Filter violations – the DO receives nominative Case, whereas the IO remains Case-less. These facts can be accounted for by making the following assumption about Case-absorption in the passive in German.

(130) *Case-Absorption in the German Passive:*

Let  $\langle \text{PASS}, \alpha_1, \dots, \alpha_n \rangle$  be an (extended) V-chain. Then, structural Case-assignment by  $\alpha_i$  (with  $1 \leq i \leq n$ ) is blocked iff (a) or (b) holds:

- a. PASS = *werden*, and  $\alpha_i = \alpha_n$ .  
 b. PASS = *bekommen* or *kriegen*, and  $\alpha_i \neq \alpha_n$ .

According to (130), *bekommen/kriegen*, as passive auxiliaries, do not absorb accusative Case in “single object constructions,” nor do they absorb non-structural, lexical dative Case. Note that (130) does not mention specific Cases – the differences between *werden* and *bekommen/kriegen* are tied to the positions in the (extended) V-chain: structural accusative Case is assigned under specifier/head agreement with the lowest V-position, and structural dative Case is assigned under specifier/head agreement with the  $\mu$  position.

Under the assumption that movement from a position where Case is assigned into another position where Case is assigned (alternatively, co-indexing of an expletive which occupies a position where Case is assigned with another position where Case is assigned) is impossible (cf. Chomsky (1986a)), the examples (131-ab) are excluded, as instances of a Case clash.<sup>28</sup>

- (131) a. \*daß Antje geküßt kriegt (cf. daß jeder Antje küßte)  
 that Antje<sub>nom</sub> kissed PASS<sub>2</sub> that everyone<sub>nom</sub> Antje<sub>acc</sub> kissed

- b. ??daß Antje geholfen kriegt (cf. daß jeder Antje  
 that Antje<sub>nom</sub> helped PASS<sub>2</sub> that everyone<sub>nom</sub> Antje<sub>dat</sub>  
 half)  
 helped

What is not yet excluded is an “impersonal passive” construction with *bekommen* or *kriegen*, where the DO retains its accusative Case (or the dative object retains its lexical Case), and the subject position is filled by an empty expletive *pro*. The following examples illustrate this point:

- (132) a. \*daß *pro* jetzt gearbeitet kriegt  
 that EXPL now worked PASS<sub>2</sub>  
 b. \*daß *pro* Antje geküßt kriegt  
 that EXPL Antje<sub>acc</sub> kissed PASS<sub>2</sub>

In (132-a), the passive auxiliary *kriegen* demotes the subject of an intransitive verb (which does not have any other argument), whereas in (132-b), *kriegen* demotes the subject, but does not block Case-assignment to the DO according to (130). At present, I see no other way to rule out these examples than to stipulate that *kriegen*, in contrast to *werden*, requires a non-expletive nominative subject at S-structure, possibly because the grammaticalization process has not yet fully come to an end (see note 27).

After this detour, let us return to the main issue, and consider passivization in double object constructions in other Germanic languages.

## 9.2. Passivization in Danish double object constructions

The Danish passive auxiliary is like German *werden* in that it normally absorbs structural accusative Case in the case of simple transitive verbs (cf. (133-c)), and like German *kriegen/bekommen* in that it absorbs structural (abstract) dative Case in double object constructions (cf. (133-a) vs. (133-b)). The following examples are from Vikner (1990):

- (133) a. at Sofie<sub>i</sub> blev vist [VP t'<sub>i</sub> [VP bogen [v' t<sub>i</sub> ]]]  
 that Sofie<sub>nom</sub> PASS shown book-the<sub>acc</sub>  
 b. \*at bogen<sub>j</sub> blev vist [VP Sofie<sub>i</sub> [VP t<sub>j</sub> [v' t<sub>i</sub> ]]]  
 that book-the<sub>nom</sub> PASS shown Sofie<sub>dat</sub>  
 c. at der blev spist et æble  
 that EXPL PASS eaten an apple<sub>nom</sub>

Thus, the passive auxiliary in Danish always absorbs the highest structural Case assigned by the verb. This can be formulated as follows:



(1986)). In this dialect, the passive auxiliary has the properties of (134), rather than of (136).

#### 9.4. Passivization in English double object constructions

Basically, the English passive auxiliary has the same effects on (extended) V-chains as its Danish counterpart (i.e., it behaves as in (134) and absorbs the highest structural Case assigned by the verb). Thus, the ungrammaticality of DO-movement to SpecI in the presence of a shifted IO follows:

(137) \*A book<sub>j</sub> was given [<sub>VP</sub> Mary<sub>i</sub> [<sub>VP</sub> t<sub>j</sub> [<sub>V'</sub> t<sub>i</sub> ]]]

But what about A-movement of the IO in double object constructions, as in (138)?

(138) Mary<sub>i</sub> was given [<sub>VP</sub> t'<sub>i</sub> [<sub>VP</sub> a book [<sub>V'</sub> t<sub>i</sub> ]]]

Upon closer inspection, it turns out that the derivation given in (138) is problematic. Recall that I have assumed that the trace of dative movement in English (but not in Danish) qualifies as a variable, and hence is subject to the PUB. But then, successive-cyclic movement of the IO to SpecI, as in (138), should result in a PUB violation. In a nutshell, if IO-raising to SpecI were to apply successive-cyclically in English, we would expect it to be as ungrammatical as A-bar movement of a dative-shifted IO. Hence, whereas the evidence from German, Danish, and Norwegian is compatible with both a one-step *and* a successive-cyclic analysis of IO-raising in passive constructions, the evidence from English indicates that the former approach is correct: IO-raising may apply in one step, without leaving an intermediate trace in Spec $\mu$ , as in (139):

(139) Mary<sub>i</sub> was given [<sub>VP</sub> - [<sub>VP</sub> a book [<sub>V'</sub> t<sub>i</sub> ]]]

This account is in line with the analyses of Stowell (1981), Czepluch (1982), and Larson (1988), where it is assumed that A-movement of the IO in double object constructions takes place from the base position of the IO only. (Accordingly, the account is at variance with the classic transformational analyses according to which the rule "passive" operates after "dative movement"; cf. Perlmutter & Soames (1979: 345).) However, it is worth noting that my proposal differs from those of Stowell, Czepluch, and Larson in that I do not assume that Case-absorption applies to the *base*-position of the IO.

This accounts for the main characteristics of A-movement in English double object constructions.<sup>30</sup>

### 9.5. Passivization in West Flemish double object constructions

Consider some data from West Flemish double object constructions (cf. Haegeman (1985/86: 284)):

- (140) a. \*dat-er Marie nen boek gegeven is  
           that-EXPL Marie<sub>dat</sub> a book<sub>nom</sub> given PASS  
       b. \*da-se/Marie nen boek gegeven is  
           that-she/Marie<sub>nom</sub> a book<sub>acc</sub> given PASS

On the one hand, the ungrammaticality of (140-a) suggests that structural dative Case is absorbed in West Flemish double object constructions. On the other hand, (140-b) is also impossible, which seems to indicate that structural accusative Case is also absorbed.

A first solution that comes to mind looks as follows. Suppose that the West Flemish passive auxiliary absorbs *all* structural Cases assigned by the participle, and not merely the highest one. Then, if two Case-dependent NPs occur in a clause, ungrammaticality results since only one of them may receive structural nominative Case. In line with this view, it appears that, in general, passivization in West Flemish double object constructions becomes possible if dative movement has not occurred, and the IO is supported by a Case-assigning preposition, as in (141) (again from Haegeman (1985/86: 284)).

- (141) dat-er [PP an Marie ] nen boek gegeven is  
           that-EXPL to Marie a book<sub>nom</sub> given PASS

Here, the unshifted IO has undergone scrambling, rather than dative movement, in front of the DO. The Case of the DO is absorbed by the passive auxiliary, and the DO accordingly receives nominative Case in order not to violate the Case Filter.

Although this analysis works for the examples under consideration, it will turn out in the next section that West Flemish passive auxiliaries do in fact *not* block the assignment of structural accusative Case in dative shift constructions. Rather, it is plausible to assume that West Flemish passive auxiliaries behave exactly like their English or Danish counterparts in that they absorb the highest structural Case (i.e., dative Case in double object constructions, and accusative Case otherwise). Now, suppose that this is correct. Then, the deviance of (140-b) must be due to some other factor.

One might speculate that (140-b) violates the PUB. Recall that traces of dative movement qualify as variables in West Flemish, just as they do in English. Now, suppose that in West Flemish, in contrast to English, successive-cyclic NP-movement of an IO via Spec $\mu$  in passive constructions can somehow be forced, as in (142):

(142) \*da-se/Marie<sub>i</sub> [<sub>VP</sub> t'<sub>i</sub> [<sub>VP</sub> nen boek [<sub>V</sub> t<sub>i</sub> gegeven ]]] is

Then, the impossibility of IO-raising to SpecI in West Flemish could be treated on a par with the impossibility of A-bar movement of a dative-shifted IO, as a PUB violation. Of course, this solution is somewhat ad hoc as long as it is not clear why successive-cyclic NP-movement of an IO should be forced in West Flemish, but not in English. At present, however, I know of no convincing answer to this question.

To summarize this section, it has been shown that passivization in double object constructions is by no means a uniform phenomenon across the Germanic languages. I have developed a theory of Case-absorption which, in interaction with the more articulated structure of VP assumed in this chapter, accounts for the variation observed.

## 10. Free datives

Thus far, I have only considered double object constructions where a structural dative Case is assigned to a GOAL argument of the verb, and a structural accusative Case is assigned to a THEME argument of the verb. I have argued that a dative-shifted IO occupies a derived position, and binds a trace which is the result of Case-driven A-bar movement to Spec $\mu$ . The last two sections have shown that movement of an IO which bears structural dative Case may exhibit effects which call for an explanation in terms of improper movement, and, more specifically, in terms of the PUB. In order to rule out a particular structure, the PUB requires the existence of at least two traces. Thus, the existence of an IO-trace in dative shift configurations is clearly supported.

In this section, evidence will be presented which further corroborates the analysis developed so far. The main argument goes as follows: Suppose that there are “double object constructions” where the “IO” is not an argument of the verb, but a kind of modifier of an argument. Suppose furthermore that it is not base-generated in the lower VP, but freely inserted in a position where it receives structural dative Case. Then, it is predicted not to exhibit PUB-related effects even in languages where a GOAL argument (which has undergone dative movement) does. This prediction turns out to be correct.

### 10.1. The phenomenon

Consider first some typical examples involving “free” (or “possessive”) datives in German:

- (143) a. daß der Fritz *der Maria* (gerade) ihre Haare  
 that ART Fritz<sub>nom</sub> ART Maria<sub>dat</sub> (right now) her hair<sub>acc</sub>  
 schneidet  
 cuts
- b. daß man *dem Frank* sein Fahrrad geklaut hat  
 that one<sub>nom</sub> ART Frank<sub>dat</sub> his bicycle<sub>acc</sub> stolen has

Semantically, the datives in (143) are not arguments of the verb. Rather, they are *modifiers* of the THEME argument. Thus, Maria is the possessor of the hair that gets cut by Fritz in (143-a), and Frank owns the bicycle which is stolen by someone in (143-b).

Tappe (1985) and Czepluch (1988) have observed that this “free” dative is in complementary distribution with the GOAL-dative I have almost exclusively considered so far. This is shown in (144).

- (144) a. \*daß er [NP dem Fritz ] [NP seinem  
 that he<sub>nom</sub> ART Fritz(POSS)<sub>dat</sub> his  
 Kind ] das Buch gab  
 child(GOAL)<sub>dat</sub> the book<sub>acc</sub> gave
- b. \*daß er [NP ihr ] [NP dem Plan ] die  
 that he<sub>nom</sub> her(POSS)<sub>dat</sub> the plan(GOAL)<sub>dat</sub> the  
 Unterstützung entzog  
 support<sub>acc</sub> withdrew

As pointed out by Tappe and Czepluch, this suggests that free datives and GOAL datives occupy the same position and receive the same type of Case.

Note in addition that the restriction at work here is purely structural. It seems to me that a free dative and a GOAL NP are not mutually exclusive as long as the GOAL is realized as a PP (cf. (145-a)), and does not bear structural dative Case (as in (145-b)):

- (145) a. Wir haben dem Fritz seinen Brief an den  
 we have ART Fritz(POSS)<sub>dat</sub> his letter<sub>acc</sub> to the  
 Vermieter geschickt  
 landlord(GOAL) sent
- b. \*Wir haben dem Fritz seinem Vermieter  
 we have ART Fritz(POSS)<sub>dat</sub> his landlord(GOAL)<sub>dat</sub>  
 seinen Brief geschickt  
 his letter<sub>acc</sub> sent

The fact that free dative NPs can undergo passivization and become the subject of the sentence points to the same conclusion (cf. again Tappe (1985))

and Czepluch (1988)) – free dative NPs and GOAL dative NPs behave in the same way, which suggests that they occupy identical positions. Cf.:

- (146) a. daß die Maria ihre Haare geschnitten bekommt  
 that ART Maria<sub>nom</sub> her hair<sub>acc</sub> cut PASS<sub>2</sub>  
 b. daß der Frank das Fahrrad geklaut kriegt  
 that ART Frank<sub>nom</sub> the bicycle<sub>acc</sub> stolen PASS<sub>2</sub>

Thus, all available evidence shows that the dative of possession occupies the Spec $\mu$  position at S-structure. Since it is not an argument of the verb (but rather, a modifier of one of the verb's arguments), the question arises of where this free dative originates. Towards an answer, I will now discuss two possible analyses.

## 10.2. Do free datives originate in an NP?

In German, constructions exist which closely resemble those in (143), and which may possibly be considered thematic paraphrases of them. The only difference is that the possessive NP occurs *within* the THEME NP it modifies, and not outside this NP. Cf.:

- (147) a. daß der Fritz [NP der Maria ihre Haare ] schneidet  
 that ART Fritz<sub>nom</sub> ART Maria<sub>dat</sub> her hair<sub>acc</sub> cuts  
 b. daß man [NP dem Frank sein Fahrrad ] geklaut hat  
 that one<sub>nom</sub> ART Frank<sub>dat</sub> his bicycle<sub>acc</sub> stolen has

Similarly, examples like those in (144) become grammatical if the modifying NP occurs within the THEME NP; hence, one cannot possibly argue that (144-ab) are ungrammatical for semantic reasons:

- (148) a. daß er [NP dem Fritz seinem Kind ] das Buch gab  
 that he<sub>nom</sub> ART Fritz<sub>dat</sub> his child<sub>dat</sub> the book gave  
 b. daß er [NP ihrem Plan ] die Unterstützung entzog  
 that he<sub>nom</sub> her plan<sub>dat</sub> the support<sub>acc</sub> withdrew

If it shows up NP-internally, the possessive NP receives either structural genitive Case (which does not concern me here; but recall the remarks in chapter 2), or it occurs together with a co-indexed possessive pronoun (*ihre, sein, seinem* in (147) & (148)), in which case it receives dative Case. Thus, with respect to pairs like (143-a)/(147-a) or (143-b)/(147-b), it is sometimes not easy to decide which of the two possible structures one should assign. Given that these pairs are thematic paraphrases, it is tempting to assume that constructions like those in (143) are the result of movement out of an NP.

According to the theory developed in chapter 2, extraction from NP is only possible if abstract incorporation occurs. After abstract incorporation, NP-internal Case-assignment is blocked. Recall that this is the core of the explanation of Left Branch Condition effects; cf.:

(149) \*Whose<sub>i</sub> did you read [NP t<sub>i</sub> books ] ?

PPs, on the other hand, are not affected by Case-absorption as induced by incorporation, and hence may freely be extracted in this case. Now imagine that there is a Case-position where the NP-internal possessive NP can go if abstract noun incorporation has occurred. By hypothesis, Spec $\mu$  is just such a position. Thus, suppose that the possessive NP moves to Spec $\mu$  if abstract noun incorporation occurs (which is of course the only context in which movement is possible at all due to the ECP). (143-a), then, would have the following structure (also see Gallmann (1992)):

(150) daß der Fritz [NP der Maria ]<sub>i</sub> (gerade) [NP t<sub>i</sub> ihre  
 that ART Fritz<sub>nom</sub> ART Maria<sub>dat</sub> (right now) her  
 Haare ] schneidet  
 hair<sub>acc</sub> cuts

This analysis has a number of attractive features. Most notably, it accounts for an observation made by Hoekstra (1984) and Grewendorf (1989). They point out that a free dative NP must c-command the NP it modifies. Cf., e.g., the following contrast between modification of a transitive subject in (151-a), which is illicit, and an unaccusative subject in (151-b), which is possible (the data are inspired by Grewendorf (1989: 93)). Since abstract noun incorporation is never possible in the case of subjects of transitive and unergative intransitive verbs, but generally possible in the case of subjects of unaccusative verbs, this contrast is immediately accounted for.

- (151) a. \*daß dem Bauern<sub>i</sub> [NP t<sub>i</sub> die Kühe ] auf der Wiese gelebt  
 that the farmer<sub>dat</sub> the cows<sub>nom</sub> on the meadow lived  
 haben  
 have
- b. daß dem Bauern<sub>i</sub> [NP t<sub>i</sub> die Kühe ] gestorben sind  
 that the farmer<sub>dat</sub> the cows<sub>nom</sub> died are

However, despite its virtues, I think that one must ultimately give up the hypothesis that free datives originate in an NP. The main reason is that the purported extraction from NP does not show any sign whatsoever of being subject to lexical variation. Recall from chapter 2 that extraction from NP is possible only when V m-selects NP as a lexical property. Thus, examples like

(152-ab) are ruled out since incorporation may not occur in this context due to lexical factors only:

- (152) a. \*Worüber<sub>i</sub> hat der Fritz [NP ein Buch t<sub>i</sub>] geklaut ?  
 about-what has ART Fritz<sub>nom</sub> a book<sub>acc</sub> stolen
- b. \*weil ich [VP darüber<sub>i</sub> [VP gestern [NP einen Film t<sub>i</sub>]  
 because I<sub>nom</sub> about-that yesterday a film<sub>acc</sub>  
 verrissen ]] habe  
 torn have

However, the very same verb-noun combinations permit the occurrence of free datives:

- (153) a. daß der Fritz der Maria ein Buch geklaut hat  
 that ART Fritz<sub>nom</sub> ART Maria<sub>dat</sub> a book<sub>acc</sub> stolen has
- b. daß man dem Regisseur einen Film verrissen hat  
 that one<sub>nom</sub> the director<sub>dat</sub> a film<sub>acc</sub> torn has

To my mind, this clearly shows that free datives are not the result of Case-driven movement out of an NP into the Spec $\mu$  position – otherwise, lexical variation should play a role. Furthermore, we have seen that extraction may never take place from scrambled NPs (a Freezing effect), even if the governing verb would in principle allow abstract incorporation, cf. (154-a). But then, if free datives were derived via Case-driven movement out of DOs, examples like (154-b) should be just as ungrammatical as (154-a), which, of course, they are not:

- (154) a. \*[PP Über die Liebe ]<sub>i</sub> hat [NP ein Buch t<sub>i</sub>]<sub>j</sub> niemand t<sub>j</sub> gelesen  
 about the love has a book<sub>acc</sub> no-one<sub>nom</sub> read
- b. [NP Der Maria ] hat [NP die Haare ]<sub>j</sub> keiner t<sub>j</sub> geschnitten  
 ART Maria<sub>dat</sub> has the hair<sub>acc</sub> no-one<sub>nom</sub> cut

This, again, suggests that free datives do not originate in DO NPs.

### 10.3. Free datives originate in Spec $\mu$

I conclude that free datives, as non-arguments, are inserted into the Spec $\mu$  position at D-structure already. (Note that this does not threaten the above claim that Spec $\mu$  is an A-bar position. Since a non-argument is inserted there in the case of free datives, it can be maintained that this position is never  $\Theta$ -marked.) Then, the possessive dative NP comes to modify the THEME argument at LF only, and not at some other level of representation. (This might also explain the apparent c-command requirement pointed out by Hoekstra and Grewendorf.) As concerns the UTAH, one now has to ensure that an

analysis in terms of extraction from NP is not required in the case of free datives. This can be achieved by either claiming that pairs like that of (143-a) and (147-a) indeed do not qualify as thematic paraphrases after all, or by restricting the UTAH to arguments. I will not pursue this issue here.

Now, given that free datives are the result of free insertion of an NP in the Spec $\mu$  position, where it receives structural dative Case (and thus blocks simultaneous occurrence of a GOAL dative NP), no trace is present in the lower VP. As concerns languages where traces of dative movement do not qualify as variables (and, hence, the PUB does not apply to them), one expects that this will not make any difference with respect to movement of a dative NP. This appears to be the case. However, there might well be a difference in the mobility of free datives (as opposed to GOAL datives) in languages where the PUB applies to traces of dative movement. At least for West Flemish, this prediction is borne out. Haegeman (1985/86: 295) observes that free datives, in contrast to GOAL datives, may in fact undergo A-bar movement, just as one would expect them to in the present framework – given that free datives are not derived by dative movement (hence, do not bind a VP-internal trace) they cannot induce PUB violations. Cf. (155-ab) vs. (123-ab):

- (155) a. Wien<sub>i</sub> een-ze [VP t<sub>i</sub> [VP nen tand getrokken ]] ?  
           who<sub>dat</sub> have-they<sub>nom</sub> a tooth<sub>acc</sub> pulled
- b. Eur<sub>i</sub> een-ze [VP t<sub>i</sub> [VP nen tand getrokken ]]  
           her<sub>dat</sub> have-they<sub>nom</sub> a tooth<sub>acc</sub> pulled

In English, the situation is not so clear, since it is doubtful whether English has a free dative construction. However, Chris Wilder (p.c.) observes that (156-a) (which to a certain extent resembles a free dative construction) is much better than, e.g., (121-a); similarly, (156-b) seems to be completely well formed, which is explained if one assumes that idiomatic expressions like *to give someone the sack* cannot be derived by dative movement.

- (156) a. ?Who<sub>i</sub> did you bake [VP t<sub>i</sub> [VP a cake ]] ?  
       b. Who<sub>i</sub> did you give [VP t<sub>i</sub> [VP the sack ]] ?

Similarly, passivization in free dative constructions in West Flemish differs substantially from passivization in dative shift constructions with a GOAL IO. As pointed out by Haegeman (1985/86: 283), the DO still does not turn into a nominative subject (cf. (157-a)), but the free dative does (cf. (157-b)):

- (157) a. \*dat dienen tand Marie getrokken is  
           that this tooth<sub>nom</sub> Marie<sub>dat</sub> pulled PASS
- b. da-se<sub>i</sub> [VP t<sub>i</sub> [VP nen tand getrokken ]]  
           that-she<sub>nom</sub> a tooth<sub>acc</sub> pulled PASS

On the one hand, these data clearly show that one may in fact *not* assume that the West Flemish passive auxiliary absorbs all structural Cases of the verb (as was tentatively suggested in section 9.5). Rather, it absorbs the highest structural Case of the verb (i.e., structural dative in double object constructions, and structural accusative otherwise), just like its English or Danish counterpart. Hence, the NP *Marie* in (157-a) remains Case-less, in violation of the Case Filter, and the DO *dienen tand* ends up with two Cases.

On the other hand, the fact that the free dative NP may receive nominative Case in passivization constructions in West Flemish is perfectly compatible with the assumptions so far. In particular, it can be taken as evidence that the impossibility of passive constructions like (140-b) is actually due to a PUB violation of an IO-trace in the lower VP – given the hypothesis that NP-movement in West Flemish obligatorily applies successive-cyclically, (157-b), in contrast to (140-b), is predicted to be well formed, because no VP-internal trace is present in the case of free dative NPs.

Summarizing, the fact that free datives behave differently from IOs bearing structural dative Case in crucial respects again provides strong indirect support to the claim that the phenomenon of dative movement does indeed exist, leaving a trace which may be subject to an unambiguous binding requirement.

## 11. Conclusion

Let me summarize the main findings of this chapter. The apparent conflict between the theories of barriers and binding encountered in chapter 3 is resolved by the assumption that there is another clause-internal movement type in languages like German in addition to scrambling, viz., dative movement. The empirical evidence has shown that dative movement should be formally analysed as A-bar movement, just like scrambling. Hence, categories which have undergone dative movement have some properties usually related to A-bar positions. E.g., they are strict barriers (a Freezing effect), and are not able to A-bind elements in their c-command domain. Moreover, traces of dative movement may be susceptible to PUB effects – clearly a property of A-bar movement types. On the other hand, dative movement differs from A-bar movement types like scrambling and *wh*-movement in being Case-driven, just like A-movement; moreover, dative movement differs from scrambling in not being iterable, since it is movement to the *specifier* position of a functional head  $\mu$ . From the  $\text{Spec}\mu$  position, a weaker form of “A-binding,” namely GF-binding, is possible. This explains why NPs which have undergone dative movement are able to license bound variable pronouns (even in the more rigid variety of German), and even sometimes anaphoric expressions (in some languages/dialects). Thus, it is explained why dative shift, being Case-driven

A-bar movement, has an intermediate status between strict A-bar movement types (like scrambling and *wh*-movement), and A-movement (like in passive and raising constructions).

## 12. Appendices

In the appendices, I address a number of issues which arise as consequences of the analysis presented above. First and foremost, something must be said about the status of the VP-shell in the present framework (appendix 1). Then, I turn to the phenomenon of particle movement, and investigate its bearing on the analysis of VP-structure developed in this chapter (appendix 2). After that, I discuss the hypothesis that dative-shifted IOs are not bare NPs, but rather PPs headed by an empty preposition (appendix 3). Finally, I discuss the relationship between focus projection and dative movement in German (appendix 4).

### 12.1. Appendix 1: on VP-shells

A question which immediately arises concerns the presence of the VP-shell in constructions where no structural dative Case is assigned. Two approaches suggest themselves. On the one hand, one might assume that the VP-shell is there only if it is needed in order to assign structural dative Case. I.e., all constructions requiring structural dative Case also require VP-shell projection by the empty verbal head  $\mu$  – if there is no such head, the resulting structure is invariably ill formed. If no structural dative Case is called for, the empty verbal head (and hence, its projection) may lack without leading to ungrammaticality. It seems to me that this approach is viable in principle. One has to guarantee, though, that there is an additional landing site for verb movement in the case of periphrastic constructions involving an auxiliary and a main verb in English; cf.:

(158) John has [<sub>VP</sub> kissed<sub>i</sub> her t<sub>i</sub> ]

Recall that I have assumed, following Koster (1988), that English has SOV order in the lower VP throughout at D-structure. Hence, even a participle or an infinitive must raise to a position from where it governs its complements to the right. Therefore, rejecting the idea that the VP-shell is always present, while maintaining the SOV analysis, forces one to assume that there is a functional head “Part” to which the verb raises in sentences like (158), and which governs to the right.

Alternatively, one may assume that the VP-shell is always present, even in sentences where no structural dative is assigned. Then, the problem with (158) disappears – the verb form *kissed* is taken from the lexicon, and must

move to the head of the VP-shell in order to project its features and satisfy the selection requirements of the auxiliary at S-structure (as hypothesized in the text above). However, it is evident that a problem arises in cases of periphrastic constructions involving a triadic verb, as in (159) in English; cf.:

(159) John has given [<sub>VP</sub> the book  $\mu$  [<sub>VP</sub> to Mary ]]

Since Spec $\mu$  is occupied by the IO *the book*, it follows that the participle *given* cannot be located in  $\mu$  at S-structure. Hence, an additional VP-(shell-)external landing site for participle movement is required nonetheless. Furthermore, if the VP-shell is always present, one has to ensure that the Spec $\mu$  position may not be occupied by some arbitrary XP, giving rise to scrambling-like effects in a language like English. I think this problem is not unsurmountable; many illicit configurations can be excluded by a general ban against non-NP material in what may be classified as an NP-position (in analogy to the SpecI position), and/or by a restriction against movement of a Case-bearing element into a Case-position.

In conclusion, it is hard to decide which of the two options is the more adequate one; for the sake of clarity, I will tentatively assume the latter version – i.e., the VP-shell is always there, even if no dative Case is assigned.

A related issue, then, concerns the features of the empty verbal head  $\mu$ . I have pointed out in note 6 above that the VP-shell is reminiscent of Chomsky's (1991; 1993) AGR/O-P – a functional category projected by the abstract head “object agreement,” which immediately dominates the VP. In the present framework, it would make more sense to call this functional category'AGR/IO, since it is the empty verbal head  $\mu$  which is responsible for the assignment of structural dative Case. On the other hand, I have just tentatively assumed that the functional head  $\mu$  is there even if no dative is assigned in a given sentence. Then, there is verb movement to AGR/IO, even if there is no assignment of structural dative, possibly even no IO around. For the time being, I will simply leave it at that. It should be obvious that these questions are for the most part terminological in nature, and do not have to be settled in order to substantiate the basic claim. And the basic claim is that there exists a functional verbal category  $\mu$  with the following properties:

- a. It can never be overtly realized per se (i.e., it is empty).
- b. It selects a VP at D-structure.
- c. Structural dative Case is assigned to its specifier position via specifier/head agreement.

Recall now Speas's (1990) objection to the “proliferation of empty verbal heads” mentioned in section 3.2.2 above. In a nutshell, she argues that the existence of functional heads should be independently motivated. According to her own analysis, there is exactly one additional verbal head in all transitive constructions with an “agentive” subject, due to lexical decomposition (cf.

note 4). Now, it is obvious how the analysis presented in this chapter evades her objection. The empty verbal head  $\mu$  has a specific designated property, which is to assign structural Case to its specifier after verb movement.

Now, one might wonder why, of all structural Cases, it is exactly dative Case which is assigned to an A-bar position, which arises as a result of projection by an empty verbal head. In most current approaches where it is assumed that structural Case is connected to specifier/head agreement (more precisely, to movement into the specifier position of a functional head), it is *nominative* Case which is assigned to a position where the argument which bears it is not base-generated (cf. Kitagawa (1986), Sportiche (1988a), Koopman & Sportiche (1991), Speas (1990), etc.), or *accusative* Case (as in Johnson (1991), Ouhalla (1991), Chomsky (1993), and some related work). Thus, if one stipulates that IOs undergo movement in dative shift constructions, one might expect subjects and DOs to undergo Case-driven movement into a specifier position of a functional head, too, for reasons of analogy alone.

However, I refrain from assuming such a thing here, for the following three reasons. First, the existence of three different types of argument shift operations will induce unwanted crossing effects in the case of co-indexing (cf. section 6.2) that are not easy to avoid by means of additional stipulations. Second, one would have to ensure that DOs do not exhibit Freezing effects with respect to the theory of barriers, after they have left their D-structural position in order to receive structural Case.<sup>31</sup> More generally, an unscrambled DO does not behave in any way as if it occupied a position different from the one where it was base-generated; and the same goes for subjects. Finally, the problem may arise of how to guarantee that each argument ends in its "correct" specifier position. Why, e.g., would the DO move to SpecAGR/O, the subject to SpecAGR/S, and the IO to SpecAGR/IO, but not, say, the DO to SpecAGR/S, the subject to SpecAGR/IO, and the IO to SpecAGR/O? Potential ambiguities do not occur if there is only one argument that undergoes Case-driven movement to the specifier of a functional category.<sup>32</sup> Thus, I continue to assume that subjects are base-generated in SpecI, and DOs in SpecV, where they receive structural Case.

Next, I will address the case of particle movement.

## 12.2. Appendix 2: particle distribution

Since the earliest transformational studies, it has been assumed that there is an intricate relationship between dative movement and a transformation which has been called "particle movement." The most interesting difference between these two classic transformations was that dative shift involved *to*-deletion and movement of the IO to the left, whereas particle movement was conceived of as a movement of a particle from the verb (where it was assumed to be base-generated) to the right, as in (160-b):

- (160) a. David called up Agnes  
 b. David called -- Agnes up



However, Kayne (1985), Koster (1988), and Grewendorf (1990), among others, have extensively argued that, in sentences like (160-ab) (or their Dutch and German equivalents), the particles are not base-generated as a part of the verb. Rather, they argue, these particles should be considered categories of type P (possibly “intransitive” heads of PPs, as proposed by Emonds (1976: 82)), which are base-generated in a position that corresponds to the order depicted in (160-b). Then, particle movement is actually to the left, just like dative shift is, and (160-a), rather than (160-b), represents the derived structure.

I believe that this line of research is basically on the right track. However, an explanatory account of particle movement which strives for a more or less complete inclusion of all the evidence available seems to me to be a very difficult task. Moreover, particle movement is an instance of head movement, and not of the type of XP movement which is the main object of this book. Therefore, instead of presenting a full-fledged analysis of particle movement, I will merely indicate how the basic facts about particle distribution in the Germanic SVO and SOV languages could be handled in the present framework.

As a starting point, suppose that all verbal particles in German are base-generated in the lower VP. On the way to S-structure, they undergo head movement to the next V-position, left-adjoining to V (since they are prefixes). Then, one has to distinguish between separable and inseparable verbal prefixes. The latter ones remain on the verb wherever it goes, as in the following German examples of V-to-I movement (cf. (161-a)), and V-to-I-to-C movement (cf. (161-b)):

- (161) a. daß der Fritz einen blöden Roman  $t_j t_k$  [<sub>I</sub> über<sub>j</sub>-setzt<sub>k</sub> ]  
 that ART Fritz<sub>nom</sub> a stupid novel<sub>acc</sub> translates
- b. Seit gestern [<sub>C</sub> [<sub>I</sub> über<sub>j</sub>-setzt<sub>k</sub> ]] [<sub>IP</sub> der Fritz einen blöden  
 since yesterday translates ART Fritz<sub>nom</sub> a stupid  
 Roman  $t_j t_k$  ]  
 novel<sub>acc</sub>

However, as concerns separable prefixes, I suggest that they differ from inseparable ones in that they are “I-incompatible.” This is supposed to mean that, for one reason or another, separable prefixes, although they undergo head movement to V, may never move further up to I or C on the “back of the verb.” Hence, V-excorporation must take place, as depicted in (162-ab):

- (162) a. daß Cornelia keiner  $t_i$  [ $v$   $an_i$   $t_j$ ] [ $I$   $ruf_{j-t}$ ] $_k$   
 that Cornelia<sub>acc</sub> no-one<sub>nom</sub> up call-s
- b. Keiner [ $C$  [ $I$   $ruf_{j-t}$ ] $_k$ ] Cornelia [ $v$   $an_i$   $t_j$ ] $I_k$   
 no-one<sub>nom</sub> calls Cornelia<sub>acc</sub> up

Excorporation configurations like [ $v$   $an_i$   $t_j$ ] may look problematic at first sight. However, there is evidence that excorporation probably must be allowed in any case if it is the head of a word which excorporates, and not an adjunct to it. Thus, in (162), the verb moves out of its own projection, and strands a particle. This process does not violate the weakened restriction against excorporation developed above. But, more generally, one might ask why P-incorporation into V should occur in the first place, given that the verb undergoes excorporation even in verb-final clauses as (162-a) in German. Here, *an-ruft* is a phonological word, and, under the excorporation hypothesis, I have to assume in addition that *an* cliticises onto *ruft* at PF. Assuming P and V to form a syntactic constituent at S-structure in (162-a) would indeed simplify matters to some extent, but I will nevertheless refrain from such an assumption. The main reason for doing so is that it would be a mystery as to how a finite verb can move from I to C, stranding the particle in I, although P and V form a constituent there (and not V and I, as would be required).

Of course, one might assume that the particle has not undergone raising to I together with the verb in constructions where the finite verb is further moved to C. Under this assumption, particles can, but do not have to move to I together with the verb, and only if they do not move can the verb subsequently be raised to C – otherwise, I-to-C movement is impossible since V and I do not form a constituent. Then, one can say that separable particles are “C-incompatible,” rather than “I-incompatible.”

Now let us turn to the distribution of particles in English. The basic facts are the following:

In simple (i.e., non-double object) constructions, the particle occurs either immediately to the right of the verb, or to the right of the DO, as shown in (160-a) and (160-b), respectively. Given the assumptions made so far, the particle incorporates into the (lower) V in (160-b). This process is then followed by excorporation of the verb, which undergoes successive-cyclic head movement through the empty verbal head  $\mu$  to a VP-external head position. Cf.:

- (163) David [ $called_k$ ] [ $VP$  – [ $\mu$   $t_k$ ] [ $VP$  Agnes [ $v$   $t_i$  [ $v$   $t_k$   $up_i$  ] ] ] ]

In (160-a), on the other hand, the particle is moved to the empty verbal head  $\mu$ , together with the verb. Then, either the verb excorporates, stranding the particle in  $\mu$  (as indicated in (164-a)), or verb and particle move together (cf. (164-b)).<sup>33</sup>

- (164) a. David [ call-ed<sub>k</sub> ] [VP - [<sub>μ</sub> t<sub>k</sub> up<sub>i</sub> ]<sub>k</sub> [VP Agnes [v' t<sub>i</sub> [v t<sub>k</sub> ]]]]  
 b. David [ call-ed up<sub>i</sub> ] [VP - [<sub>μ</sub> t<sub>k</sub> ] [VP Agnes [v' t<sub>i</sub> [v t<sub>k</sub> ]]]]

Turning now to particles in dative shift constructions, one would a priori expect that the particle may show up in three different positions, viz., in front of both IO and DO, between IO and DO, and following both IO and DO, depending on whether (and if, where) excorporation occurs. The relevant constructions have been extensively discussed in the literature, e.g., by Emonds (1976), Kayne (1985), Jacobson (1987), Koster (1988), Fanselow (1991), Grewendorf (1990), Hoekstra (1991), and den Dikken (1992), among many others. On the whole, the picture that emerges corroborates the analysis of dative movement and VP-structure developed so far.

For some reason, particles occurring in double object constructions prefer to sit between the two objects, as in the following examples (cf. Kayne (1985: 108f)):

- (165) a. They are trying to make John out a liar  
 b. ?\*They are trying to make out John a liar  
 c. \*They are trying to make John a liar out

Similar examples are discussed by Koster (1988: 17):

- (166) a. John read Mary off the figures  
 b. \*John read off Mary the figures  
 c. \*John read Mary the figures off

According to the above assumptions, the particle obligatorily moves with the verb into the empty verbal head  $\mu$ , and then the verb has to excorporate.

Emonds (1976: 82ff) and Jacobson (1987: 32ff) give examples like those in (167) and (168). Here, again the versions with the particle intervening between the IO and the DO are the best ones (cf. (167-a) & (168-a)); nevertheless, complex verb formation at S-structure (as in (167-b) & (168-b)) is possible (although maybe somewhat worse – Emonds points out that there is a lot of dialectal variation concerning the status of examples like these). Still, particle stranding in the verb's base position remains ungrammatical (cf. (167-c) & (168-c)):

- (167) a. The secretary sent the stockholders out a schedule  
 b. ?The secretary sent out the stockholders a schedule  
 c. \*The secretary sent the stockholders a schedule out  
 (168) a. Bill fixed John up a drink  
 b. ?Bill fixed up John a drink  
 c. \*Bill fixed John a drink up

Finally, there are examples (as pointed out by Emonds (1976) and Koster (1988)) where the particle may stay in the lower VP, even in double object constructions. Cf.:

(169) He gave Bill his money back

Thus, one can at least conclude that, for every potential  $X^0$ -position where a particle could occur under the present assumptions, there are examples where indeed it does occur. Of course, the framework is far too liberal as it stands, since the ungrammatical examples in (165) through (168) are not yet ruled out. For reasons of space and coherence, I will not try to do this here. It may suffice to note that there appears to be a general tendency of particles to be “as close to the verb as possible,” where this “possibility” depends on a number of intervening factors. Finally note that it may well turn out eventually that the examples in (165) - (168) should not even receive a uniform treatment. The sentences in (165) and (166), e.g., do not at all look like double object constructions of the sort I have been concerned with so far – the NPs involved here certainly do not bear the  $\Theta$ -roles THEME and GOAL. Indeed, Kayne (1985) has argued that they should be assigned a small-clause like structure.

I will leave the issue here. It should be clear, though, that the evidence from particle movement in English and German is in principle compatible with the approach to dative movement pursued here, whatever an adequate analysis of particle movement ultimately looks like (cf. the literature cited above for various proposals).

### 12.3. Appendix 3: empty prepositions

It has been argued by Czepluch (1982), Kayne (1984: ch. 9), and Haegeman (1985/86), among others, that dative-shifted IOs should not be analysed as bare NPs bearing structural (dative) Case, but rather as NPs embedded by a preposition, the only difference to IOs in unshifted double object constructions being that the preposition is empty, and not overt. Cf.:

(170) John gave [<sub>PP</sub> P<sub>e</sub> Mary ] [<sub>NP</sub> a book ]

The empty preposition hypothesis for dative shift constructions has already been encountered, and dismissed, in section 8, in connection with the constraint on A-bar movement of a dative-shifted IO in English and West Flemish. There are at least two other issues in the syntax of double object constructions where the empty preposition hypothesis has been argued to play a crucial role, viz., (a) the absence of dative shift in some languages, and (b) the licensing of parasitic gaps. I will address these issues in turn, arguing that phenomenon (a) receives a straightforward account in the approach advocated here, and that the distribution of parasitic gaps, upon closer inspection, not only fails

to provide an argument in support of the empty preposition hypothesis, but also turns out to be incompatible with it. Finally, I give additional arguments against viewing dative-shifted IOs as PPs with an empty preposition.

### 12.3.1. On the absence of dative movement

As is well known, there are many languages that do not employ an operation like dative movement. Kayne (1984: ch. 9) has pointed out that dative shift constructions are completely absent in French, although French has double object constructions that correspond to the unshifted versions in English. Consider the following examples (from Kayne (1984: 193)):

- (171) a. \*Jean a donné Marie un livre  
           Jean has given Marie a book  
       b. Jean a donné un livre à Marie  
           Jean has given a book to Marie

According to the empty preposition hypothesis, *Marie* in (171-a) would have to be embedded in a PP headed by an empty preposition  $P_e$ . Now, Kayne suggests the following principles, which are supposed to regulate the distribution of empty prepositions:

- (172) a. An empty preposition cannot be the source of Case. (Kayne (1984: 195))  
       b. In a given language,  $P_e$  can transmit to its object an objective Case received by percolation only if in that language prepositions normally assign objective Case. (Kayne (1984: 196))

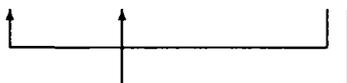
Verbs assign objective Case in English and French, whereas Kayne stipulates that prepositions assign objective Case in English, but not in French.<sup>34</sup> Hence, *Marie* does not receive Case in (171-a). Thus, dative shift is not possible in French due to a lack of Case-assignment to the IO in these constructions.

However, I believe that the empty preposition hypothesis, together with the assumptions in (172), is by no means the only way to account for the lack of dative shift in languages like French. I would like to suggest that what causes the absence of dative shift in French is actually nothing but the absence of the empty verbal head  $\mu$  in the lexicon. Recall that in the present analysis, VP-shells are not projected simply because they are needed to supply an additional specifier position, as in Larson's approach. Rather, the VP-shell is projected by an empty verbal head  $\mu$  (or AGR/IO), and as soon as this category is absent in the lexicon of a given language, dative movement becomes impossible, as becomes the assignment of a structural dative Case.

### 12.3.2. Parasitic gaps

Let us now turn to parasitic gaps. Den Dikken & Mulder (1991) argue that dative shift constructions in Dutch and German are in principle ambiguous between a “bare NP” and an “empty preposition” analysis of IOs; however, an empty preposition analysis is forced if both the IO and the DO undergo scrambling in front of an adverbial. The reason for this is that sentences like (173) should be expected to violate Pesetsky’s (1982) Path Containment Condition. (I will use German equivalents of the Dutch examples of den Dikken & Mulder throughout. The reason for this will become evident immediately.)

- (173) daß Hans [<sub>NP</sub> Maria<sub>i</sub>] das Buch<sub>j</sub> gestern t<sub>i</sub> t<sub>j</sub> gegeben hat  
 that John Mary the book yesterday given has



The paths of the IO and the DO overlap, but neither contains the other. Under the assumption that the base order of IO and DO is reversed if the IO occurs in a PP with an empty head, (174) does not violate the Path Containment Condition:

- (174) daß Hans [<sub>PP</sub> P<sub>e</sub> Maria<sub>i</sub>] das Buch<sub>j</sub> gestern t<sub>j</sub> t<sub>i</sub> gegeben hat



We have already seen in section 6.2.3 that there is some evidence showing that the Path Containment Condition does not hold, at least not in languages like German. But let us ignore this for the sake of the argument. The crucial data involving parasitic gaps, then, are the following:

- (175) a. daß Hans Maria das Buch<sub>i</sub> [ ohne e<sub>i</sub> gelesen zu haben ]  
 that John Mary the book without read to have  
 zurückgegeben hat  
 back-given has
- b. \*daß Hans Maria<sub>i</sub> das Buch [ ohne e<sub>i</sub> zu danken ]  
 that John Mary the book without to thank  
 zurückgegeben hat  
 back-given has

If both IO and DO in dative shift constructions have undergone scrambling in front of the adjunct clause, a parasitic gap in the latter can only be co-indexed with the DO, and not the IO. According to den Dikken & Mulder (1991: sec.

6), the IO in (175-ab) must be a PP due to the Path Containment Condition. Then, in (175-b) there is “a categorial mismatch between the parasitic gap, which is an NP, and its binder, which is a PP;” but, so the argument goes, “there must be a strict categorial identity between the parasitic gap and its licensor,” so that (175-b) is ruled out. Indeed, (175-b) becomes grammatical if the DO stays in situ, and a PP analysis of the IO is not required according to den Dikken & Mulder’s assumptions:

- (176) daß Hans Maria<sub>i</sub> [ ohne e<sub>i</sub> zu danken ] das Buch zurückgegeben  
 that John Mary without to thank the book back-given  
 hat  
 has

Furthermore, den Dikken & Mulder observe that both the DO and the IO may license a parasitic gap in examples like (177-ab), in contrast to (175-ab):

- (177) a. daß Hans es<sub>i</sub> ihr [ ohne e<sub>i</sub> gelesen zu haben ] zurückgegeben  
 that John it her without read to have back-given  
 hat  
 has  
 b. daß Hans es ihr<sub>i</sub> [ ohne e<sub>i</sub> zu danken ] zurückgegeben hat  
 that John it her without to thank back-given has

These examples differ from those in (175-ab) in two respects. On the one hand, full NPs are replaced by pronouns; on the other hand, the order of DO and IO is reversed. Accordingly, these data in principle allow two different generalizations. Den Dikken & Mulder’s generalization is that it is the order of DO and IO in front of the adjunct clause which is relevant for the question of parasitic gap licensing – in (177-b), but not in (175-b), the IO may occur as a bare NP (in accordance with the Path Containment Condition); therefore the parasitic gap can be licensed by the IO in (177-b), but not by the IO in (175-b).

However, it seems to me that another generalization is at least equally compatible with the data, and hence equally attractive from the start – viz., that it is the contrast between pronominal and non-pronominal NPs which is relevant, and not the relative order of DO and IO in front of the parasitic gap. Den Dikken & Mulder’s discussion implies that the order of DO and IO in (175-ab) and (177-ab) is the only one which is possible in the Dutch equivalents of these German examples. Indeed, this seems to be the case (Marcel den Dikken (p.c.)). Therefore, one cannot decide between the two different generalizations on the basis of Dutch evidence. But the order DO>IO in front of an adjunct clause is possible for non-pronominal NPs in German. Given

this state of affairs, if linear order were the relevant factor, we would expect that the same situation should result as in (177-ab). This is not the case:

- (178) a. \*daß Hans das Buch<sub>i</sub> Maria [ ohne e<sub>i</sub> gelesen zu haben ]  
 that John the book Mary without read to have  
 zurückgegeben hat  
 back-given has
- b. daß Hans das Buch Maria<sub>i</sub> [ ohne e<sub>i</sub> zu danken ] zurückgegeben  
 that John the book Mary without to thank back-given  
 hat  
 has

As pointed out at the end of section 7, it seems that a (non-pronominal) IO which intervenes between a parasitic gap and a DO which is its potential binder blocks parasitic gap licensing. The ungrammaticality of (178-a), however, is entirely unexpected under den Dikken & Mulder's assumptions.

Furthermore, the order IO>DO is possible with pronouns in front of the adjunct clause in German. Then, according to the empty preposition hypothesis and the Path Containment Condition, the IO pronoun should not be able to license a parasitic gap, because it must show up as a PP with an empty head, and would thus violate the categorial identity requirement, just like the non-pronominal IO in (175-b). Again, this prediction is not confirmed:

- (179) a. daß Hans ihr's<sub>i</sub> [ ohne e<sub>i</sub> gelesen zu haben ] zurückgegeben  
 that John her-it without read to have back-given  
 hat  
 has
- b. daß Hans ihr<sub>i</sub>'s [ ohne e<sub>i</sub> zu danken ] zurückgegeben hat  
 that John her-it without to thank back-given has

(Note that cliticization of the DO pronoun to the IO pronoun is generally preferred in (179-ab); but essentially, nothing changes if a full DO pronoun *es* is present in these examples.)

Thus, the evidence from German clearly favours the generalization according to which it is the difference between pronouns and other NPs which is relevant for the contrast between (175-b) and (177-b), and not the difference in word order. Notwithstanding the objections against the Path Containment Condition raised above, we may safely conclude that den Dikken & Mulder's argument in support of the empty preposition hypothesis eventually turns into an argument against it. On the one hand, the ungrammaticality of (178-a) remains unaccounted for under den Dikken & Mulder's assumptions. And what is more, the grammaticality of (179-b) shows, by their own reasoning, that the IO *ihr* must not be analysed as a PP.

What, then, accounts for the contrasts in grammaticality observable in (175) – (179)? Again, I cannot present a full-fledged analysis here. I believe, though, that there is a kind of “minimal distance” requirement for parasitic gap licensing, in the sense that an item of a certain type may not intervene between a potential antecedent and the gap. We have seen that pronouns do not count as intervening items for parasitic gap licensing, whereas non-pronominal NPs do. Also, recall from section 7 that temporal adverbs do not block parasitic gap licensing:

- (180) weil Fritz jeden Gast<sub>i</sub> gestern [CP ohne e<sub>i</sub> anzuschauen ]  
 because Fritz every guest<sub>acc</sub> yesterday without to-look-at  
 beleidigt hat  
 offended has

Den Dikken & Mulder (1992) observe that examples like (181-a) are grammatical in Dutch. This would imply that adverbs of place do not count as intervening items either; however, it seems to me that the German equivalent (181-b) is slightly deviant, but still much better than, e.g., (178-a).

- (181) a. dat ik elke verdachte<sub>i</sub> in zijn huis [ zonder e<sub>i</sub> te molesteren ]  
 that I each suspect in his house without to molest  
 ondervraagd heb  
 interrogated have
- b. ?daß ich jeden Verdächtigen<sub>i</sub> in seinem Haus [ ohne e<sub>i</sub> zu  
 that I each suspect in his house without to  
 belästigen ] verhört habe  
 molest interrogated have

One might speculate that only an intervening NP position blocks the licensing of a parasitic gap. Then, a host of consequences arise; e.g., one would have to assume that (certain types of) pronoun movements are different from movements of non-pronominal NPs in that the former end up in another type of position. Something along these lines has indeed been suggested by, i.a., Vikner (1990), Johnson (1991), Cardinaletti & Starke (1993), and Zwart (1993a: 115ff). However, I will not pursue these matters here. It may suffice to keep in mind that the evidence from parasitic gaps does not support the empty preposition approach to dative shift constructions.

### 12.3.3. General remarks

Finally, let us consider how the empty preposition hypothesis fares with the following data. Every account of double object constructions in English which strives to be descriptively adequate must be able to derive the ungrammaticality of (182-ab), while at the same time permitting (183-ab):

- (182) a. \*John gave [NP a book ] [PP P<sub>e</sub> Mary ]  
 b. \*John gave [PP to Mary ] [NP a book ]
- (183) a. John gave [NP a book ] [PP to Mary ]  
 b. John gave [PP P<sub>e</sub> Mary ] [NP a book ]

Given the empty preposition approach, the problem can be formulated as follows. Why must an empty preposition always be adjacent to the verb, and why may an overt preposition in double object constructions never be adjacent to the verb?

Hoekstra (1991: 66ff) points out that Kayne (1984: ch. 9) does not offer a solution to this problem. However, Czepluch (1982: 14ff) tackles this issue. He stipulates that the empty preposition, in contrast to an overt one, must be adjacent to the verb. This excludes (182-a), but maintains the grammaticality of (183-a). Furthermore, he suggests that (182-b) is ruled out because the DO does not receive Case. According to him, this is so because the PP *to Mary* intervenes between the verb and the DO, and thereby violates the adjacency condition on Case-assignment which holds in English. Of course, one then has to say something about the acceptability of (183-b). As far as this is concerned, Czepluch hypothesizes that the empty preposition is somehow “defective,” and, being a “government transmitter,” fails to block the required adjacency of V and DO. In Czepluch’s own words (cf. Czepluch (1982: 16)): “Since the material intervening between V and the DO is linked to V by transmitted governance, the DO is successively adjacent to its governor ..., thus satisfying the adjacency condition.”

Thus, theories invoking empty prepositions may eventually account for the basic properties of double object constructions, but they have to resort to ad hoc assumptions. It is fairly obvious why the problem of accounting for the data in (182) and (183) is rather serious for the empty-preposition approach (more serious than, e.g., for a theory in the spirit of Larson (1988)). The reason is that P<sub>e</sub> and *to* belong to the same category, viz., P. Hence, it is difficult to develop constraints which rule out, say, (182-a), without simultaneously ruling out (183-a), and the same goes for (182-b) vs. (183-b). Ultimately, the only way to proceed here is to strictly differentiate between lexical and empty prepositions, but this, to put it in a nutshell, implies that the original motivation for postulating an empty preposition – which is that the construction behaves as if a preposition were present – gets completely lost.

Summarizing, while it may be hard to prove the empty preposition approach wrong, the conclusion to be drawn is that theories which have been developed within this approach all share the following shortcomings, and should therefore be rejected – they are “hardly elegant, [they] depend on the existence of an unobservable element with curious properties, and the details of the analysis are at many points vague.” (Oehrle (1983: 174)).

## 12.4. Appendix 4: focus projection

Haider (1992: sec. 2.1) argues for a lexical approach to double object constructions in German on the basis of evidence from focus projection. Höhle (1982) and Stechow & Uhmann (1986) have pointed out that maximal focus projection (from a focused NP onto the entire clause) is possible only if basic word order is maintained. Since maximal focus spreading is possible in both (184-a) and (184-b) (both sentences qualify as possible answers to the question *What has happened?*), Haider concludes that both orders are possible D-structure orders, and hence, that the dative alternation in (184-ab) is a purely lexical phenomenon. (Capital letters indicate pitch accent (i.e., focus); brackets indicate maximal focus projection.)

- (184) a. [ daß er seiner Frau sein GELD gegeben hat ]  
           that he his woman<sub>dat</sub> his money<sub>acc</sub> given has  
       b. [ daß er sein Geld seiner FRAU gegeben hat ]  
           that he his money<sub>acc</sub> his woman<sub>dat</sub> given has

The following data show that non-basic word order created by scrambling does indeed block maximal focus projection in German:

- (185) a. \*[ daß in diesem Hotel<sub>i</sub> der PräsiDENT t<sub>i</sub> wohnt ]  
           that in this hotel the president lives  
       b. \*[ daß Peter seiner Mutter<sub>i</sub> vor ein paar Tagen t<sub>i</sub> das BUCH  
           that Peter his mother a few days ago the book  
           geschenkt hat ]  
           given has

(185-ab) are ungrammatical with maximal focus projection (as can again be seen by trying to understand these sentences as answers to a question like *What has happened?* or *What's new?*). Thus – so Haider argues – if movement of an argument NP were to occur in either (184-a) or (184-b), focus projection should be impossible in that case. Note that in the approach I have developed so far, this problem is even more serious. According to my previous assumptions, *both* (184-a) *and* (184-b) are derived via movement – viz., dative movement of the IO in (184-a), and a combination of dative movement of the IO and scrambling of the DO in (184-b).

The key to a solution of this dilemma might be that it appears that not all kinds of movement block maximal focus projection. Thus, Rosengren (1991: 189) observes that (optional) NP-movement in passive constructions in German still allows focus spreading onto the entire clause:

- (186) a. [ daß das Buch der MUTTER geschenkt wurde ]  
           that the book<sub>nom</sub> the mother<sub>dat</sub> given was

- b. [ daß der Mutter das BUCH geschenkt wurde ]  
 that the mother<sub>dat</sub> the book<sub>nom</sub> given was

NP-movement to SpecI has occurred in (186-a); the subject remains in situ in (186-b). Nonetheless, the focus projection properties of these sentences are more or less the same.<sup>35</sup> From this one may conclude that it is not movement per se which blocks maximal focus projection; rather, one has to distinguish between Case-driven movement (like NP-movement) and other types of movement (like scrambling or *wh*-movement). Hence, whatever ultimately accounts for the descriptive generalization that Case-driven movement does not block focus projection, whereas other movement types do, it is now obvious why (184-a) may have maximal focus spreading despite exhibiting non-base order – dative movement, like NP-movement, is Case-driven.

This leaves us with (184-b). Here, by previous assumptions, we have scrambling in addition to dative movement, and nevertheless, focus projection is possible, contrary to what one would expect. But again, things are more complicated than it seems at first sight. Rosengren (1991: 180ff) argues that scrambling (just like other types of A-bar movement) does not *necessarily* block focus projection; rather, it does so only if the *relative* base order among arguments is changed. If this is correct, then (184-b) is accounted for. Here, although two movements have occurred, the relative S-structural hierarchical and linear order of the arguments does not differ from the D-structural order.

Surely, much more could be said about the interaction of argument placement and focus projection. For present purposes, however, it may suffice to conclude that facts about the distribution of focus projection in German do not provide an argument against a syntactic account of dative shift.



# Chapter 5

## Wh-movement at LF

### 1. Introduction and overview

In this chapter, I am concerned with the syntax of *wh*-in-situ. In particular, I want to address the question of how certain constraints on the occurrence of *wh*-elements in situ (such as the Superiority condition) can be derived from the ECP as a principle blocking traces of LF movement which are not properly governed.<sup>1</sup> I contend that what is probably the most widespread theory of constraints on *wh*-in-situ (viz., the account of Aoun, Hornstein & Sportiche (1981), Chomsky (1981), Lasnik & Saito (1984; 1992), Aoun et al. (1987), among others) faces serious conceptual and empirical difficulties. According to this “standard” analysis, all in-situ *wh*-phrases undergo *wh*-movement at LF. LF movement of *wh*-elements which are not  $\Theta$ -governed (*wh*-subjects and *wh*-adjuncts) then induces an ECP violation, because the *wh*-element fails to properly c-command (hence, antecedent-govern) its trace after adjunction to SpecC. In contrast to this, I would like to argue that IP becomes a barrier at LF if it is embedded by a C node which bears the feature [+wh]. This IP barrier then precludes antecedent-government from SpecC. It will be shown that this approach is both conceptually and empirically superior to the standard analysis; in particular, cross-linguistic variation with respect to constraints on *wh*-in-situ (as evidenced by data from a variety of typologically different languages, among them German, English, French, Polish, Bulgarian, Korean, and Japanese) will corroborate the idea that IP turns into an LF barrier in *wh*-clauses. In addition, it will also become evident that the PUB plays an important role for *wh*-movement, at S-structure *and* at LF.

The chapter is organized as follows. In section 2, I briefly summarize the “standard” approaches to constraints on *wh*-in-situ. These approaches all rely on the idea that *wh*-phrases in situ must undergo LF movement to an operator position, adjoining to SpecC if this position is already filled by S-structural

*wh*-movement; and that, after adjunction to SpecC, a *wh*-phrase cannot c-command its trace anymore, thereby producing an ECP violation if the trace is not  $\Theta$ -governed. In section 3, I show that the standard approach makes wrong predictions for German, where *wh*-subjects and *wh*-adjuncts may occur in situ in multiple questions. Two analyses of this phenomenon which have been proposed in the literature are discussed, and rejected. Eventually, I draw the conclusion that since the standard approach does not offer any natural way to account for the German data, it should be given up, and be replaced by another one. Accordingly, in section 4 I develop a different analysis of the Superiority effect, and the prohibition against *wh*-adjuncts in situ in languages like English. This analysis is based on the idea that an IP which may be transparent for movement at S-structure turns into an LF barrier if it is embedded by a C node bearing the feature [+wh]. In the following three sections, then, I show that the effects of an IP barrier at LF can in principle be circumvented in three ways. One possibility is that the barrierhood of IP can be resolved by making I and C non-distinct; I argue that this is the case in German (section 5). Another strategy for destroying the effects of an IP barrier is adjunction to IP; I contend that this happens in languages like Polish (section 6). Finally, there are no restrictions for LF movement of *wh*-subjects and *wh*-adjuncts to the local SpecC position if no IP barrier is present in the first place. It seems that this situation occurs in languages like Korean or Japanese, where there is some evidence that IP is either completely absent in the language, or is at best an impoverished positional projection without inherent features (section 7). In section 8, I discuss Bulgarian, where all *wh*-movement already occurs at S-structure. Finally, in section 9, I address some residual issues concerning long-distance LF movement of *wh*-subjects, lexical vs.  $\Theta$ -government of traces created by *wh*-movement at LF, and Superiority effects which are apparently not derivable from the ECP.

## 2. Superiority and a constraint on *wh*-adjuncts in situ

The Superiority condition goes back to Chomsky (1973). It requires that, in a clause with more than one *wh*-phrase, only the highest *wh*-phrase (i.e., the one which c-commands all the others) may undergo overt *wh*-movement. The effects of this condition can be seen in (1) and (2):

- (1) a. I wonder [<sub>CP</sub> who<sub>i</sub> C [<sub>IP</sub> t<sub>i</sub> saw what<sub>j</sub> ] ]  
 b. \*I wonder [<sub>CP</sub> what<sub>j</sub> C [<sub>IP</sub> who<sub>i</sub> saw t<sub>j</sub> ] ]
- (2) a. Who<sub>i</sub> [<sub>IP</sub> t<sub>i</sub> saw what<sub>j</sub> ] ?  
 b. \*What<sub>j</sub> did [<sub>IP</sub> who<sub>i</sub> see t<sub>j</sub> ] ?

In the multiple questions (1-a) and (2-a), the *wh*-subject has undergone S-structural *wh*-movement in accordance with the Superiority condition. In (1-b) and (2-b), however, the *wh*-object has moved. This movement violates the Superiority condition, because the subject is structurally higher than the object.

More recently, attempts have been made to derive the Superiority condition from the ECP (see Aoun, Hornstein & Sportiche (1981), Chomsky (1982), Huang (1982), Lasnik & Saito (1984; 1992: ch. 2), Aoun et al. (1987), among others). The analyses differ to some extent; nevertheless, they all share a common core, which is the following. First, it is unanimously assumed that all *wh*-phrases which are located in situ at S-structure have to undergo *wh*-movement to SpecC at LF.<sup>2</sup> This is motivated by the fact that *wh*-phrases are interpreted as operators, and therefore must occupy an operator position at LF, binding an IP-internal variable. Assuming furthermore that only one XP can be substituted in SpecC, it follows that the in-situ *wh*-phrases in (1) and (2) cannot be substituted in SpecC after LF movement – the respective SpecC positions are already filled after S-structural movement. Hence, *wh*-movement at LF in (1) and (2) adjoins *wh*-phrases to SpecC, an operator position. Then, for instance, (2-a) and (2-b) have the LF representations (3-a) and (3-b).<sup>3</sup>

- (3) a. [CP [SpecC [SpecC who<sub>i</sub> ] what<sub>j</sub> ]<sub>i</sub> [IP t<sub>i</sub> saw t<sub>j</sub> ]  
 b. \*[CP [SpecC [SpecC what<sub>j</sub> ] who<sub>i</sub> ]<sub>j</sub> [IP t<sub>i</sub> saw t<sub>j</sub> ]

From all the “standard” theories mentioned above, it now follows in one way or another that only the head of SpecC, not a SpecC-adjunct, can antecedent-govern its trace. According to Aoun, Hornstein & Sportiche (1981) and Lasnik & Saito (1984), e.g., antecedent-government requires strict c-command. A SpecC-adjunct therefore does not c-command (and hence, fails to antecedent-govern) its trace. As concerns the head of SpecC, it is assumed that its index percolates up, so that SpecC itself can antecedent-govern an IP-internal trace.<sup>4</sup> Therefore, *what* in (3-a), and *who* in (3-b) both fail to antecedent-govern their respective traces. This has no damaging consequences for (3-a), since the object trace is  $\Theta$ -governed, and can thus fulfill the ECP (under the disjunctive formulation adopted throughout this book, cf. chapter 2). Subject traces, however, depend on antecedent-government. Therefore, the ECP is violated in (3-b).

Unlike the Superiority condition, the ECP-approach to *wh*-in-situ also accounts for the fact that *wh*-adjuncts like *why* or *how* in English cannot remain in situ at S-structure, cf.:

- (4) a. \*Who<sub>i</sub> [IP t<sub>i</sub> came why<sub>j</sub> ] ?  
 b. \*What<sub>i</sub> did [IP she buy t<sub>i</sub> why<sub>j</sub> ] ?  
 c. Why<sub>i</sub> did [IP she buy what<sub>j</sub> t<sub>i</sub> ] ?

- d. \*Why<sub>j</sub> did [IP who<sub>i</sub> come t<sub>j</sub> ] ?

In (4-ab), the adjunct *why* is adjoined to SpecC at LF. Adjunct traces are not  $\Theta$ -governed; hence, an ECP violation occurs at LF due to lack of c-command of the adjunct trace. Cf. (5), which is the LF representation of (4-a):

- (5) \*[CP [SpecC [SpecC who<sub>i</sub> ] why<sub>j</sub> ]<sub>i</sub> [IP t<sub>i</sub> came t<sub>j</sub> ]]

In contrast, in (4-c) the *wh*-adjunct has undergone movement at S-structure, substituting in SpecC (i.e., becoming the “head of SpecC”), so that antecedent-government of the adjunct trace t<sub>i</sub> is possible. Similarly, the *wh*-adjunct in (4-d) antecedent-governs its trace; however, in this case the deviance is due to an ECP violation with the subject trace, after LF adjunction of the *wh*-subject to SpecC. It is obvious that the Superiority condition does not rule out, e.g., (4-a), because here, the highest *wh*-phrase has undergone *wh*-movement at S-structure, as required.

Thus, this ECP-based analysis seems to be an improvement on the Superiority condition on both conceptual and empirical grounds. For one thing, it is more adequate from an explanatory point of view (given that the ECP accounts for more data, since it is independently established); for another, it explains the ungrammaticality of the examples in (4-abd), treating them on a par with the Superiority cases in (1) and (2). Nonetheless, in the following section it will emerge that the standard approach to *wh*-in-situ can hardly be maintained on the basis of evidence from German.

### 3. Wh-in-situ in German

Recall from chapter 2 that German exhibits asymmetries between objects on the one hand, and subjects and adjuncts on the other hand, with respect to *transparency for movement* – subject and adjunct XPs are barriers (for traces which do not occupy an escape hatch in XP), whereas the barrierhood of objects can be resolved (via non-distinctness of heads). However, one does not often find these object/non-object asymmetries in German, as far as the *mobility* of an XP is concerned. Thus, as noted in chapter 2, German does not exhibit complementizer-trace effects with subject movement; subjects, objects, and adjuncts can be extracted from *daß*-clauses equally well, as shown in (6):

- (6) a. Wer<sub>i</sub> meinst du [CP t'<sub>i</sub> daß [IP t<sub>i</sub> das getan hat ]] ?  
 who<sub>nom</sub> think you that that<sub>acc</sub> done has
- b. Wen<sub>i</sub> meinst du [CP t'<sub>i</sub> daß [IP sie t<sub>i</sub> getroffen hat ]] ?  
 who<sub>acc</sub> think you that she<sub>nom</sub> met has

- c. Warum<sub>i</sub> meinst du [CP t'<sub>i</sub> daß [IP sie t<sub>i</sub> das getan hat ] ] ?  
 why think you that she<sub>nom</sub> that<sub>acc</sub> done has

Similarly, object/non-object asymmetries do not arise with *wh*-extraction from V/2 clauses, cf.:

- (7) a. Wer<sub>i</sub> meinst du [CP t'<sub>i</sub> hat [IP t<sub>i</sub> das getan ] ] ?  
 who<sub>nom</sub> think you has that<sub>acc</sub> done  
 b. Wen<sub>i</sub> meinst du [CP t'<sub>i</sub> hat [IP sie t<sub>i</sub> getroffen ] ] ?  
 who<sub>acc</sub> think you has she<sub>nom</sub> met  
 c. Warum<sub>i</sub> meinst du [CP t'<sub>i</sub> hat [IP sie t<sub>i</sub> das getan ] ] ?  
 why think you has she<sub>nom</sub> that<sub>acc</sub> done

Given this state of affairs, it does not come as a surprise that German does not exhibit Superiority effects, as in the English examples in (1) and (2); i.e., in multiple questions in German, both a *wh*-object and a *wh*-subject may stay in situ at S-structure, undergoing *wh*-movement to SpecC only at LF. This is shown in (8):<sup>5</sup>

- (8) a. Was<sub>i</sub> hat [IP wer<sub>j</sub> t<sub>i</sub> behauptet ] ?  
 what<sub>acc</sub> has who<sub>nom</sub> claimed  
 b. Wer<sub>i</sub> hat [IP t<sub>i</sub> was<sub>j</sub> behauptet ] ?  
 who<sub>nom</sub> has what<sub>acc</sub> claimed

Indeed, all *wh*-phrases which are arguments of the verb may in principle remain in situ at S-structure in multiple questions, cf. (9) and (10):

- (9) a. Wer<sub>i</sub> hat [IP t<sub>i</sub> wem<sub>j</sub> ein Buch geschenkt ] ?  
 who<sub>nom</sub> has whom<sub>dat</sub> a book<sub>acc</sub> given  
 b. Wem<sub>i</sub> hat [IP wer<sub>j</sub> t<sub>i</sub> ein Buch geschenkt ] ?  
 whom<sub>dat</sub> has who<sub>nom</sub> a book<sub>acc</sub> given  
 (10) a. Wer<sub>i</sub> ist [IP t<sub>i</sub> [PP zu wem<sub>j</sub> ] gezogen ] ?  
 who<sub>nom</sub> is to whom moved  
 b. Zu wem<sub>i</sub> ist [IP wer<sub>j</sub> t<sub>i</sub> gezogen ] ?  
 to whom is who<sub>nom</sub> moved

Similarly, there is no general prohibition against *wh*-adjuncts in situ in German; compare (11-ab) with (4-a) and (4-d):

- (11) a. Wer<sub>i</sub> ist [IP t<sub>i</sub> weshalb<sub>j</sub> weggegangen ] ?  
 who<sub>nom</sub> is why gone-away  
 b. Weshalb<sub>i</sub> ist [IP wer<sub>j</sub> t<sub>i</sub> weggegangen ] ?  
 why is who gone-away



- (14) \*Deshalb<sub>i</sub> weiß ich nicht [CP wen [IP sie t<sub>i</sub> geküßt hat ]]  
 therefore know I not who<sub>acc</sub> she<sub>nom</sub> kissed has

Another problem for Haider's approach is conceptual. If subjects and adjuncts are governed by the verb in German, they must be VP-internal at S-structure, given a configurational notion of government. Then, however, it becomes difficult to maintain the explanation of some object/non-object asymmetries with respect to transparency of extraction – in other words, problems arise for the theory of barriers. Under the formulation of the theory of barriers adopted in this book (cf. chapters 2 and 4), subject and adjunct XPs should in general be transparent for extraction if they occupied VP-internal positions. The fact that they are not can, therefore, be taken to indicate that subjects and adjuncts are not properly governed by the verb at S-structure. Note also that similar problems arise if a different theory of barriers is assumed, like, e.g., the one developed by Cinque (1990); informally speaking, as soon as a category occurs in a position "close" to the verb, it is not a barrier, according to many recent theories of locality. In conclusion, Haider's approach to (the lack of) Superiority effects, and (the lack of) the constraint against *wh*-adjuncts in situ in German requires some non-trivial and otherwise unmotivated modifications of the theory of barriers.

Summarizing, it seems that Haider's approach to *wh*-in-situ in German is not viable. More generally, then, we may conclude that the German data are not compatible with both (a) the standard (i.e., disjunctive) version of the ECP, and (b) the hypothesis that a SpecC-adjoined *wh*-phrase fails to antecedent-govern its trace due to a lack of proper c-command. Thus, it appears that either (a) or (b) must be given up in order to account for cross-linguistic variation with respect to *wh*-in-situ.

Noonan (1988) develops an analysis of Superiority effects according to which assumption (a) is dropped; she assumes a conjunctive formulation of the ECP – traces must be antecedent-governed *and* lexically governed. Moreover, she stipulates that the direction of antecedent-government and lexical government of a trace must be uniform. Finally, it is assumed that a SpecC-adjoined *wh*-subject cannot antecedent-govern its trace at LF (which Noonan considers to be a consequence of Relativized Minimality (cf. Rizzi (1990)), rather than of a lack of c-command). This accounts for the prohibition against non-object *wh*-phrases in situ in languages like English. The basic idea, then, is the following: In V/2 languages, after verb raising to C, the finite main verb (or auxiliary) is able to both lexically govern and antecedent-govern a subject trace in the same direction; antecedent-government by the verb is assumed to be due to co-indexing of a verb and its arguments. This analysis ties the lack of Superiority effects in a language to the property of exhibiting V/2 phenomena. However, Noonan (1988: 200) herself acknowledges that a V/2 language like Swedish has Superiority effects just like English, which does

not follow from her assumptions. Furthermore, as noted, auxiliaries must also be able to antecedent-govern subject traces after V/2 movement in German via co-indexing; otherwise, examples like (8-a) (repeated here as (15)) would violate the ECP at LF.

- (15) Was<sub>i</sub> hat<sub>j</sub> [<sub>IP</sub> wer<sub>j</sub> t<sub>i</sub> behauptet<sub>j</sub> ] ?  
 what<sub>acc</sub> has who<sub>nom</sub> claimed

However, it is then unclear why V/2 movement of an auxiliary in *wh*-clauses in English, as in (2-b) (repeated here as (16)), does not suffice to produce proper government of the trace of *who* by the auxiliary at LF.

- (16) \*What<sub>j</sub> did [<sub>IP</sub> who<sub>i</sub> see t<sub>j</sub> ] ?

Conversely, German does not exhibit Superiority effects in clauses without V/2 movement either, cf.:

- (17) a. Es ist unklar [<sub>CP</sub> warum<sub>i</sub> (daß) [<sub>IP</sub> wer<sub>j</sub> t<sub>i</sub> gekommen ist ] ]  
 it is unclear why that who<sub>nom</sub> come is  
 b. Es ist unklar [<sub>CP</sub> wer<sub>i</sub> (daß) [<sub>IP</sub> t<sub>i</sub> warum<sub>j</sub> gekommen ist ] ]  
 it is unclear who<sub>nom</sub> that why come is

Again, the problem is noted by Noonan (1988: 201), but it is essentially left unsolved. (Basically, as concerns (17-ab), she assumes that a C node in the context [+wh]— behaves more or less like a finite verb in German.)

Finally, it is not clear whether Noonan's approach carries over to *wh*-adjuncts in situ. If the trace of an LF-moved *wh*-adjunct in German is to be properly governed, it must be antecedent-governed by the V/2 head (antecedent-government from a SpecC position not being available, by assumption). This kind of antecedent-government by a verb requires co-indexing; but it is far from obvious why an adjunct and a verb should be co-indexed.

For all these reasons (and others, which are discussed in Müller (1989: 50-57)), I conclude that Noonan's analysis of *wh*-in-situ in German is not tenable.

Now, given the disjunctive formulation of the ECP I have adopted throughout, the conclusion to be drawn is that Superiority effects and the ban against *wh*-adjuncts in situ in languages like English cannot be due to a lack of proper c-command of a trace by its antecedent in SpecC-adjoined position. This conclusion is indeed independently supported.

As noted by Koster (1987: 224) and Stechow & Sternefeld (1988: 366), the standard approach to constraints on *wh*-in-situ makes a problematic prediction in the case of object movement. For if a trace of *wh*-movement at LF is not c-commanded by its antecedent (after adjunction to SpecC), LF movement of *wh*-objects in English (as in (1-a), (2-a), or (4-c)) should also be impossible,

not because of an ECP effect (object traces being properly governed by the verb), but rather because the object trace violates the Proper Binding Condition (cf. Fiengo (1977), Lasnik & Saito (1992)). This problem has been noted by proponents of the standard theory (cf. Lasnik & Saito (1984)), but it has not received a convincing solution.

Moreover, as noted by Baker (1988), if strict c-command (involving the notion of “next branching node,” cf. Reinhart (1976) and Chomsky (1986)) is necessary for antecedent-government, we would expect head movement to be impossible if it is adjunction (which is of course the usual case), given that traces of head movement must be antecedent-governed (for which there is some evidence, cf. the Head Movement Constraint and the discussion in chapter 2). Thus, compare (18-a), which is a typical instance of head movement, with (18-b), which instantiates a case of LF adjunction to SpecC:

- (18) a. [X Y<sub>i</sub> [X ]] ... t<sub>i</sub>  
 b. [SpecC [SpecC ] XP<sub>i</sub> ] ... t<sub>i</sub>

If, in (18-b), XP<sub>i</sub> cannot antecedent-govern t<sub>i</sub> due to a lack of proper c-command, it is hard to avoid a similar result for antecedent-government of t<sub>i</sub> by Y<sub>i</sub> in (18-a). Indeed, in order to permit configurations such as (18-a), I have assumed that a more liberal notion than “c-command,” viz., either “p-command” (cf. chapter 2), or “m-command” (in Chomsky’s (1986) sense, cf. chapter 4) is relevant for antecedent-government. Now suppose that m-command is the correct notion in the domain of government relations (cf. also Aoun & Sportiche (1982)); government then is defined as in (19) (= (42) of chapter 4).

- (19) *Government*:  
 α governs β iff  
 a. α m-commands β.  
 b. There is no barrier γ for β which excludes α.

This implies that SpecC-adjuncts can always fulfill clause (a) of the definition of government, irrespective of their status as subject, object, or adjunct. Let us further maintain the hypothesis that the Superiority condition and the prohibition against *wh*-adjuncts in situ can be derived from the ECP. Then, the obvious conclusion is that in the ungrammatical cases in English, antecedent-government at LF fails because clause (b) of the definition of government is not fulfilled, i.e., because an LF barrier intervenes between a *wh*-phrase moved to SpecC and its trace. I would like to contend that this is indeed correct, and that IP is the relevant LF barrier blocking antecedent-government of traces left by LF movement of *wh*-subjects and *wh*-adjuncts in English.<sup>7</sup> Accordingly, in what follows I will attempt to reduce the difference between English and

German with respect to *wh*-in-situ to the presence or absence of an IP barrier at LF.<sup>8</sup>

## 4. IP as an LF barrier

### 4.1. IP as an S-structure barrier

Let me start by summarizing the theory of IP barriers developed in chapter 2. First recall the definition of barrier adopted so far (cf. chapter 2 and chapter 4, section 4).

(20) *Barrier:*

For every  $\alpha$  included in XP, XP is a barrier iff (a) and (b) hold:

- a.  $\alpha$  does not occupy an escape hatch in XP.
- b. X is distinct from Y, where Y is the head of YP, and YP is the minimal maximal projection which does not exclude XP.

Recall also that I have assumed in chapter 2 that SpecI is not an escape hatch in IP. According to (20), then, IP is a barrier for every element included in it, as long as I is distinct from C. We have encountered three possibilities of achieving non-distinctness of I and C, viz.: (a) overt incorporation; (b) abstract incorporation; and (c) empty identification. This is schematically depicted in (21).

(21) *Three Ways to Resolve Barrierhood:*

- a. [XP ... [X X Y<sub>i</sub>] [YP ... [Y t<sub>i</sub>] ... ]] (overt incorporation)
- b. [XP ... X<sub>i</sub> [YP ... Y<sub>i</sub> ... ]] (abstract incorporation)
- c. [XP ... [X -] [YP ... Y ... ]] (empty identification)

According to (20), IP is not an S-structural barrier if V/2 movement (Subject-Aux Inversion in English) has applied, as in (21-a). Note that I have assumed that there is no index percolation from the incorporated item (Y in (21-a)) to its host (X in (21-a)); this will become relevant in what follows. Turning now to abstract incorporation as in (21-b), the assumption that abstract incorporation can be read off at S-structure (by means of co-indexing) guarantees that IP is not a barrier for overt movement in languages where I and C can undergo abstract incorporation (i.e., can be co-indexed). I have suggested that co-indexing of I and C is possible only if both I and C are “strong” functional heads. Since strength of I is determined by the capability of I to formally license *pro* (cf. Rizzi (1986a), Kayne (1989)), and strength of C by its inducing V/2 movement if a complementizer is absent (cf. Koster (1986)), it follows that languages like German (where expletive *pro* is licensed, and obligatory V/2 occurs) permit co-indexing of I and C (i.e., abstract incorporation), and

thus resolve the barrierhood of IP. Therefore, complementizer-trace effects do not occur, as shown in (6-a), repeated here with the relevant co-indexing in (22):

- (22) Wer<sub>i</sub> meinst du [<sub>CP</sub> t'<sub>i</sub> daß<sub>j</sub> [<sub>IP</sub> t<sub>i</sub> das getan hat<sub>j</sub> ] ] ?  
 who<sub>nom</sub> think you that that<sub>acc</sub> done has

Finally, IP is not a barrier if its head I is not distinguishable from C because C is empty, as indicated in (21-c). This accounts for the well-formedness of (23) in English, a language that does not permit abstract I-to-C incorporation, since neither I nor C is strong (I being incapable of licensing *pro*, and C being too weak to trigger obligatory V/2 movement).

- (23) Who<sub>i</sub> do you think [<sub>CP</sub> t'<sub>i</sub> [C ] [<sub>IP</sub> t<sub>i</sub> has left ] ] ?

However, if C is filled by a lexical complementizer in English (or in other languages that do not permit abstract I-incorporation), IP becomes an S-structural barrier, and prohibits subject extraction. This accounts for complementizer-trace effects, as in (24).

- (24) Who<sub>i</sub> do you think [<sub>CP</sub> t'<sub>i</sub> [C that ] [<sub>IP</sub> t<sub>i</sub> has left ] ] ?

As concerns the lack of complementizer-trace effects with adjuncts (cf. (25-ab)), I have assumed in chapter 2 (following Lasnik & Saito (1984)) that adjunct traces are  $\gamma$ -marked only at LF, where semantically empty complementizers like *that* in English are deleted. Thus, I is non-distinct from C in (25-b) at the level of LF, and t<sub>i</sub> is properly governed by its antecedent, thereby fulfilling the ECP.

- (25) a. Why<sub>i</sub> do you think [<sub>CP</sub> t'<sub>i</sub> [C ] [<sub>IP</sub> she came t<sub>i</sub> ] ] ?  
 b. Why<sub>i</sub> do you think [<sub>CP</sub> t'<sub>i</sub> [C that ] [<sub>IP</sub> she came t<sub>i</sub> ] ] ?

This concludes the summary of the approach to IP barriers in chapter 2. The question that arises is whether this approach can be generalized so as to subsume Superiority effects and the prohibition against *wh*-adjuncts in situ in languages like English.

## 4.2. Barriers and *wh*-in-situ in English

As it stands, the analysis developed so far does not say anything about *wh*-subjects and *wh*-adjuncts in situ. Obviously, what we need is that an IP which is transparent for (subject and adjunct) movement at S-structure may become a barrier for (subject and adjunct) movement at LF (in *wh*-clauses), so that the contrast between (for instance) (1-a) and (1-b) (repeated here in (26-ab)) can be derived.<sup>9</sup>

- (26) a. I wonder [<sub>CP</sub> who<sub>i</sub> C [<sub>IP</sub> t<sub>i</sub> saw what<sub>j</sub> ]]  
 b. \*I wonder [<sub>CP</sub> what<sub>j</sub> C [<sub>IP</sub> who<sub>i</sub> saw t<sub>j</sub> ]]

But indeed, so far we have only seen that an IP which is a barrier at S-structure may be transparent at LF (after complementizer deletion), cf. the discussion of (25-b). Note that if this approach to (25-b) is to be maintained, it must be guaranteed that IP does not turn into an LF barrier in (25), unlike what is the case in (26). There is, however, a crucial difference between (25) and (26). In (25), IP is embedded by a C node which bears the feature [-wh]; in (26), on the other hand, IP is embedded by a [+wh] C node. The crucial hypothesis I would like to put forward, then, is the following: Although an empty C node bearing a syntactic *wh*-feature does not count as filled at S-structure (thus licensing overt *wh*-movement of the subject in (26-a)), the *wh*-feature is “activated” at LF, creating a filled C node, and thereby inducing LF distinctness of I and C. If, on the other hand, C is marked [-wh], IP may be an S-structure barrier (if a complementizer is present), but is transparent at LF (C then being empty). Thus, I will adopt (27) as the core of an explanation of the ban against *wh*-subjects and *wh*-adjuncts in situ.

- (27) At LF, C is non-empty if it bears the feature [+wh].

Why should this be so? First and foremost, as shown by Heim (1989; 1992) and Stechow (1993; 1994), a [+wh] C node, unlike a [-wh] C node, bears semantically relevant information at LF, which cannot plausibly be assumed to be present at S-structure already.<sup>10</sup> It is therefore natural to postulate that a [+wh] C node counts as filled at LF, but not at S-structure.

Second, evidence from *partial wh-movement* in German (cf. van Riemsdijk (1983), Stechow & Sternefeld (1988: 350ff), and McDaniel (1989)) indicates that syntactic and semantic *wh*-features must be distinguished. Consider (28):

- (28) [<sub>CP</sub> <sup>i</sup>Was C<sub>[+wh]</sub> meinst du [<sub>CP</sub> <sup>i</sup>warum<sub>i</sub> C<sub>[-wh]</sub> Antje t<sub>i</sub> gekommen  
           what          think you          why                  Antje come  
           ist ]] ?  
           is

Here, the matrix verb *meinen* (‘think’) selects a [-wh] C. Therefore, in cases like these it must be guaranteed that the *wh*-phrase in the embedded SpecC position is not yet interpreted as a *wh*-operator, i.e., that *semantic wh*-features are recognized only at LF (where *warum* in (28) has undergone operator movement to the position of the scope-marker *was* in the matrix clause, the head of which is [+wh]).<sup>11</sup>

Third, Reis & Rosengren (1988; 1992) argue that German exhibits the (marked) phenomenon of *wh-imperatives*, as in (29) (cf. also chapter 3, section 2.1 for discussion).

- (29) a. [CP – Stell dir vor [CP wen<sub>i</sub> (daß) ich t<sub>i</sub> getroffen habe ]] !  
           imagine                  who that I met have
- b. [CP Wen<sub>i</sub> stell dir vor [CP t'<sub>i</sub> daß ich t<sub>i</sub> getroffen habe ]] !  
           who imagine                  that I met have

Despite *wh*-movement to the matrix SpecC in (29-b), the matrix clauses in both (29-a) and (29-b) are imperative clauses. On the other hand, the embedded clauses in (29-ab) are uniformly *wh*-clauses. Hence, at LF, the *wh*-phrase *wen* in (29-b) must be reconstructed into the position of t'<sub>i</sub>, where it can be interpreted as an operator. This shows that whereas the requirements of a [+wh] C node at S-structure can exceptionally be met by the *trace* of a *wh*-phrase in German (cf. Lutz & Trissler (1992)), the requirements of a [+wh] C node at LF cannot, thus lending further support to the assumption that the semantic *wh*-feature of a C node is “activated” only at LF.

Finally, if Pesetsky (1987) and Berman (1991) (among others) are right in not analysing certain kinds of *wh*-phrases as operators, it is unclear why these *wh*-phrases nevertheless have to undergo *wh*-movement at S-structure in simple questions in English, given that syntactic and semantic *wh*-features are not distinguished. Consider, for instance, (30) (taken from Pesetsky (1987: 120f)):

- (30) a. I wonder [CP [ which book ]<sub>i</sub> you read t<sub>i</sub> ]  
       b. \*I wonder [CP – you read which book ]

Pesetsky argues that *which book* can be interpreted as D-linked; in that case, it does not function as an operator, and is consequently not allowed to occupy an operator position (SpecC) at LF. Nevertheless, *which book* must undergo movement to SpecC at S-structure, as shown in (30-b). If Pesetsky’s analysis is correct, this movement is semantically vacuous, and must be undone at LF. Then what induces movement in (30-a) is a purely *syntactic wh*-feature in C; in contrast, movement is not triggered by the *semantic wh*-feature in (30), which is activated only at LF.

In conclusion, I take it that the assumption (27) is well-established – at LF, a [+wh] C node is non-empty, in contrast to a [+wh] C node at S-structure, or a [-wh] C node at LF (and at S-structure, unless, of course, it is filled by lexical material, such as a complementizer).

With this in mind, consider once more the examples in (26-ab), now repeated in (31):

- (31) a. I wonder [CP who<sub>i</sub> C [IP t<sub>i</sub> saw what<sub>j</sub> ]]  
       b. \*I wonder [CP what<sub>j</sub> C [IP who<sub>i</sub> saw t<sub>j</sub> ]]

IP in (31-a) is not a barrier at S-structure. C does not (yet) count as filled, so that I and C are non-distinct; thus, the barrierhood of IP is voided at

S-structure. Therefore, overt *wh*-movement of the subject *who* is possible in (31-a) – *who* antecedent-governs and  $\gamma$ -marks its trace  $t_i$  at S-structure, so that the ECP is fulfilled. Similarly, the trace  $t_j$  of *what* in (31-b) is properly governed at S-structure (both by the verb, and by its antecedent), and hence receives the feature  $[+\gamma]$ . But now consider (32-ab), the (relevant parts of the) LF representations of (31-ab):

- (32) a.  $[\text{CP} [\text{SpecC} [\text{SpecC } \text{who}_i ] \text{ what}_j ] \text{ C}_{[+\text{wh}]} [\text{IP } t_i \text{ saw } t_j ]]$   
 b.  $*[\text{CP} [\text{SpecC} [\text{SpecC } \text{what}_j ] \text{ who}_i ] \text{ C}_{[+\text{wh}]} [\text{IP } t_i \text{ saw } t_j ]]$

In (32-a), *what* is adjoined to SpecC at LF. Since the  $[+\text{wh}]$  C node now counts as filled, I and C are distinct at LF, thereby creating an IP barrier. Therefore, the trace of *what*,  $t_j$ , is not antecedent-governed at LF. However, it is  $\Theta$ -governed, and thus satisfies the ECP. In (32-b), on the other hand, the *wh*-subject *who* is adjoined to SpecC at LF, crossing an IP barrier, just like *what* does in (32-a). But this time an ECP violation occurs, because  $t_i$  in (32-a) is not  $\Theta$ -governed.

A similar reasoning applies in cases with *wh*-adjuncts in situ, as in (33-a). After *wh*-movement at LF (cf. (33-b)), the *wh*-adjunct fails to antecedent-govern its trace due to the presence of an IP barrier. Hence, the adjunct trace  $t_j$ , which is not  $\Theta$ -governed, violates the ECP.

- (33) a.  $*\text{I wonder } [\text{CP } \text{what}_i \text{ she said } t_i \text{ why}_j ]$   
 b.  $[\text{CP} [\text{SpecC} [\text{SpecC } \text{what}_i ] \text{ why}_j ] \text{ C}_{[+\text{wh}]} [\text{IP } \text{she said } t_i \text{ } t_j ]]$

Concluding what has been discussed so far, it looks as though the standard case of Superiority effects (*wh*-subjects in situ) is derived, as is the ban against *wh*-adjuncts in situ. However, upon closer scrutiny, it turns out that this result has only partially been accomplished. Note that up to now, I have only derived the prohibition against *wh*-subjects and *wh*-adjuncts in situ in *embedded* clauses, where Subject-Aux Inversion has not applied. But what about sentences where overt I-to-C movement occurs, and IP is thus rendered transparent at S-structure, as in (2-b) or (4-b) (repeated here in (34))?

- (34) a.  $*\text{What}_j \text{ did } [\text{IP } \text{who}_i \text{ see } t_j ] ?$   
 b.  $*\text{What}_i \text{ did } [\text{IP } \text{she buy } t_i \text{ why}_j ] ?$

Recall that overt head movement resolves barrierhood. Therefore, it seems that one should expect that “Subject-Aux Inversion” in (34) suffices to destroy an IP barrier at LF, overriding the effects of the activated *wh*-feature, and thus yielding unwanted consequences for *wh*-movement of subjects and adjuncts at LF. However, such a conclusion is premature. As with the  $[+\text{wh}]$  C node, a proper understanding of transparent LF representations may contribute to a solution to this problem. As shown by Stechow (1992; 1993), se-

semantic requirements generally induce LF reconstruction of S-structural head movement – a head must occupy its D-structural position for the correct interpretation of a sentence.<sup>12</sup> If this view is tenable, the following consequences arise. On the one hand, there are no effects whatsoever as concerns the lack of LF barrierhood of IP in declarative clauses with overt I-to-C movement. After head reconstruction, the C position must be empty, so that an IP barrier can not arise, and an IP which is transparent due to overt movement at S-structure continues to be so after head reconstruction at LF. (Note that head reconstruction at LF (or reconstruction in general) may not leave a trace, because this would be unbound.) But now consider LF reconstruction of head movement in *wh*-clauses, as I contend occurs in the LF representations of (34-ab):

- (35) a. \*<sub>SpecC</sub> [<sub>SpecC</sub> what<sub>j</sub> ] who<sub>i</sub> ] C<sub>[+wh]</sub> [IP t<sub>i</sub> did see t<sub>j</sub> ]  
 b. \*<sub>SpecC</sub> [<sub>SpecC</sub> what<sub>j</sub> ] why<sub>i</sub> ] C<sub>[+wh]</sub> [IP she did buy t<sub>j</sub> t<sub>i</sub> ]

By assumption, movement of the auxiliary *did* in (34-ab) must be undone via LF reconstruction, as indicated in (35-ab). Then, I and C are not non-distinct because of head movement anymore (recall also that I have assumed that overt adjunction of a head Y to another head X does not go along with co-indexing of X and Y, this possibility being reserved to abstract incorporation). But unlike what is the case with declarative clauses, I and C in (35-ab) also cannot be non-distinct via empty identification, due to the activated *wh*-feature in C. Therefore, I and C in (35-ab) are distinct, IP is a barrier, and neither the subject trace t<sub>i</sub> in (35-a), nor the adjunct trace t<sub>i</sub> in (35-b) is antecedent-governed, in violation of the ECP.

In conclusion, the main cases subsumed under the Superiority condition, and the ban against *wh*-adjuncts in situ are explained by the assumption that in *wh*-clauses, IP turns into a barrier at LF. More generally, we have derived the descriptive generalization stated by May (1985: 126ff) and Aoun et al. (1987: 550ff), that only those *wh*-phrases which are  $\Theta$ -governed may undergo operator movement to the local SpecC position at LF in English. (This, among other things, rules out the possibility that vacuous movement is not obligatory in questions with a clause-initial *wh*-subject in English, cf. note 9.)

Finally, a remark is in order as regards the concept of abstract incorporation. So far, I have assumed that abstract incorporation is head movement at LF, which can be read off of S-structure by means of co-indexing. If, however, overt head movement must be reconstructed on the way to LF for basically semantic reasons, then the concept of head movement at LF becomes odd and poorly motivated. In line with this, I will henceforth assume that abstract incorporation is only a metaphor; head movement at LF does not exist. Rather, abstract incorporation should be viewed as co-indexing of two heads at S-structure and LF, i.e., ultimately as an identification mechanism for heads

which are “closely related” (I will leave open the question of how this notion is to be made precise). In addition, we must now stipulate that abstract incorporation, conceived of simply as co-indexing of heads, is sufficiently local, and fulfills an ECP-like constraint, in order to derive the effects of the Head Movement Constraint.<sup>13</sup>

### 4.3. Long-distance *wh*-movement at LF in English

So far, I have only discussed LF movement of *wh*-phrases to the local SpecC position. In this section I turn to long-distance *wh*-movement at LF. It has often been noted (cf. Aoun, Hornstein & Sportiche (1981) and Chomsky (1981), among others) that long-distance LF movement of *wh*-subjects is not possible in English. Consider (36-ab):<sup>14</sup>

- (36) a. ?\*Who<sub>i</sub> t<sub>i</sub> expected [CP (that) [IP what<sub>j</sub> would happen ]] ?  
 b. ?\*I wonder who<sub>i</sub> t<sub>i</sub> thinks [CP (that) [IP who<sub>j</sub> lives here ]] ?

The matrix verbs *expect* and *think* obligatorily select a [-wh] C node. Therefore, the *wh*-subjects *what* and *who* in (36-ab) have to undergo long-distance movement to the matrix SpecC position; i.e., (36-ab) must be interpreted as multiple questions. The resulting LF representations of (36-ab) then look as in (37-ab), respectively.

- (37) a. ?\*[SpecC [SpecC who<sub>i</sub> ] what<sub>j</sub> ] t<sub>i</sub> expected [CP (t'<sub>j</sub>) [IP t<sub>j</sub> would happen ]]  
 b. ?\*I wonder [SpecC [SpecC who<sub>i</sub> ] who<sub>j</sub> ] t<sub>i</sub> thinks [CP (t'<sub>j</sub>) [IP t<sub>j</sub> lives here ]]

The ill-formedness of (37-ab) follows straightforwardly from the analysis developed so far. The matrix IP (being embedded by a [+wh] C node) turns into a barrier at LF, and thus blocks *wh*-movement of a subject to the matrix SpecC position. Note that under this approach it is immaterial whether LF movement in (37-ab) proceeds in one swoop (as argued for by Aoun, Hornstein & Sportiche (1981) and Chomsky (1981)), or successive-cyclically (as proposed by Lasnik & Saito (1984; 1992) and Aoun et al. (1987), among others). If there is only one movement step in (37-ab), there is no intermediate trace t'<sub>j</sub> in the embedded SpecC position, and the initial trace t<sub>j</sub> is not properly governed. If, on the other hand, LF movement in (37-ab) proceeds via SpecC, t'<sub>j</sub> is present, and antecedent-governs t<sub>j</sub>. However, t'<sub>j</sub> then becomes the offending trace, being separated from its chain antecedent by an intervening IP barrier, and thus violating the ECP. (Notice that, given the theory of Lasnik & Saito (1984), intermediate traces created by LF movement cannot be deleted anymore.)

The case of long-distance movement of *wh*-adjuncts at LF is completely analogous – *wh*-adjuncts cannot undergo long-distance *wh*-movement from a complement clause to the SpecC position of a matrix clause (cf. Lasnik & Saito (1984; 1992), Aoun et al. (1987), etc.). This is shown in (38) and (39):

- (38) a. \*Who<sub>i</sub> t<sub>i</sub> expected [CP (that) [IP this would happen why<sub>j</sub> ]] ?  
 b. \*[SpecC [SpecC who<sub>i</sub> ] why<sub>j</sub> ] t<sub>i</sub> expected [CP (t'<sub>j</sub>) [IP this would happen t<sub>j</sub> ]]
- (39) a. \*I wonder who<sub>i</sub> t<sub>i</sub> thinks [CP (that) [IP John left how<sub>j</sub> ]]  
 b. \*I wonder [SpecC [SpecC who<sub>i</sub> ] how<sub>j</sub> ] t<sub>i</sub> thinks [CP (t'<sub>j</sub>) [IP John left t<sub>j</sub> ]]

A *wh*-adjunct that must take matrix scope may not remain in situ at S-structure (cf. (38-a) and (39-a)) because, after LF raising (cf. (38-b) and (39-b)), either its initial trace (if movement occurs in one swoop), or its intermediate trace in the embedded SpecC (if movement applies successive-cyclically) is not antecedent-governed due to the presence of an IP LF barrier in the matrix clause.

According to the assumptions made so far, the S-structural presence or lack of a complementizer *that* in the embedded clause does not play a role. (Note that semantically empty complementizers like *that* can be deleted on the way to LF, whereas an IP barrier in *wh*-clauses does not come into existence before LF.) This result is supported by the data in English (cf. Aoun, Hornstein & Sportiche (1981), Lasnik & Saito (1984), May (1985: 125f), Aoun et al. (1987)) – “the presence or absence of *that* has no effect on the acceptability of *wh*-in-situ constructions” (Aoun et al. (1987: 565)).

Direct *wh*-objects, in contrast to *wh*-subjects or *wh*-adjuncts, can remain in situ at S-structure in sentences which are analogous to (36) – (39) in all relevant respects, cf. (40-a) and (41-a):

- (40) a. Who<sub>i</sub> t<sub>i</sub> expected [CP (that) [IP John would do what<sub>j</sub> ]] ?  
 b. [SpecC [SpecC who<sub>i</sub> ] what<sub>j</sub> ] t<sub>i</sub> expected [CP (t'<sub>j</sub>) [IP John would do t<sub>j</sub> ]]
- (41) a. I wonder who<sub>i</sub> t<sub>i</sub> thinks [CP (that) [IP John did what<sub>j</sub> ]]  
 b. I wonder [SpecC [SpecC who<sub>i</sub> ] what<sub>j</sub> ] t<sub>i</sub> thinks [CP (t'<sub>j</sub>) [IP John did t<sub>j</sub> ]]

This follows from the analysis developed in this chapter under the assumption that Subjacency does not constrain LF movement (as argued for by Huang (1982), Lasnik & Saito (1984; 1992); cf., however, note 1). *Wh*-movement at LF, as shown in (40-b) and (41-b), may take place in one swoop, without leaving an intermediate trace t'<sub>j</sub> in the embedded SpecC position. Such a trace would violate the ECP (not being antecedent-governed, due to the presence

of an IP barrier in the matrix clause, and not being deletable anymore), as shown above. On the other hand, direct movement from the in-situ position to the matrix SpecC position does not violate any constraints if Subjacency does not hold at LF – the trace  $t_j$  is properly governed by the verb.

Lasnik & Uriagereka (1988: 107ff) show that the situation is exactly the same with CNPC-configurations. Again, *wh*-objects can stay in situ within complex noun phrases at S-structure, raising to the matrix SpecC position at LF (cf. (42-a)); but *wh*-subjects and *wh*-adjuncts cannot occur in situ within complex noun phrases and undergo *wh*-movement to the matrix SpecC position at LF (cf. (42-bc)).

- (42) a. Who<sub>i</sub> t<sub>i</sub> believes [NP the claim [CP that Mary read what<sub>j</sub> ] ] ?  
 b. \*Who<sub>i</sub> t<sub>i</sub> believes [NP the claim [CP that what<sub>j</sub> impressed Mary ] ] ?  
 c. \*Who<sub>i</sub> t<sub>i</sub> believes [NP the claim [CP that Mary read the book why<sub>j</sub> ] ] ?

In this case, LF movement of the *wh*-subject (in (42-b)) and the *wh*-adjunct (in (42-c)) even crosses *two* barriers, given the assumptions so far, namely the IP barrier in the matrix clause, and the barrier present in a CNPC-configuration (cf. chapter 2). Again, it is immaterial whether subject and adjunct movement proceeds in one step, or successive-cyclically; and again, it is important that object movement takes place in one swoop.

#### 4.4. On S-structural adjunct movement

At this point, a potential problem for the idea that IP is an LF barrier in *wh*-clauses must be solved. This problem concerns S-structural movement of adjuncts. According to the assumptions of Lasnik & Saito (1984; 1992) adopted so far, traces of adjuncts receive their  $\gamma$ -feature at LF, irrespective of whether they are created by LF movement or overt movement. This assumption has proven to be necessary in order to account for the absence of complementizer-trace effects with adjunct movement; cf. (25-b), repeated here as (43):

- (43) Why<sub>i</sub> do you think [CP t'<sub>i</sub> [C that ] [IP she came t<sub>i</sub> ] ] ?

Here, the embedded IP is a barrier at S-structure (due to the presence of *that*), but not anymore at LF (after *that* deletion). This analysis clearly requires that the initial trace of adjunct movement,  $t_i$ , is not  $\gamma$ -marked at S-structure (where it comes into being), but  $\gamma$ -marked at LF.

However, if IP becomes a barrier at LF in *wh*-clauses, every *wh*-adjunct in SpecC is separated from its chain successor by an IP barrier, no matter whether the *wh*-adjunct has moved overtly or covertly to SpecC. Therefore, it appears that (43) should be ungrammatical under the present assumptions, not because of an ungoverned initial trace  $t_i$ , but rather because of an ungoverned (and undeletable) intermediate trace  $t'_i$  in the embedded SpecC

position. Indeed, even S-structural movement of a *wh*-adjunct to a local SpecC position, as in (44), should be prohibited, contrary to fact:

(44) (I wonder) [<sub>CP</sub> why<sub>i</sub> C [<sub>IP</sub> she came t<sub>i</sub> ]]

If the adjunct trace t<sub>i</sub> can only be  $\gamma$ -marked at LF, it will invariably receive the feature [- $\gamma$ ], violating the ECP, because at LF IP in (44) turns into a barrier (being embedded by a [+wh] C node).

In order to solve the problem that came up with overt adjunct movement in (43) and (44), I would like to propose that adjunct traces can be  $\gamma$ -marked at any level (and not only at LF, as assumed by Lasnik & Saito (1984; 1992)) – in other words:

(45)  $\gamma$ -marking of adjunct traces is free.

Argument traces, on the other hand, are obligatorily  $\gamma$ -marked at the level where they come into existence. (In particular, subject traces of S-structural movement are  $\gamma$ -marked at S-structure, inducing complementizer-trace effects if the local C node is filled by a complementizer.) As a consequence of (45), adjunct traces can only violate the ECP if there is *no* level of representation (i.e., neither S-structure nor LF) where they are properly governed. The hypothesis (45), then, yields exactly the right consequences for (43) and (44). The matrix IP in (43) and the embedded IP in (44) are complements of a [+wh] C node, and turn into LF barriers, blocking antecedent-government of t'<sub>i</sub> in (43) and t<sub>i</sub> in (44), at that level. However, by (45), these traces may receive the feature [+ $\gamma$ ] at S-structure already, where IP is not (yet) a barrier. Therefore, the ECP is fulfilled in (43) and (44). Notice in passing that the two adjunct traces in (43) receive the feature [+ $\gamma$ ] at different levels – t<sub>i</sub> is  $\gamma$ -marked at LF (at LF, the local IP, being embedded by a [-wh] C node, is not a barrier anymore, after complementizer deletion), whereas t'<sub>i</sub> is  $\gamma$ -marked at S-structure (the local IP is not an S-structural barrier because of V/2 movement, but turns into an LF barrier due to head reconstruction and the presence of a [+wh] C node).

Thus, we have seen that (45) has a welcome consequence for overt adjunct movement across IP in *wh*-clauses. Let us now try to figure out whether there are unwanted consequences of (45). Direct evidence against (45) could look as follows. Imagine a construction where a trace of overt adjunct movement is antecedent-governed (hence, properly governed) at S-structure, but not at LF. Furthermore, assume that the construction is ill formed, indicating that adjunct movement violates the ECP. Then (45) would make the wrong prediction. However, I know of no such case. Indeed, it seems that the only case where an adjunct trace is properly governed at S-structure, but not at LF anymore, is just the one (45) was designed for – viz., the case of movement across

IP in *wh*-clauses, resulting in a grammatical sentence. Therefore, I contend that (45) does not per se yield unwanted consequences.

However, upon closer inspection it emerges that (45) does indeed require a modification in the theory of traces developed by Lasnik & Saito (1984). To see this, consider examples like (46-a) and (46-b) (from English and German, respectively):

- (46) a. \*How<sub>i</sub> did Bill wonder [<sub>CP</sub> who<sub>j</sub> t<sub>j</sub> wanted [<sub>CP</sub> t'<sub>i</sub> to fix the car t<sub>i</sub> ] ] ?  
 b. \*Deswegen<sub>i</sub> weiß ich nicht [<sub>CP</sub> wann<sub>j</sub> du gesagt hast [<sub>CP</sub> t'<sub>i</sub> daß  
 therefore know I not when you said have that  
 sie t<sub>i</sub> kommen würde ] ]  
 she come would

In (46-a), a *wh*-adjunct has undergone long-distance extraction, first moving to the local SpecC position in successive-cyclic fashion, and then crossing a CP barrier (a *wh*-island). Similarly, in (46-b), an adjunct has undergone long-distance topicalization, again first landing in the local SpecC position, and then crossing a *wh*-island. In these constructions, the initial trace t<sub>i</sub> is antecedent-governed by the intermediate trace t'<sub>i</sub> in the most deeply embedded SpecC position. The latter trace is separated from its antecedent by a barrier, and therefore violates the ECP, which accounts for the ungrammaticality of the sentences. Note, however, that for this approach to work, it is essential that t'<sub>i</sub> cannot be deleted on the way to LF. This prohibition against deletion of intermediate adjunct traces created at S-structure follows straightforwardly from Lasnik & Saito's (1984) assumption that adjunct traces receive their  $\gamma$ -feature at LF only – then, if t'<sub>i</sub> in (46-ab) is deleted on the way to LF, t<sub>i</sub> cannot be properly governed, and violates the ECP. But if t<sub>i</sub> can be  $\gamma$ -marked at S-structure already, as I have assumed (cf. (45)), it is unclear what precludes deletion of t'<sub>i</sub>. If t'<sub>i</sub> deletes, however, there is no offending trace in (46) anymore, and these sentences should involve only a Subjacency violation, contrary to fact. It seems, then, that (45), which contributes per se to a simplification of the system proposed by Lasnik & Saito (1984), requires in turn an additional condition like (47), so as to prohibit deletion of adjunct traces.

- (47) Adjunct traces cannot be deleted.

#### 4.5. *Wh*-in-situ in French

French differs from English and German in that *wh*-movement in simple root questions may apply either at S-structure, or at LF (cf. Aoun, Hornstein & Sportiche (1981), Lasnik & Saito (1992)):

- (48) a. [<sub>CP</sub> Qui<sub>i</sub> as-tu vu t<sub>i</sub> ] ?  
 who have-you seen

- b. [CP - Tu as vu qui<sub>i</sub> ] ?  
 you have seen who

In general, it seems that French behaves more or less like English with respect to Superiority effects and the ban against *wh*-adjuncts in situ in multiple questions. However, interestingly, *wh*-adjuncts may also not remain in situ in *simple*, i.e., non-multiple questions; this suggests that LF movement of these adjuncts to an empty SpecC position is illicit. Consider the following example (from Aoun (1986: 97)):

- (49) \*[CP - [IP Tu es venu pourquoi ] ] ?  
 you are come why

As noted by Koster (1987: 226), the ill-formedness of (49) poses a severe problem for the standard approach to constraints on *wh*-in-situ summarized in section 2 above. For why should it be that a *wh*-adjunct cannot undergo *wh*-movement at LF, substituting in the empty SpecC position (thereby becoming the “head of SpecC”), and thus being a proper antecedent-governor of its trace? Indeed, exactly this derivation is possible at S-structure; (50) shows that *overt wh*-movement of an adjunct is possible in simple questions in French:

- (50) [CP Pourquoi<sub>i</sub> es-tu venu t<sub>i</sub> ] ? (Overt Movement)  
 why are-you come

The contrast between (49) and (50) follows directly from the theory developed so far. According to (45), the adjunct trace *t<sub>i</sub>* in (50) can be  $\gamma$ -marked at any level. Hence, it can receive the feature [+ $\gamma$ ] at the level where it is created, viz., at S-structure (where IP is not a barrier). If, on the other hand, the *wh*-adjunct remains in situ at S-structure, as in (49), and accordingly undergoes *wh*-movement at LF, as in (51), the resulting trace *t<sub>i</sub>* is not properly governed by its antecedent due to the presence of an IP barrier in (51).

- (51) [CP pourquoi<sub>i</sub> C<sub>[+wh]</sub> [IP tu es venu t<sub>i</sub> ] ] (LF movement)

The contrast between (52-a) and (52-bc) (cf. Aoun et al. (1987: 559 & 563)) is accounted for along the same lines.

- (52) a. Jean se rappelle [CP que j'aime quoi ] ?  
 Jean REFL remembers that I like what<sub>acc</sub>  
 b. \*Jean se rappelle [CP que quoi m'intéresse ] ?  
 Jean REFL remembers that what<sub>nom</sub> me<sub>acc</sub> interests  
 c. \*Il dit [CP que Marie est partie pourquoi ] ?  
 he says that Marie is gone-away why

As in the English examples involving long-distance *wh*-movement at LF from *that*-clauses that were discussed in section 4.3, the matrix IP in (52), being embedded by a [+*wh*] C node, becomes a barrier at LF, and thus blocks LF movement of *wh*-subjects and *wh*-adjuncts (cf. (52-bc)); *wh*-objects, on the other hand, are not sensitive to the matrix IP barrier at LF, since they are  $\Theta$ -governed (cf. (52-a)). Again, it is immaterial for (52-bc) whether LF movement occurs in one swoop or successive-cyclically; and again, object movement in (52-a) must take place in one step (otherwise, an intermediate trace would be created which would not be antecedent-governed, and, being undeletable, would violate the ECP).

Let me briefly summarize what has been discussed in this section. In languages like English or French, the correct descriptive generalization seems to be that *wh*-subjects and *wh*-adjuncts may not stay in situ at S-structure (abstracting away from issues like D-linking or Connectedness, cf. note 8). This follows from the ECP under the assumption that IP becomes an LF barrier if it is embedded by a [+*wh*] C node. In the following three sections, I turn to languages of the German, Polish, and Korean type, where *wh*-subjects and *wh*-adjuncts in situ are not in general illicit. It will emerge that these languages lend further support to the IP barrier hypothesis.

## 5. Co-indexing of I and C

### 5.1. Short *wh*-movement at LF in German

I have argued in chapter 2 that German does not exhibit complementizer-trace effects because there is “abstract incorporation” of I into C, i.e., given the remarks in section 4.2, co-indexing at S-structure. Thus, IP is not a barrier in examples like (22), repeated here in (53), ultimately because I and C have a “close relationship” in German, and are non-distinct.

- (53) Wer<sub>i</sub>    meinst du    [<sub>CP</sub> t'<sub>i</sub> daß<sub>j</sub>    [<sub>IP</sub> t<sub>i</sub> das    getan hat<sub>j</sub> ] ] ?  
       who<sub>nom</sub> think you            that            that<sub>acc</sub> done has

“Abstract incorporation” in general identifies two heads in a structure-preserving way; e.g., it identifies I and C without postulating a single “CONFL” (C+I) node (cf. Platzack (1986), Bayer (1983/84), Sternefeld (1985a)). In chapter 2, I suggested that the option of abstract incorporation (as concerns lexical heads) is likely to be eventually determined by semantic properties of heads, given an articulated theory of lexical semantics (cf. the remarks on extraction from NP and the bridge verb phenomenon). This implies that abstract incorporation, now solely conceived of as co-indexing, can be relevant at LF. Therefore, it seems plausible to assume that S-structural co-indexing of two heads *always* persists at LF. If this is so, it follows that if

the barrierhood of IP at S-structure is resolved by abstract incorporation in a language, IP also fails to be a barrier at LF irrespective of whether C is empty at LF (in declarative clauses), or counts as filled at LF (in *wh*-clauses). Under these assumptions, co-indexing of I and C in German overrides the effects of *wh*-features in C on the barrierhood of IP at LF. Therefore, multiple questions with *wh*-subjects and *wh*-adjuncts in situ are well formed in German; cf. for instance (8-a) and (11-a), repeated here in (54):

- (54) a. Was<sub>i</sub> hat [IP wer<sub>j</sub> t<sub>i</sub> behauptet ] ?  
           what<sub>acc</sub> has who<sub>nom</sub> claimed  
       b. Wer<sub>i</sub> ist [IP t<sub>i</sub> weshalb<sub>j</sub> weggegangen ] ?  
           who<sub>nom</sub> is why gone-away

The LF representations of (54-ab) look as in (55-ab):

- (55) a. was<sub>j</sub> wer<sub>i</sub> C<sub>[+wh]k</sub> [IP t<sub>i</sub> t<sub>j</sub> behauptet [I hat ]<sub>k</sub> ]  
       b. wer<sub>i</sub> weshalb<sub>j</sub> C<sub>[+wh]k</sub> [IP t<sub>i</sub> t<sub>j</sub> weggegangen [I ist ]<sub>k</sub> ]

In (55-ab), V/2 movement is reconstructed, so that IP cannot fail to be a barrier because of head movement (recall that this assumption is necessary to account for Superiority effects and the constraint on *wh*-adjuncts in situ in questions involving Subject-Aux Inversion in English). Moreover, C counts as filled in (55-ab), because it bears a *wh*-feature; hence, an IP barrier cannot be removed via empty identification. However, co-indexing of I and C in (55-ab) suffices to make I and C non-distinct, thereby resolving the barrierhood of IP at LF, and permitting antecedent-government of the subject trace in (55-a), and the adjunct trace in (55-b).<sup>15</sup>

## 5.2. Successive-cyclic long-distance *wh*-movement at LF in German

Consider the following examples involving *wh*-elements in situ in German, which are contained in an embedded [-wh] clause:

- (56) a. Wann<sub>i</sub> hat sie t<sub>i</sub> gesagt [CP daß sie wen<sub>j</sub> geküßt hat ] ?  
           when has she said that she who<sub>acc</sub> kissed has  
       b. ?Wann<sub>i</sub> hat sie t<sub>i</sub> gesagt [CP daß wer<sub>j</sub> sie geküßt hat ] ?  
           when has she said that who<sub>nom</sub> she kissed has  
       c. ??Wann<sub>i</sub> hat sie t<sub>i</sub> gesagt [CP daß sie ihn weshalb<sub>j</sub> geküßt hat ] ?  
           when has she said that she him why kissed has

In (56-a), a *wh*-object occurs in situ; in (56-b), a *wh*-subject; and in (56-c), a *wh*-adjunct. Again, unlike in English or French, *wh*-adjuncts and *wh*-subjects in situ do not induce severe ungrammaticality; (56-b) and (56-c) have an

intermediate status – examples like these are even considered to be almost well formed by some speakers (cf. Haider (1986: 119)). What this clearly suggests is that an ECP effect does not occur in either (56-b) or (56-c), in contrast to what has been shown (in section 4.3 and section 4.5) to be the case in similar sentences involving long-distance LF *wh*-movement of non-objects in English or French. Thus, the task now is to answer two questions concerning the examples in (56). First, why are *wh*-subjects and *wh*-adjuncts in situ tolerable at all in (56-bc)? And second, why does their presence result in reduced acceptability, as indicated by the question marks?

To this end, let us more closely consider the LF representations of (56-abc). The matrix verb *sagen* ('say') does not select a [+wh] C node in these examples; therefore, the *wh*-phrases in the embedded clause must undergo long-distance movement to the matrix SpecC position at LF, as schematically depicted in (57):

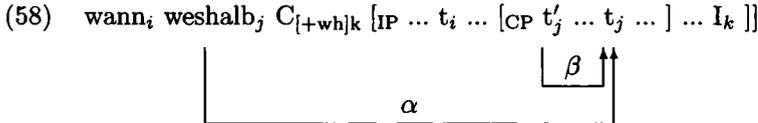
- (57) a.  $wann_i\ wen_j\ C_{[+wh]k}\ [IP\ \dots\ t_i\ \dots\ [CP\ (t'_j)\ \dots\ t_j\ \dots\ ]\ \dots\ I_k\ ]]$   
 b.  $?wann_i\ wer_j\ C_{[+wh]k}\ [IP\ \dots\ t_i\ \dots\ [CP\ t'_j\ \dots\ t_j\ \dots\ ]\ \dots\ I_k\ ]]$   
 c.  $??wann_i\ weshalb_j\ C_{[+wh]k}\ [IP\ \dots\ t_i\ \dots\ [CP\ t'_j\ \dots\ t_j\ \dots\ ]\ \dots\ I_k\ ]]$

The *wh*-object in (57-a) is  $\Theta$ -governed by the verb; hence, it may move to the matrix SpecC position in one swoop (again assuming that Subjacency does not hold at LF). The *wh*-subject in (57-b) and the *wh*-adjunct in (57-c), on the other hand, must undergo successive-cyclic LF movement to the matrix SpecC position, using the intermediate SpecC position as an escape hatch, and thereby circumventing the (embedded) CP barrier. Also, due to co-indexing of I and C, the matrix IP is not a barrier in (57), despite being filled by a *wh*-feature. Thus, we obtain the result that neither of the representations in (57) violates the ECP, and hence, all examples in (56) can in principle be understood as multiple questions. For example, acceptable answers to (56-a) could be *Gestern hat sie gesagt, daß sie den Fritz gesehen hat* ('Yesterday she said that she saw Fritz'), or, minimally, *Gestern; den Fritz* ('Yesterday; Fritz'). Similarly, (56-c) can marginally be understood as a multiple question; acceptable answers to (56-c) are, for instance, *Gestern hat sie gesagt, daß sie ihn geküßt hat, weil er schöne Augen hat* ('Yesterday she said that she kissed him because of his beautiful eyes') or *Gestern; weil er schöne Augen hat* ('Yesterday; because of his beautiful eyes'). Thus, the first question posed above has received an answer: Long-distance *wh*-movement of non-objects at LF does not induce an ECP violation in German (unlike in English or French) because (a) IP is not an LF barrier from the start in German, and (b) LF movement may in general apply successive-cyclically, thereby circumventing the embedded CP barrier.

Let me now address the second question, which can be rephrased as follows: Why does LF movement of *wh*-adjuncts and *wh*-subjects in (56) nevertheless

not lead to full well-formedness (for most speakers)? I contend that the answer to this question is provided by the PUB.

So far, I have tacitly assumed that SpecC and the adjunction site of SpecC count as the same kind of position for the purposes of the PUB. The variable  $t_j$  in an LF representation like (57-c), then, is bound unambiguously, from “wh-movement positions” only, as shown in (58) (with  $\alpha = \beta$ ):



However, suppose now that SpecC and the adjunction site of SpecC are distinct positions; this assumption seems fairly natural, given that the two positions are *formally* different (substitution vs. right-adjunction). In (58), then,  $\alpha \neq \beta$ , and  $t_j$  is ambiguously bound, by  $t'_j$  (which occupies a SpecC substitution position), and by its chain antecedent *weshalb* (‘why’), which is adjoined to SpecC. Hence, at LF a PUB violation occurs in (56-c) (and (56-b)). Now we have seen in chapter 3 (section 5.1) that PUB violations resulting from LF movement are in general much weaker and more variable than PUB violations resulting from overt movement – recall the contrast between illicit *wh*-scrambling (a weak PUB violation at LF) and illicit scrambling from finite clauses (a strong S-structural PUB effect) in German, as shown in (59) vs. (60):

(59) ??Wie haben [IP was<sub>i</sub> [IP die Neubauten  $t_i$  gespielt ] ] ?  
 how have what the new buildings played

(60) \*daß keiner [VP Hygrometer<sub>i</sub> [VP sagt [CP  $t'_i$  daß Antje  $t_i$  mag ]]]  
 that no-one hygrometers says that Antje likes

In (59), the PUB is violated at LF after *wh*-movement of the scrambled *wh*-phrase to SpecC. In (60), however, the PUB is violated at S-structure – the scrambling trace  $t_i$  is also bound by an intermediate trace in the embedded SpecC position.

Thus, it seems that there is evidence for distinguishing between SpecC and SpecC-adjoined positions for the purposes of the PUB. (Still, of course, the right-adjunction site of SpecC and scrambling positions must also be distinguished in order to account for illicit operator scrambling, as in (59).) More generally, we have derived that *successive-cyclic* LF movement to a filled SpecC position (adjoining to SpecC) *always* induces a mild PUB violation in languages where the PUB applies at LF (such as German and, as I will show in the next chapter, English), whereas no consequences arise for LF movement *in one step* (i.e., clause-bound movement of *wh*-phrases of any type

(argument, adjunct), and long-distance LF movement of objects).<sup>16</sup> Thus, full grammaticality of examples like (54-ab) (clause-bound movement in one step) and (56-a) (long-distance movement of a *wh*-object in one step) is predicted, as seems to be correct.

In German, a (weak) PUB effect with successive-cyclic *wh*-movement to a SpecC-adjoined position at LF is attestable because IP is not an LF barrier – otherwise, a (strong) ECP effect would occur. In English, on the other hand, the weak PUB effect induced by successive-cyclic LF movement in multiple questions is overridden by the presence of an IP barrier in the case of non-object movement, which induces a strong ECP effect. Object *wh*-movement at LF in either English or German, however, is not affected by this additional restriction on successive-cyclic LF movement created by the PUB, because it may take place in one swoop, as assumed throughout.

### 5.3. Islands for long-distance *wh*-movement at LF in German

Notice that the explanation of the possibility of *wh*-subjects and *wh*-adjuncts remaining in situ in multiple questions in German (modulo the weak PUB effect with long-distance movement discussed in the last section) crucially relies on the non-existence of a barrier for LF movement. That is, IP cannot be an LF barrier in German, but other XPs of course can. In that case, we expect successive-cyclic LF movement of *wh*-subjects and *wh*-adjuncts to be blocked in German, just like in English or French. CNPC-configurations are a case in point. And indeed, Koster (1987: 219) states that *wh*-objects can occur in complex noun phrases in German, whereas *wh*-adjuncts cannot. Thus, the data in (61) and (62) are completely analogous to the English data in (42), as one would expect given that complex NPs are barriers.<sup>17</sup>

- (61) a. Wer bezweifelt [<sub>NP</sub> die Tatsache [<sub>CP</sub> daß der Fritz was  
 who doubts the fact that ART Fritz what<sub>acc</sub>  
 verloren hat ]] ?  
 lost has
- b. \*Wer bezweifelt [<sub>NP</sub> die Tatsache [<sub>CP</sub> daß der Fritz warum  
 who doubts the fact that ART Fritz why  
 verloren hat ]] ?  
 lost has
- (62) a. Wann ist dir [<sub>NP</sub> der Umstand  $t_i$ ] aufgefallen [<sub>CP</sub> daß der  
 when is you<sub>dat</sub> the fact occurred-to that ART  
 Fritz wen nicht leiden kann ]<sub>i</sub> ?  
 Fritz whom<sub>acc</sub> not likes

- b. \*Wann ist dir [NP der Umstand t<sub>i</sub>] aufgefallen [CP daß der  
 when is you<sub>dat</sub> the fact occurred-to that ART  
 Fritz wie arbeitet ]<sub>i</sub> ?  
 Fritz how works

In (61-a) and (62-a), a *wh*-object undergoes long-distance LF movement across a CNPC barrier (cf. chapter 2); the object trace is properly governed by the verb, and movement may occur in one swoop, so that an ECP violation does not occur. On the other hand, in (61-b) and (62-b), a *wh*-adjunct is moved to the matrix SpecC position, crossing a CNPC barrier, and giving rise to an ECP violation. Admittedly, judgements of the data in (61) and (62) are somewhat murky, and there may be independent factors which complicate the issue; nevertheless, at least as a general tendency, I agree with Koster's (1987) claim that there is an object/adjunct asymmetry in the case of *wh*-in-situ elements in complex noun phrases. In addition, it seems to me that a *wh*-subject in situ which is dominated by a complex noun phrase, but takes scope outside this domain, is tolerated less easily than a *wh*-object in German (just as one would expect, in analogy to English); cf.:<sup>18</sup>

- (63) a. ?\*Wer bezweifelt [NP die Tatsache [CP daß was den Fritz  
 who doubts the fact that what<sub>nom</sub> ART Fritz<sub>acc</sub>  
 beeindruckt hat ]] ?  
 impressed has
- b. ?\*Wann ist dir [NP der Umstand t<sub>i</sub>] aufgefallen [CP daß  
 when is you<sub>dat</sub> the fact occurred-to that  
 wer zu Besuch kommen könnte ]<sub>i</sub> ?  
 who<sub>nom</sub> on a visit come could

Furthermore, Noonan (1988: 199) has observed that *wh*-adjuncts in German cannot undergo LF movement across a *wh*-island created by *ob* ('whether'). Again, long-distance LF movement of an argument across *ob* is possible, in contrast. This is shown in (64):

- (64) a. \*Wann hat sie gefragt [CP ob er weshalb gegangen ist ] ?  
 when has she asked whether he why gone-away is
- b. Wann hat sie gefragt [CP ob er wen geküßt hat ] ?  
 when has she asked whether he whom<sub>acc</sub> kissed has

Since a *wh*-clause cannot be simultaneously interpreted as a *yes/no*-question and as a *wh*-question, the *wh*-phrases in (64-ab) are forced to leave their minimal clause and adjoin to the matrix SpecC position, thereby forming a multiple question. This movement invariably crosses a CP barrier (SpecC being inaccessible for successive-cyclic movement if *ob* is present), which rules out

adjunct movement in (64-a), but does not have any effect on object movement in (64-b). Thus, a possible answer to (64-b) could be, for instance, *Gestern hat sie gefragt, ob er Stella geküßt hat* ('Yesterday she asked whether he kissed Stella') or even the minimal answer *Gestern; Stella* ('Yesterday; Stella'). However, there is no felicitous answer to (64-a), like *Gestern hat sie gefragt, ob er gegangen ist, weil ihm langweilig war* ('Yesterday she asked whether he went away because he was bored') or indeed *Gestern; weil ihm langweilig war* ('Yesterday; because he was bored').

If, on the other hand, the *wh*-island is formed by a *wh*-phrase, and not by *ob* ('whether'), ambiguities of the kind attested by Baker (1970) for English arise in German in the case of *wh*-objects in situ. Thus, consider (65):

- (65) Wer fragt sich [CP wann Fritz was fertig kriegt] ?  
 who asks REFL when Fritz what<sub>acc</sub> finishes

(65) can be understood as a multiple direct question; in such an interpretation, the *wh*-object *was* ('what') undergoes long-distance movement at LF, adjoining to the matrix SpecC position, as in (66-a). Alternatively, (65) can be interpreted as a simple direct question with an embedded multiple indirect question; in this case, the *wh*-object undergoes short movement to the local SpecC position, adjoining to *wann* ('when'), as shown in (66-b):

- (66) a. [ [SpecC wer ] was<sub>i</sub> ] [IP ... [CP wann [IP ... t<sub>i</sub> ... ]]]  
 b. wer ... [CP [ [SpecC wann ] was<sub>i</sub> ] [IP ... t<sub>i</sub> ... ]]

In (66-ab), again, neither the matrix IP, nor the embedded IP is a barrier (due to co-indexing of I and C); the embedded CP is a barrier, but this has no damaging effect on long-distance movement in (66-a) because the object trace is properly governed by the verb. On the other hand, in sentences like (67) with a *wh*-adjunct occurring in situ in the embedded clause, only short LF movement is possible (cf. (68-b)), and not long-distance movement (cf. (68-a)); although IP is not an LF barrier in German, the embedded CP is (with SpecC being filled), and therefore blocks long adjunct movement at LF in German.

- (67) Wer fragt sich [CP wen Fritz warum mag] ?  
 who asks REFL whom<sub>acc</sub> Fritz why likes

- (68) a. \*[ [SpecC wer ] warum<sub>i</sub> ] [IP ... [CP wen [IP ... t<sub>i</sub> ... ]]]  
 b. wer ... [CP [ [SpecC wen ] warum<sub>i</sub> ] [IP ... t<sub>i</sub> ... ]]

Thus, a possible answer to (67) could be *Wolfgang fragt sich, wen Fritz warum mag* ('Wolfgang asks himself who Fritz likes for which reason') or simply *Wolfgang*; however, something like *Wolfgang fragt sich, wen Fritz mag, weil sie blonde Haare hat* ('Wolfgang asks himself who Fritz likes because she has

blond hair') or even *Wolfgang; weil sie blonde Haare hat* ('Wolfgang; because she has blond hair') is not a possible answer to (67) – such an answer would depend on the availability of long-distance movement of the *wh*-adjunct, as in (68-a).<sup>19</sup>

Finally, consider an example like (69) in German:

- (69) ??Wen<sub>i</sub> hast du gemeint [<sub>CP</sub> t'<sub>i</sub> daß man warum t<sub>i</sub> lieben sollte ] ?  
 whom have you said that one why love should

Here, an object *wh*-phrase has undergone successive-cyclic long-distance movement at S-structure; a *wh*-adjunct is left in situ in the embedded [-*wh*] clause. At LF, the *wh*-adjunct must undergo long-distance movement to the matrix SpecC position, forming a multiple question. This LF movement does not induce full (ECP-like) ungrammaticality, but rather appears to have more or less the status of (56-c) (repeated here as (70)), the deviance of which was explained by invoking the PUB at LF.

- (70) ??Wann<sub>i</sub> hat sie t<sub>i</sub> gesagt [<sub>CP</sub> daß sie ihn weshalb<sub>j</sub> geküßt hat ] ?  
 when has she said that she him why kissed has

However, (69) and (70) differ in one important respect. In (70), the embedded SpecC position is available for successive-cyclic adjunct movement, whereas in (69), it seems that SpecC is filled by the intermediate trace of the *wh*-object, t'<sub>i</sub>. But notice that, given the theory of trace deletion developed by Lasnik & Saito (1984; 1992), which I have adopted here (with a few modifications), t'<sub>i</sub> in (69) may delete on the way to LF, thereby making SpecC accessible for successive-cyclic adjunct movement at LF, as indicated in (71) (= the relevant part of the LF representation of (69)).

- (71) ??wen<sub>i</sub> warum<sub>j</sub> ... [<sub>CP</sub> t'<sub>j</sub> {IP ... t<sub>j</sub> t<sub>i</sub> ... }]

Thus, the ECP is not violated in (71) (t<sub>i</sub> is  $\Theta$ -governed, and t<sub>j</sub> is antecedent-governed by t'<sub>j</sub>, which in turn is antecedent-governed by the *wh*-adjunct *warum* in the matrix SpecC-adjoined position – note that t'<sub>j</sub> occupies the embedded SpecC position, i.e., the escape hatch of CP). Nevertheless, t<sub>j</sub> in (71) violates the PUB at LF; it is bound by an intermediate trace in SpecC, and by its chain antecedent in SpecC-adjoined position. This explains the mild deviance of (71), which is on a par with that of (57-c) (i.e., the LF representation of (70)/(56-c)).

If this account of (69) is on the right track, a CP barrier should be attestable if a *wh*-adjunct (and not a *wh*-object) undergoes overt long-distance movement in a construction like (69); in this case, an intermediate trace should not be deletable, and a *wh*-adjunct in situ necessarily violates the ECP in the

course of long-distance LF movement. This prediction is indeed borne out – (72) is ungrammatical:

- (72) \*Wie<sub>i</sub> hast du gesagt [CP t'<sub>i</sub> daß man das Auto warum t<sub>i</sub> reparieren  
 how have you said that one the car why fix  
 sollte ] ?  
 should

The (relevant part of the) LF representation of (72) looks as in (73). Here, t<sub>j</sub>, the trace of the *wh*-adjunct, cannot be antecedent-governed, because the embedded SpecC escape hatch is not available (being filled by the intermediate trace of *wie* at LF). Hence, although the PUB is not violated, the ECP is.

- (73) \*wie<sub>i</sub> warum<sub>j</sub> ... [CP t'<sub>i</sub> [IP ... t<sub>j</sub> t<sub>i</sub> ... ]

In conclusion, it looks as though in cases like (70)/(71), genuinely acyclic movement is possible in violation of the Strict Cycle Condition (see Chomsky (1973)). Thus, it seems that the Strict Cycle Condition cannot be maintained as such. With this in mind, reconsider an example like (65), repeated here as (74):

- (74) Wer fragt sich [CP wann Fritz was fertig kriegt ] ?  
 who asks REFL when Fritz what<sub>acc</sub> finishes

We have seen above that (74) is two-ways ambiguous – *was* may take wide scope (undergoing long-distance *wh*-movement at LF), or narrow scope (adjoining to the embedded SpecC position). However, it is well known that a third, illicit LF derivation of sentences like (74) must be precluded, namely one where the *wh*-phrase that has undergone overt movement to the SpecC position of the embedded clause (*wann* in (74)) is moved to the matrix SpecC position at LF, and the embedded in-situ *wh*-phrase (*was* in (74)) is moved to the embedded SpecC position, thereby satisfying the selection requirement of the matrix verb. This unwanted derivation is shown in (75):

- (75) \* [SpecC wer ] wann<sub>i</sub> ] [IP ... [CP t'<sub>i</sub> was<sub>j</sub> [IP ... t<sub>j</sub> t<sub>i</sub> ... ]]]

Neither LF movement of *wann*, nor LF movement of *was* appears to violate a locality constraint. (75) can be excluded by the Strict Cycle Condition, but then we would also expect the derivation in (71) to be completely ill formed, contrary to fact. On the other hand, (75) violates the PUB at LF (t<sub>i</sub> being bound ambiguously, from a SpecC position, and from a SpecC-adjoined position), but it appears that this does not yet suffice to fully exclude the derivation, since the intermediate (71) also violates the PUB (but see Müller & Sternefeld (1994a)). Thus, it seems that however the strong deviance of (75) is eventually to be accounted for, it must be guaranteed that (71) is not

ruled out in the same way. This excludes a number of proposals that have been made in order to rule out constructions like (75).<sup>20</sup> For the time being, it may suffice to assume the following condition, which precludes adjunction to a trace in SpecC (cf. Lasnik & Saito (1984; 1992)).

(76) At LF, a [+wh] C node must agree with a [+wh] phrase in SpecC.

This condition says nothing about LF representations such as (71) (where the intermediate trace in SpecC is deleted on the way to LF); however, it rules out (75), where *was* is only *adjoined* to the trace left by LF movement of *wann*, and SpecC itself contains a trace, and not a *wh*-phrase as would be required by (76). Therefore, if Move- $\alpha$  obligatorily leaves a trace (as I have assumed throughout, in contrast to Lasnik & Saito (1984; 1992)), it follows that movement to a [+wh] SpecC position fixes the scope of a *wh*-phrase – i.e., that there is no *wh*-movement at LF from a [+wh] SpecC position, as in (75).<sup>21</sup>

Although there is much more to be said about the licensing of *wh*-phrases in situ in German, I will leave it at that.<sup>22</sup> I have tried to show that *wh*-adjuncts and *wh*-subjects can occur in situ more freely in German than in, e.g., English because IP fails to be an LF barrier in German. However, this does not mean that the occurrence of *wh*-subjects and *wh*-adjuncts in situ is more or less unconstrained in German; whereas IP is not an LF barrier, other categories (like CP in *wh*-island constructions) still are, ruling out long-distance movement of *wh*-subjects and *wh*-adjuncts in German. Moreover, successive-cyclic long-distance *wh*-movement at LF invariably induces a weak PUB effect in German (with the proviso made in note 16). That said, I would now like to turn to a second strategy for circumventing an IP barrier at LF, viz.:

## 6. Adjunction to IP

### 6.1. IP barriers and unambiguous binding

In languages like Polish (or Russian; cf. chapter 3, section 5.3), generally all *wh*-phrases in a multiple question must undergo overt movement to a left-peripheral position. Rudin (1988) has shown that in these languages, only the leftmost *wh*-phrase occupies SpecC, whereas all other *wh*-phrases are adjoined to IP in the syntax; given that (left-) adjunction to IP is identified with scrambling, this implies that in multiple questions in Russian and Polish, all *wh*-phrases but one (viz., the leftmost) are obligatorily scrambled at S-structure. Consider the following data from Polish (taken from Wachowicz (1974: 158)):

- (77) a. [CP Kto<sub>i</sub> C [IP kogo<sub>j</sub> [IP t<sub>i</sub> budzi t<sub>j</sub> ]]] ?  
           who<sub>nom</sub>          whom<sub>acc</sub>          wakes-up
- b. [CP Kto<sub>i</sub> C [IP [PP z jakiel szklanki ]<sub>j</sub> [IP t<sub>i</sub> pije t<sub>j</sub> ]]] ?  
           who<sub>nom</sub>                  from what glass          drinks
- c. Powiedz mi [CP kto<sub>i</sub> C [IP gdzie<sub>j</sub> [IP t<sub>i</sub> mieszka t<sub>j</sub> ]]]  
     tell      me      who<sub>nom</sub>          where          lives

Given that an IP-adjunction site is a non-operator (i.e., scrambling) position, it follows that at LF the scrambled *wh*-phrases must undergo raising to SpecC; indeed, this is argued for by Rudin (1988). Thus, it is not the case that all “Slavic languages wear their LF on their sleeve,” as was assumed by Pesetsky (1987: 117; 1989: 51).<sup>23</sup>

Interestingly, neither Polish nor Russian exhibits Superiority effects, or a general ban against *wh*-adjuncts which do not occupy SpecC at S-structure. The option of *wh*-adjuncts to remain outside SpecC at S-structure in Polish is shown by (77-bc); other examples are the following (cf. Wachowicz (1974: 158ff; 1974a: 52ff) and Rudin (1988: 476)):

- (78) a. [CP Gdzie<sub>j</sub> C [IP kiedy<sub>j</sub> [IP Monika poszła t<sub>i</sub> t<sub>j</sub> ]]] ?  
           where          when          Monika went
- b. [CP Kto<sub>i</sub> C [IP jak<sub>j</sub> [IP t<sub>i</sub> uciekł z więzienia t<sub>j</sub> ]]] ?  
           who          how          escaped from prison

The data in (79) and (80) (taken from Rudin (1988: 472ff)) indicate that in general, the order of fronted *wh*-arguments in Polish does not play a role. In particular, (79-b) shows that subjects can remain outside SpecC at S-structure (and hence, can undergo LF movement to a SpecC-adjoined position without violating the ECP).

- (79) a. [CP Kto<sub>i</sub> [IP co<sub>j</sub> [IP t<sub>i</sub> robił t<sub>j</sub> ]]] ?  
           who<sub>nom</sub>      what<sub>acc</sub>          did
- b. [CP Co<sub>j</sub> [IP kto<sub>i</sub> [IP t<sub>i</sub> robił t<sub>j</sub> ]]] ?  
           what<sub>acc</sub>      who<sub>nom</sub>          did
- (80) a. [CP Kogo<sub>i</sub> [IP komu<sub>j</sub> [IP *pro* przedstawiłeś t<sub>j</sub> t<sub>i</sub> ]]] ?  
           who<sub>acc</sub>      whom<sub>dat</sub>      you introduced
- b. [CP Komu<sub>j</sub> [IP kogo<sub>i</sub> [IP *pro* przedstawiłeś t<sub>j</sub> t<sub>i</sub> ]]] ?  
           whom<sub>dat</sub>      who<sub>acc</sub>      you introduced

Thus, Polish (or Russian) behaves exactly like German with respect to clause-bound LF movement of *wh*-subjects and *wh*-adjuncts. Again, it is unclear how to account for this fact on the basis of the standard approach to *wh*-in-situ, outlined in section 2 above; after adjunction of a *wh*-subject or *wh*-adjunct to

SpecC, antecedent-government should be impossible due to a lack of proper c-command, and the ECP should be violated, which, obviously, it is not.

Given the approach to *wh*-in-situ in terms of IP barriers, the question arises as to whether a language like Polish does indeed use the same strategy to circumvent the IP barrier, as, for instance, German. It turns out that there is good evidence that it does not. Borsley (1983) and Lasnik & Saito (1984) have noted that Polish exhibits complementizer-trace effects with overt subject movement, whereas objects can undergo successive-cyclic long-distance extraction across a complementizer in bridge contexts. (The same goes for Russian, as pointed out in chapters 2 & 3; cf. also Pesetsky (1981/82; 1982).) Consider, for instance, the following subject/object asymmetry with S-structural *wh*-movement in Polish (cf. Borsley (1983: 170)):

- (81) a. Co<sub>i</sub> Janek chce [CP t'<sub>i</sub> żeby [IP Jurek przeczytał t<sub>i</sub> ] ] ?  
 what Janek wants that<sub>subj</sub> Jurek reads
- b. \*Kto<sub>i</sub> Janek chce [CP t'<sub>i</sub> żeby [IP t<sub>i</sub> przeczytał książkę ] ] ?  
 who Janek wants that<sub>subj</sub> reads a book

This indicates that IP is a barrier if C is filled by a complementizer in Polish and Russian. And indeed, given that co-indexing of I and C is only possible if I and C are both strong functional heads, this conforms to our expectation; whereas I is strong in Polish and Russian (licensing *pro* in SpecI), C is not (these languages are not V/2 languages). Hence, abstract incorporation of I and C (now conceived of simply as co-indexing) is not available in Polish and Russian. But then, IP invariably turns into an LF barrier in *wh*-clauses in these languages. The reason that *wh*-subjects and *wh*-adjuncts may nevertheless undergo LF movement to SpecC in Polish and Russian must therefore be different from the reason that non-object *wh*-phrases can undergo LF movement in German.

Indeed, a closer look at the configuration which arises after LF movement of a *wh*-subject or *wh*-adjunct immediately reveals why there are no ECP effects induced by an IP barrier in Polish and Russian. Consider, for instance, (82), which is the LF representation of the typical Superiority configuration (79-b):

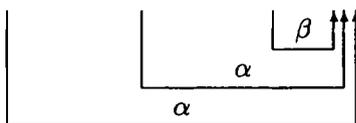
- (82) [SpecC [SpecC co<sub>j</sub> ] kto<sub>i</sub> ] C<sub>[+wh]</sub> [IP t'<sub>i</sub> [IP t<sub>i</sub> robił t<sub>j</sub> ] ]

Here, IP is a barrier for t<sub>i</sub> and t<sub>j</sub> – I and C are distinct because C is filled by the feature [+wh] at LF. The trace of the *wh*-object, however, is Θ-governed (hence, marked [+γ] at S-structure), and therefore insensitive to an intervening IP barrier. The initial trace of the *wh*-subject *kto*, on the other hand, is antecedent-governed by the intermediate trace in IP-adjoined position, which is left by LF movement of *kto*; the IP barrier does not exclude t'<sub>i</sub>, so it does not preclude antecedent-government of t<sub>i</sub> by t'<sub>i</sub> (cf. Chomsky (1986)). Thus,

the very option of overt adjunction of *wh*-phrases to IP in multiple questions in Polish and Russian destroys the effects of an LF barrier IP.

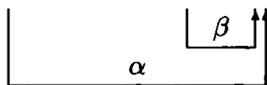
Given that adjunction of a *wh*-phrase to IP is in principle possible in Polish, it must be guaranteed that this option is not available in cases like (81-b), which exhibits a typical complementizer-trace effect, reduced to the presence of an S-structural IP barrier in chapter 2. Obviously, what distinguishes the two cases is that in (79-b) there is overt *wh*-adjunction to IP followed by covert LF movement to SpecC (as shown in (82)), whereas a derivation of (81-b) via IP-adjunction would involve adjunction and movement to SpecC at one and the same level, viz., S-structure. Thus, there is evidently a contrast between possible overt adjunction, and impossible covert adjunction of a *wh*-phrase to IP in languages like Polish and Russian; this problem has been noted already in Lasnik and Saito (1984: 278ff). The key to a solution of this problem is again provided by the PUB. In chapter 3, I have argued that in languages where *wh*-operators can be scrambled at S-structure (like Russian, Korean, or Japanese) and where scrambling can go hand in hand with focusing, the PUB applies at S-structure, but not at LF. Therefore, a derivation of (81-b) via intermediate adjunction to the IP barrier, as in (83), is barred because (83) is an S-structural configuration which violates the PUB.

(83) \* $[\text{SpecC } Kt\alpha_i ] \dots [ \text{CP } t_i'' \text{ } \acute{z}eby [ \text{IP } t_i' [ \text{IP } t_i \dots ] ] ]$



In (83), the variable  $t_i$  is bound by  $t_i'$ , which occupies an adjoined position, and by  $t_i''$  and its chain antecedent *kto*, which occupy SpecC positions. Hence, the PUB is violated at S-structure, and this derivation is ruled out. Now reconsider (82), repeated here as (84):

(84)  $[\text{SpecC } [ \text{SpecC } \text{co}_j ] \text{ } kt\alpha_i ] \text{ } C_{[+wh]} [ \text{IP } t_i' [ \text{IP } t_i \text{ } \text{robi}\acute{l} \text{ } t_j ] ]$



Here, too, the PUB is violated, but only at LF. Under the assumption that the PUB does not apply at LF in Polish and Russian then, nothing rules out *wh*-scrambling in these languages.

Summarizing so far, we have seen that languages like Polish can circumvent an IP barrier via overt *wh*-adjunction to IP (an operation which is independently required), but not via co-indexing of I and C. The question that arises is whether languages like German can circumvent the IP barrier in the same

way (notwithstanding the option of abstract incorporation). There is evidence that this option does not exist in German. As shown in chapter 3, *wh*-phrases cannot undergo scrambling in German; recall also (59), repeated here in (85):

- (85) ??Wie haben [IP was<sub>i</sub> [IP die Neubauten t<sub>i</sub> gespielt ]] ?  
 how have what the new buildings played

In chapter 3, the deviance of *wh*-scrambling in German was accounted for by assuming that the PUB applies at LF in German. After LF movement of the scrambled *wh*-phrase *was* in (85), a variable occurs which is ambiguously bound (by *t<sub>i</sub>* in a scrambling position, and by the chain antecedent *was* in a SpecC-adjoined *wh*-position); hence, a (weak) PUB violation occurs, as shown in (86):

- (86) ?? [SpecC [SpecC wie ] was<sub>i</sub> ] ... [IP t'<sub>i</sub> [IP ... t<sub>i</sub> ... ]]
- 

But if the PUB applies at LF in German, *wh*-subjects and *wh*-adjuncts may not use an IP-adjoined scrambling position as an escape hatch for *wh*-movement at LF; this means that they have to rely on abstract incorporation.

Finally, we have to make sure that the “Polish” option for circumventing the LF barrierhood of IP in *wh*-clauses, viz., adjunction, is not available in English (just like the “German” option, viz., co-indexing, is not available in English). I.e., a typical S-structural Superiority configuration, like (26-b) (repeated here as (87-a)), must not be overcome via intermediate adjunction at LF, as shown in (87-b):

- (87) a. \*I wonder [CP what<sub>j</sub> C [IP who<sub>i</sub> saw t<sub>j</sub> ]]  
 b. \*[SpecC [SpecC what<sub>j</sub> ] who<sub>i</sub> ] C[+wh] [IP t'<sub>i</sub> [IP t<sub>i</sub> saw t<sub>j</sub> ]]

The ill-formedness of (87-b) follows straightforwardly, irrespective of the question of whether or not the PUB applies at LF in English (although I will, in fact, later argue that the PUB applies at LF in English). As was concluded in chapter 3, and will be argued for in some detail in the following chapter, English does not permit left-adjunction (i.e., scrambling) to IP in the first place. In fact, given the formulation of the Adjunction Site Parameter in chapter 3, English does not tolerate left-adjunction at S-structure at all. Then it is evident that *t'<sub>i</sub>* in (87-b) could never come into existence due to the Adjunction Site Parameter.

## 6.2. LF movement without traces?

In the previous section, I have claimed that the standard approach to *wh*-in-situ, discussed in section 2 of this chapter, does not only fail to correctly account for the German evidence, it also makes wrong predictions for the distribution of *wh*-in-situ in a language like Polish. Evidently, what permits *wh*-subjects and *wh*-adjuncts to stay outside SpecC at S-structure in Polish is the option of IP-adjunction.<sup>24</sup> Now, I would like to address the question of whether it might after all be possible, on the basis of the standard analysis, to derive the well-formedness of examples like (79-b) (repeated here as (88)), given some adjustments.

- (88)  $[_{CP} C O_j \quad [_{IP} k t o_i \quad [_{IP} t_i \text{ robil } t_j ]]] ?$   
           what<sub>acc</sub>      who<sub>nom</sub>            did

According to the theory of proper government developed by Lasnik & Saito (1984),  $t_i$  in (88) is properly governed by its antecedent, and, being an argument trace, therefore receives the feature  $[+\gamma]$  at S-structure. For the sake of the argument, let us assume, following Lasnik & Saito (1984: 280f), that LF movement of an argument from an A-bar position does not have to leave a trace (in contrast to what I have argued for in the last section). Then, LF movement of the *wh*-subject *kto* in (88) may apply without leaving a trace in the IP-adjoined position. As a result, we end up with an LF representation of (88) as in (89), where every trace is marked  $[+\gamma]$ .

- (89)  $[_{\text{SpecC}} [_{\text{SpecC}} C O_j ] k t o_i ] C [_{IP} t_i \text{ robil } t_j ]$

Here,  $t_j$  is properly governed by virtue of its being an object trace (governed by the verb), and  $t_i$ , although not properly governed at LF, has received the feature  $[+\gamma]$  at S-structure from its IP-adjoined antecedent. LF movement of *kto* has not left an intermediate trace in IP-adjoined position – if it had, the trace would not be properly governed (because by assumption, a category adjoined to SpecC fails to properly c-command its trace in the standard analysis), and the ECP would be violated, which it is not.

Thus, at first sight it appears that the standard analysis is actually able to subsume the evidence from Polish, given Lasnik & Saito's assumptions about LF movement without traces. However, notwithstanding the arguments against movement without traces given in the last section, it is well known that there are conceptual problems with this idea. For instance, if Move- $\alpha$  does not have to leave a trace, Subjacency invariably must be understood as a *derivational*, rather than *representational* principle. More importantly, there are empirical problems with this view. We have seen that in languages like Polish, not only *wh*-subjects, but also *wh*-adjuncts may stay outside SpecC at

S-structure, and undergo movement to SpecC only at LF; cf., e.g., sentences like (78-b), repeated here:

- (90) [CP Kto<sub>i</sub> C [IP jak<sub>j</sub> [IP t<sub>i</sub> uciekł z więzienia t<sub>j</sub> ]]] ?  
           who           how           escaped from prison

According to the theory of proper government developed by Lasnik & Saito (1984), (90) should be ungrammatical. In this framework,  $\gamma$ -marking of adjunct traces happens only at LF; hence,  $t_j$  cannot be marked [+ $\gamma$ ] by its antecedent at S-structure already. Given that an XP which is adjoined to SpecC cannot properly govern its trace, the only way for  $t_j$  in (90) to be properly governed after LF movement is by an intermediate trace  $t'_j$  of the *wh*-phrase *jak*, left by LF movement of *jak* in the IP-adjoined position, as shown in (91):

- (91) [SpecC [SpecC kto ] jak<sub>j</sub> ] [IP t'<sub>j</sub> [IP ... t<sub>j</sub> ]]

Then, however, the intermediate trace  $t'_j$  itself is not properly governed by its antecedent, and ( $t'_j$  not being deletable anymore) the ECP is still violated in (91). Thus, given the theory of trace deletion and proper government developed in Lasnik & Saito (1984), the facts about *wh*-in-situ in Polish remain a mystery.

However, note that I have (in section 4.4) indeed proposed a revision of the theory of Lasnik & Saito (1984), as concerns  $\gamma$ -marking of adjunct traces. In particular, I have suggested that  $\gamma$ -marking of adjuncts is free (cf. (45)), i.e., it may apply at any level of representation. Under this assumption, let us try to figure out whether the standard approach to *wh*-in-situ can eventually account for the option of Polish *wh*-adjuncts to stay outside SpecC at S-structure in multiple questions. If  $\gamma$ -marking of an S-structural adjunct trace may apply at S-structure already,  $t_j$  in (90) may receive the feature [+ $\gamma$ ] at S-structure (being antecedent-governed by its antecedent *jak* in IP-adjoined position). Then, LF movement of *jak* to SpecC applies without leaving a trace – note that leaving an intermediate trace is not necessary, because the initial adjunct trace is already marked [+ $\gamma$ ]. Thus, in this derivation,  $t'_j$  in (91) need not exist as an offending trace, and the sentence is predicted to be acceptable, in accordance with the facts. In conclusion, it seems that the standard approach to *wh*-in-situ (which rests on the assumption that a SpecC-adjoined XP cannot properly c-command its trace), taken together with a version of the Lasnik/Saito mechanism which is modified along the lines suggested in section 4.4 above (allowing  $\gamma$ -marking of adjunct traces at S-structure already), actually makes the correct predictions for the distribution of *wh*-in-situ in Polish.

Note, however, that this approach crucially rests on the assumption that Move- $\alpha$  need not create a trace. I will show now that there is independent

evidence to the effect that Move- $\alpha$  *does* have to leave a trace with adjunct movement. In that case, there is no way to account for (90) in the standard theory of *wh*-in-situ.

The kind of construction that is decisive in this issue looks as follows. A *wh*-adjunct has undergone (short) S-structural movement, leaving a trace in the base position. Therefore, given the approach just outlined, this trace can be marked [+ $\gamma$ ] at S-structure already. The prediction now is that subsequent LF movement of the adjunct may cross a barrier without giving rise to an ECP effect, simply because by assumption an intermediate trace which would violate the ECP does not have to be created. With this in mind, consider the German data in (92):

- (92) a. \*Wann hat sie gefragt [CP ob            der Fritz warum geschlafen  
           when has she asked            whether ART Fritz why    slept  
           hat ] ?  
           has
- b. ??Wann hat [IP warum<sub>i</sub> [IP der Fritz t<sub>i</sub> geschlafen ]] ?  
           when has    why            ART Fritz    slept
- c. \*Wann hat sie gefragt [CP ob            warum<sub>i</sub> der Fritz t<sub>i</sub>  
           when has she asked            whether why    ART Fritz  
           geschlafen hat ] ?  
           slept        has

In (92-a), it is shown that *wh*-adjuncts in German may not stay in situ at S-structure if they have to undergo LF movement across a barrier; recall the discussion of long-distance *wh*-movement at LF in German in section 5.3 (cf. in particular example (64-a), which is analogous to (92-a)). On the other hand, (92-b) indicates that scrambling of a *wh*-adjunct in German gives rise only to weak ungrammaticality.<sup>25</sup> Therefore, if LF movement of a *wh*-adjunct which has already undergone S-structural movement (scrambling in (92-c)) does not have to leave a trace, we would expect that (92-c) is only mildly deviant, like (92-b), but does not induce an ECP effect, as occurs in (92-a). The strong ungrammaticality of (92-c), however, clearly suggests that the ECP is violated. This, in turn, implies that LF movement of a *wh*-adjunct from a non-base position must leave a trace, which may then violate the ECP at LF.

The same point can be made in a language like Korean. As noted in chapter 3, Korean differs from German in that it completely allows scrambling of *wh*-phrases. This was accounted for by the assumption that the PUB does not hold at LF in Korean, just as it does not hold at LF in Polish or Russian (the difference between Polish and Korean being that *wh*-scrambling is optional in Korean, but obligatory in Polish). As in Japanese or Chinese, *wh*-movement, i.e., movement to an operator position, applies only at LF in Korean, not at

S-structure. Now, as is well known, LF movement of *wh*-adjuncts in Korean may not cross a barrier; the same has been observed by Huang (1982) for Chinese, and by Lasnik & Saito (1984; 1992) for Japanese. Cf. the following example (provided by Hyun-Hee Lee (p.c.)):

- (93) \* $[IP \text{ N\ddot{o}-n\ddot{u}n} [NP [CP OP_i [IP \text{ k\ddot{u}-ka} \text{ wae } e_i \text{ san } ] ] \text{ ch'aek-\ddot{u}l}_i ]$   
           you<sub>top</sub>  he<sub>nom</sub> why buy book<sub>acc</sub>  
           p\ddot{o}li-\ddot{o}ss-]-ni ?  
           throw-away-PAST-Q  
           “\*Why<sub>i</sub> did you throw away the book that he bought t<sub>i</sub> ?”

As indicated by the Q-marker *ni* in the matrix clause, (93) is to be understood as a direct question. This implies that the *wh*-adjunct *wae* ('why') (which occurs in a [-*wh*] clause) undergoes long-distance *wh*-movement at LF. However, *wae* is included in a relative clause.<sup>26</sup> Therefore, it has to cross a barrier in the course of LF movement to the matrix SpecC position (the embedded SpecC position being occupied by an empty relative operator, hence inaccessible for successive-cyclic movement), and violates the ECP. This is shown in (94), which is the (relevant part of the) LF representation of (93):

- (94) \* $[CP \text{ wae}_j \dots [NP [CP OP_i \dots t_j e_i \dots ] ] \dots C_{[+wh]} ]$

Here, t<sub>j</sub> is not antecedent-governed by *wae* at LF. Now, as one might expect, a *wh*-adjunct like *wae* also cannot take matrix scope if it has undergone scrambling within the relative clause; cf. (95):

- (95) \* $[IP \text{ N\ddot{o}-n\ddot{u}n} [NP [CP OP_i [IP \text{ wae}_j [IP \text{ k\ddot{u}-ka} \text{ t}_j e_i \text{ san } ] ] ] \text{ ch'aek-\ddot{u}l}_i ]$   
           you<sub>top</sub>  why he<sub>nom</sub> buy book<sub>acc</sub>  
           p\ddot{o}ri-\ddot{o}ss-]-ni ?  
           throw-away-PAST-Q  
           “\*Why<sub>i</sub> did you throw away the book that he bought t<sub>i</sub> ?”

If t<sub>j</sub> in (95) can be marked [+ $\gamma$ ] at S-structure, and LF movement of the scrambled *wh*-adjunct *wae* to the matrix SpecC position does not have to leave behind a trace in the IP-adjoined position of the relative clause, we would expect (95) to be fully grammatical (in contrast to (93)), which it is not. The reason is that under these assumptions, (95) neither violates the Subjacency condition (given that this condition does not hold at LF), nor the ECP – the trace t<sub>j</sub> in the base position of the *wh*-adjunct in (94) is now already marked [+ $\gamma$ ] at S-structure, and another trace of adjunct movement does not exist.

In conclusion, the ill-formedness of examples like (92-c) in German, and (95) in Korean, suggests that Move- $\alpha$  obligatorily leaves traces, as assumed throughout. Then, however, the hypothesis that adjunct traces can be  $\gamma$ -

marked at S-structure (more precisely, that  $\gamma$ -marking of adjunct traces is free) does not help to explain the possibility of *wh*-adjuncts occurring outside SpecC at S-structure in Polish, within the standard approach to *wh*-movement at LF – the LF representation of a sentence like (90) now *has to* look as in (91), with an intermediate trace in an IP-adjoined position. This trace, however, violates the ECP under the standard analysis: It fails to be properly c-commanded by its antecedent *jak*, which is adjoined to SpecC at LF.

## 7. *Wh*-in-situ languages

So far, I have argued that there are two ways to escape the effects of an IP barrier at LF in *wh*-clauses: Co-indexing of I and C (German), and adjunction to IP (Polish, Russian). Now, I would like to address a third type of language, which also permits *wh*-subjects and *wh*-adjuncts in situ more freely than English or French, namely the one which is represented by *wh*-in-situ languages like Japanese, Chinese, or Korean.

It is well known that these languages, which lack overt *wh*-movement, never block *wh*-subjects and *wh*-adjuncts in situ if these *wh*-phrases are to take local scope (i.e., given the concept of *wh*-movement at LF, if these *wh*-phrases undergo operator movement to the local SpecC position only). This is shown by the following data from Japanese:

- (96) a. Dare-ga naze dete satta no ?  
           who<sub>nom</sub> why went-away Q  
       b. Kimi-wa nani-o naze sagasiteru no ?  
           you<sub>top</sub> what<sub>acc</sub> why look-for Q

Furthermore, *wh*-subjects and *wh*-objects, but not *wh*-adjuncts, can cross a barrier in the course of *wh*-movement at LF; cf. Huang (1982), Lasnik & Saito (1984; 1992), and Fukui (1986; 1988a), among others.<sup>27</sup> Lasnik & Saito (1984; 1992) (following Huang) account for this state of affairs as follows. First, they postulate that subjects are properly (lexically) governed in languages like Japanese, but not in languages like English.<sup>28</sup> Second, they assume that Subjacency effects do not occur at LF. Thus, traces of *wh*-objects as well as traces of *wh*-subjects are properly governed by X<sup>0</sup>-categories, and do not depend on antecedent-government after long-distance *wh*-movement at LF. Traces of *wh*-adjuncts, on the other hand, are not  $\Theta$ -governed (or lexically governed), and hence, depend on antecedent-government. Therefore, LF movement of a *wh*-adjunct must proceed successive-cyclically, and no barrier may intervene between two members of a link of a *wh*-adjunct chain at LF. I assume that this approach is basically correct.

Given that subjects are lexically governed in Japanese, Korean, and Chi-

nese, it follows that LF movement of a *wh*-subject to the local SpecC position can never violate the ECP, just like LF movement of a *wh*-object in a multiple question in English. However, the fact that (96-ab) are fully grammatical requires an additional assumption for *wh*-adjuncts. Lasnik & Saito (1984; 1992) maintain that *wh*-adjuncts can undergo LF movement to the local SpecC position in examples like (96-ab), because they can be substituted in SpecC (i.e., they become the “head” of SpecC), and do not have to be adjoined to SpecC. Thus, a (partial) LF representation of (96-a) can either be (97-a), or (97-b), depending on which of the two *wh*-phrases is substituted in SpecC and which adjoined to SpecC at LF.<sup>29</sup>

- (97) a. \* $[\text{SpecC } [\text{SpecC dare-ga}_j ] \text{ naze}_i ] [\text{IP } \dots t_j t_i \dots ] C_{[+wh]}$   
 b.  $[\text{SpecC } [\text{SpecC naze}_i ] \text{ dare-ga}_j ] [\text{IP } \dots t_j t_i \dots ] C_{[+wh]}$

In (97-a), the *wh*-subject *dare-ga* is substituted in SpecC at LF, and the *wh*-adjunct *naze* is adjoined to SpecC. Consequently,  $t_i$ , the adjunct trace, is not properly governed in (97-a), whereas  $t_j$ , the subject trace, is both lexically governed (by assumption), and antecedent-governed. In (97-b), on the other hand, the *wh*-adjunct is substituted in, and the *wh*-subject adjoined to SpecC. Here, the subject trace is lexically governed, and the adjunct trace is antecedent-governed; therefore, the ECP is respected in (97-b), and (96-a) is grammatical – an LF representation of this sentence exists that is well formed.

Thus, the standard analysis makes the correct predictions for data like (96-ab), ultimately because in Japanese, one can “choose” which *wh*-phrase becomes the “head” of SpecC at LF. However, a problem for this approach arises as soon as there are two *wh*-phrases in a single clause which are not lexically governed, i.e., for instance, two *wh*-adjuncts, and not just one. As far as I can see, Lasnik & Saito (1984) do not discuss cases like these; but it is obvious that, under the standard analysis, sentences with two *wh*-adjuncts in situ in languages like Japanese, Chinese, or Korean, are predicted to be ungrammatical – there cannot be “double substitution” in SpecC, which would be required for antecedent-government of all adjunct traces. The following data from Korean show that this prediction is not borne out (Hyun-Hee Lee (p.c.)):

- (98) a.  $[\text{IP } \text{N\ddot{o}-n\ddot{u}n } \text{mu\ddot{o}s-\ddot{u}l } \text{wae } \text{sa-ss-} ]\text{-ni } ?$   
           you<sub>top</sub> what<sub>acc</sub> why buy-PAST-Q  
 b.  $[\text{IP } \text{K\ddot{u}-ka } \text{ch'a-r\ddot{u}l } \text{wae } \text{\ddot{o}tt\ddot{o}hke } \text{koch'i-\ddot{o}ss-} ]\text{-ni } ?$   
           he<sub>nom</sub> car<sub>acc</sub> why how fix-PAST-Q

(98-a) shows that a *wh*-object and a *wh*-adjunct can co-occur in situ in Korean. This follows from the standard theory; at LF, the *wh*-adjunct is substituted in SpecC, and thereby antecedent-governs its trace, whereas the trace of the *wh*-

object (which is itself adjoined to SpecC) is  $\Theta$ -governed. In (98-b), however, there are two *wh*-adjuncts in situ. Nevertheless, the sentence is grammatical, in contrast to what is predicted by the standard approach to *wh*-in-situ. To see this, consider the two possible (simplified) LF representations of (98-b):

- (99) a. [SpecC [SpecC *wae*<sub>*i*</sub>] *öttöhke*<sub>*j*</sub>] [IP ... *t*<sub>*i*</sub> ... *t*<sub>*j*</sub> ... ]  
 b. [SpecC [SpecC *öttöhke*<sub>*j*</sub>] *wae*<sub>*i*</sub>] [IP ... *t*<sub>*i*</sub> ... *t*<sub>*j*</sub> ... ]

In (99-a), *wae* ('why') is substituted in SpecC, and *öttöhke* ('how') is adjoined to SpecC. Hence, *öttöhke* fails to properly c-command its trace *t*<sub>*j*</sub>, and the representation should be ill formed, with *t*<sub>*j*</sub> violating the ECP due to a lack of antecedent-government. Essentially the same goes for (99-b). Here, *öttöhke* is substituted in SpecC, and *wae* is adjoined; therefore, the trace of *wae* is not properly c-commanded, hence not antecedent-governed, under the standard theory. To sum up, it is hard to see how the grammaticality of (98-b) can be reconciled with the view that a *wh*-phrase adjoined to SpecC can never antecedent-govern its trace due to a lack of proper c-command.<sup>30</sup> That said, I will now try to account for the fact that LF movement of *wh*-adjuncts to the local SpecC position is always possible in languages like Korean, on the basis of the theory of IP barriers outlined in this chapter. The well-formedness of examples like (96-ab) and (98-ab) (in Japanese and Korean, respectively) clearly requires that the effects of an LF barrier IP can be circumvented in these languages, just like in German or Polish. Upon closer inspection, it turns out that this result is obtained straightforwardly, and in a fairly trivial way.

As remarked in note 28, the functional category I in languages like Japanese, Chinese, or Korean, substantially differs from the English, French, or German I node. Fukui (1988), for instance, assumes that Japanese does not exhibit functional categories at all, perhaps with the exception of a "very defective" (Fukui (1988: 259)) I node. If indeed I does not exist in Korean, Chinese, or Japanese, the problem of how *wh*-adjuncts can circumvent an IP barrier at LF disappears completely – if there is no I, there cannot be an IP, let alone an IP barrier.

However, I think it is reasonable to assume, as a general guideline, that in the domain of phrase structure, as few language-specific peculiarities should be stipulated as possible. Therefore, we can conclude that languages like Japanese, Chinese or Korean do have an I node after all (albeit only an impoverished one); hence, they have an IP, too. But since these languages do not exhibit subject/verb agreement (apart from the system of "honorific" agreement, which I will neglect in this context), the conclusion suggests itself that I is too "weak" in these languages to be able to erect a barrier. More precisely, I will follow Stechow & Sternefeld (1988: 390ff) who distinguish between "projective" categories and "positional" categories, where positional categories lack inherent features. The category I (conceived of as AGR) in Japanese,

Korean, or Chinese, then, does not project agreement features at all; it only projects a subcategorization feature [ $\_$  VP].<sup>31</sup> Assuming that heads which do not project inherent features cannot erect barriers, the general transparency of IP in the languages under discussion is derived.

As before, we have to make sure that this way to escape the effects of an IP barrier in *wh*-clauses at LF is not available in languages like English or French, which block *wh*-movement of subjects and adjuncts at LF. Given that these languages do indeed exhibit subject/verb agreement (to a certain extent), it follows that I is not merely a positional category, but does project inherent (agreement) features. Therefore, the barrierhood of an IP embedded by a [+wh] C node in English and French is maintained. Note also that, under these assumptions, languages like German or Polish cannot void the barrierhood of IP as a result of I not being a projective category – both German and Polish do exhibit subject/verb agreement. This consequence seems to be of no relevance in German. However, it is important for Polish (or Russian), where effects of an IP barrier are in fact attestable at S-structure; recall that Polish and Russian exhibit complementizer-trace effects.

On the other hand, the question arises as to whether *wh*-in-situ languages like Korean, Chinese, and Japanese can also use either the “German” option of voiding IP barrierhood at LF (i.e., abstract incorporation), or the Polish one (i.e., adjunction to IP). By assumption, I and C may be co-indexed in a language only if C induces obligatory V/2 movement in the absence of a complementizer and I licenses *pro* in SpecI. It is not really clear whether this classification of C nodes, which is based on a distinction between Indo-European V/2 languages and non-V/2 languages, makes sense for Korean, Chinese, or Japanese. Similarly, there does not seem to be agreement as concerns the status of empty subjects in these languages; i.e., it is unclear whether or not *pro* is licensed by I here (cf. the pertinent remarks in chapter 3, section 3.1.3). Consequently, it appears to be difficult to determine whether or not languages like Korean, Chinese, and Japanese permit co-indexing of I and C; I will tentatively assume here that they do not.

The case is somewhat different with the “Polish” option of voiding the barrierhood of IP at LF. As has been noted by Gisbert Fanselow (p.c.), we would indeed expect *wh*-phrases to be able to adjoin to IP in the course of *wh*-movement at LF in languages like Korean, given the theory developed in this book. Recall from chapter 3 (section 5.2) that Korean and Japanese both permit *wh*-scrambling in front of a subject. This is shown for Korean in (100-a), and for Japanese in (100-b).

- (100) a. [IP Nuku-*eke*<sub>i</sub> [IP John-*i* [VP *t*<sub>i</sub> *ch'aek-ül* *chu-öoss-*]]]-*ni* ?  
           whom<sub>dat</sub>      John<sub>nom</sub>      book<sub>acc</sub> give-PAST-Q
- b. [IP Dare-*o*<sub>i</sub> [IP John-*ga* *t*<sub>i</sub> *sagasiteiru* ] ] *no* ?  
           what<sub>acc</sub>      John<sub>nom</sub>      looking-for Q

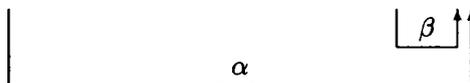
Assuming that subjects occupy SpecI in Korean and Japanese (but cf. footnote 28), the data in (100) show that *wh*-phrases can be overtly adjoined to IP in these languages. In chapter 3, I have accounted for this state of affairs by postulating that the PUB does not hold at LF in Korean and Japanese; the scrambled *wh*-phrases in (100) then can undergo LF movement to SpecC without giving rise to a PUB effect. But if the PUB does not apply at LF in these languages, we would expect that examples like (98-b) in Korean (repeated here in (101-a)), with two *wh*-adjuncts in situ, can have a (simplified) LF representation as in (101-b), rather than as in (99-a) or (99-b).

- (101) a. [IP Kũ-ka ch'a-rũl wae öttöhke koch'i-öss-]-ni ?  
           he<sub>nom</sub> car<sub>acc</sub> why how fix-PAST-Q  
       b. wae<sub>i</sub> öttöhke<sub>j</sub> [IP t'<sub>i</sub> [IP t'<sub>j</sub> [IP ... t<sub>i</sub> ... t<sub>j</sub> ... ]

In (101-b), both  $t_i$  and  $t_j$  are bound ambiguously, by an intermediate trace in IP-adjoined position, and by their respective antecedents in SpecC and a SpecC-adjoined position. (101-b) therefore violates the PUB, but I have concluded that the PUB does not hold at LF in Korean, on the basis of examples like (100-a). Thus, at first sight it looks as though we may dispense with the assumption that what is responsible for the option of two *wh*-adjuncts in situ in Korean (as in (101-a)) is the “positional” nature of I in this language (i.e., the fact that I does not project inherent features). Korean, under this view, circumvents an IP barrier at LF in the same way that Polish does.

However, closer inspection reveals that such an approach is hardly tenable. In Müller & Sternefeld (1993: sec. 4.2) it is argued that the general clause-boundedness of the LF movement type quantifier raising (QR) follows from the PUB (given a few additional assumptions, which are independently motivated). Thus, in examples like (102-a) in English, *every woman* cannot take scope over *some student* – in other words, long-distance QR is not permitted.<sup>32</sup>

- (102) a. Some student believes [CP that John loves every woman ]  
       b. \*[IP every woman<sub>i</sub> [IP some student<sub>j</sub> ... [CP t'<sub>i</sub> ... t<sub>i</sub> ... ]]]



If it can be derived that long-distance QR of a quantified object in one swoop is illicit (which ultimately follows from the principle of Full Representation introduced in section 5 of chapter 3; cf. Müller & Sternefeld (1993) and Kang (1993)), the only way to escape the effects of a CP barrier in the case of long-distance movement of *every woman* at LF is via intermediate substitution in SpecC, as indicated in (102-b). Under the assumption that the operation QR adjoins an XP to IP at LF, however, the PUB is violated if the intermediate

SpecC position is used as an escape hatch. Along these lines, the clause-boundedness of QR can be derived in a language like English. Note, however, that this account relies on the PUB as a constraint on LF movement. This does not appear to create a problem in the case of a language like English, but what about languages like Korean, where I have so far argued that the PUB does not apply at LF?

The immediate prediction is that Korean, unlike English, allows long-distance QR. This prediction is not correct, however. In examples like (103-a) (contributed by Shin-Sook Kim (p.c.)), *önü yöcha-na* ('every woman') cannot take scope over *öttön haksæng-i* ('some student').

- (103) a. öttön haksæng-i [CP John-i önü yöcha-na  
 some student John<sub>nom</sub> which woman-Q  
 cohaha-n-ta-ko ] mit-nün-ta  
 love-PRES-DEC-C believe-PRES-DEC  
 b. \*[IP [NP önü yöcha-na ]<sub>i</sub> [IP ... [CP t'<sub>i</sub> ... t<sub>i</sub> ... ]]]



Wide scope of *önü yöcha-na* requires long-distance QR, as shown in (103-b). The resulting LF configuration, however, involves ambiguous binding of  $t_i$ , by an intermediate trace  $t'_i$  in the embedded SpecC position, and by the chain antecedent in the IP-adjoined QR position. It appears, then, that the non-existence of long-distance QR in Korean can be derived in exactly the same way as in English, *if the PUB applies at LF* in Korean after all. Thus, we apparently end up with a dilemma – evidence from QR suggests that the PUB applies at LF in Korean, whereas evidence from operator scrambling suggests that the PUB does not apply at LF in Korean. In Müller & Sternefeld (1993), this dilemma is solved as follows.

All the cases where it looks as though the PUB does not apply at LF involve S-structural movement of an operator to a  $\beta$ -position (scrambling), followed by LF movement to an  $\alpha$ -position (*wh*-movement). On the other hand, the cases where the PUB can be invoked so as to rule out cases of improper movement at LF (namely, those with long-distance QR) involve a combination of movement to a  $\beta$ -position and to an  $\alpha$ -position *at the same level*. Accordingly, in Müller & Sternefeld (1993: sec. 4) it is assumed that the question is not whether or not the PUB applies at LF; rather, the question is whether or not the PUB checks S-structural movement again at LF (whether it is “projective” or not), and it is only here that cross-linguistic variation with respect to improper movement enters into the problem. Under this view, Korean (or Japanese, or Russian) permits *wh*-scrambling because S-structural

movement is not checked again at LF in this language, so that *wh*-movement at LF from a scrambling position does not violate the PUB in this language. On the other hand, in a language like German, the PUB at LF is not “blind” to what has happened at *S*-structure; therefore, *wh*-movement at LF from a scrambling position induces ambiguous binding.

At this point, I do not want to go into the details of this revised approach; it may suffice to bear in mind that, given some minimal adjustments, the approach to improper movement developed so far can easily be maintained (for instance, as concerns the effects of the principle of *Full Representation*; cf. also note 33 of chapter 3). What is important in the present context, though, is that under this view, *wh*-adjuncts in situ cannot escape the effects of an LF barrier via adjunction to it; i.e., a (partial) LF representation of a sentence like (101-a) which involves intermediate adjunction to IP, as in (101-b), is illicit; the example (*S*-structure and (partial) LF) is repeated in (104).

- (104) a. [IP Kŭ-ka ch'a-rŭl wae öttöhke koch'i-öss-]-ni ?  
           he<sub>nom</sub> car<sub>acc</sub> why how fix-PAST-Q  
       b. \*wae<sub>i</sub> öttöhke<sub>j</sub> [IP t'<sub>i</sub> [IP t'<sub>j</sub> [IP ... t<sub>i</sub> ... t<sub>j</sub> ... ]

Assuming that the PUB *does* apply at LF in Korean, (104-b) exhibits a PUB violation, with both  $t_i$  and  $t_j$  bound ambiguously – although a *wh*-phrase can be *overtly* adjoined to IP (undergoing LF movement to SpecC), it cannot be *covertly* adjoined to IP in the course of LF movement to SpecC, just like QR cannot use SpecC as an escape hatch. In conclusion, it cannot be the case that *wh*-phrases in situ in Korean circumvent an IP barrier at LF in the same way as *wh*-phrases in Polish or Russian, the reason being that *wh*-phrases in Polish (Russian) are *overtly* adjoined to IP, whereas *wh*-phrases in situ in Korean are not.<sup>33</sup> Thus, it seems that languages like Korean cannot use either the German, or the Polish option of voiding IP barriers; hence, I take it that the hypothesis is confirmed that IP barriers are non-existent because *I* is merely a positional category in Korean, Chinese, and Japanese.<sup>34</sup>

## 8. Multiple *wh*-movement at *S*-structure

So far, I have discussed the effects of an IP barrier on *wh*-movement at LF, and strategies to circumvent an IP barrier at LF. In this section, I want to address the case of Bulgarian, a language which seems to truly anticipate *wh*-movement to SpecC in multiple questions at *S*-structure.

Rudin (1988) has argued that Bulgarian (and Romanian) differs from other languages with obligatory *S*-structural movement of *wh*-phrases to a left-peripheral position (like Polish or Russian, see above) in that *all wh*-phrases occupy an operator position (i.e., SpecC) at *S*-structure already.<sup>35</sup>

Interestingly, there is a subject/object asymmetry in multiple questions in Bulgarian, which is reminiscent of the effects of the Superiority condition in English. Thus, whereas a *wh*-subject may precede a *wh*-object (cf. (105-a)), the reverse order is not possible (cf. (105-b)).

- (105) a. [SpecC [SpecC Koj<sub>i</sub> ] kogo<sub>j</sub> ] [IP t<sub>i</sub> vižda t<sub>j</sub> ] ?  
           who<sub>nom</sub> whom<sub>acc</sub> sees  
       b. \*[SpecC [SpecC Kogo<sub>j</sub> ] koj<sub>i</sub> ] [IP t<sub>i</sub> vižda t<sub>j</sub> ] ?  
           whom<sub>acc</sub> who<sub>nom</sub> sees

As observed by Rudin (1988: 472ff), this asymmetry can be explained on the basis of the standard theory discussed in section 2 if one assumes that adjunction to SpecC is always to the right, not to the left (as, indeed, I have done so far).<sup>36</sup> Thus, if an XP adjoined to SpecC fails to properly c-command its trace, it follows that *kogo* ('whom') in (105-a) and *koj* ('who') in (105-b) cannot antecedent-govern their respective IP-internal traces. This does not have any negative consequences for the acceptability of (105-a), because the object trace *t<sub>j</sub>* is  $\Theta$ -governed by the verb, and thereby fulfills the ECP. However, the subject trace *t<sub>i</sub>* in (105-b), which is not  $\Theta$ -governed, depends on antecedent-government, and therefore violates the ECP due to a lack of proper c-command by its antecedent.

Now let us see how the theory of IP barriers can account for the contrast in (105). Consider first (105-b). It is obvious that, given the assumptions so far, an IP barrier must be present at S-structure, which blocks subject movement to a SpecC-adjoined position – if an IP barrier were to arise only at LF in (105-b), the subject trace *t<sub>i</sub>* would not violate the ECP, because it could be marked [+ $\gamma$ ] at S-structure. As a key to a solution of this problem, I would like to suggest that in Bulgarian, the semantic *wh*-feature of C is activated already at S-structure, so that C counts as filled at S-structure in (105-b). This assumption does not seem to be implausible if one takes into consideration the fact that, as far as *wh*-operators are concerned, S-structure and LF are *identical* in Bulgarian. Thus, given that abstract I-C incorporation is not an option in Bulgarian, we have derived that I is distinct from C in *wh*-clauses at S-structure (C bearing a semantic *wh*-feature). Hence, IP in (105-b) is an S-structural barrier, blocking antecedent-government of the subject trace *t<sub>i</sub>* by its antecedent in SpecC-adjoined position.

However, if this approach is to be maintained, something must be said about (105-a). This sentence, too, should be ungrammatical if an IP barrier is present at S-structure, because here, the *wh*-subject should also be unable to antecedent-govern its trace across an IP barrier. Hence, one must ensure that the barrierhood of IP is voided in (105-a). At this point, Rudin's assumption that adjunction to SpecC is to the right becomes relevant.

IP is not a barrier in (105-a) if it can be shown that I and C are non-distinct

in this example. Now recall that there are three ways to make I and C non-distinct (cf. (21)), viz., (a) I-to-C movement, (b) empty identification (C is empty), and (c) co-indexing of I and C. As concerns the first two options, it is evident that they are not relevant in (105-a) – V/2 movement has not applied, and the [+wh] C node counts as non-empty at S-structure, by assumption. Thus, the task is to show that I and C are co-indexed in (105-a), but not in (105-b). This latter requirement also excludes co-indexing as an indication of “abstract incorporation,” because then, subject movement to the local SpecC position should be possible throughout, as in German, and (105-b) should be well formed. But let us assume (following Chomsky (1986)) that a specifier and its head are co-indexed. Then, in (105-a), I and the subject trace  $t_i$  in SpecI bear the same index, via specifier/head agreement. Furthermore, C and SpecC (i.e., the *wh*-subject *substituted* in the SpecC position) are co-indexed, as a result of specifier/head agreement. (However, the *wh*-object *adjoined* to SpecC and C do not bear the same index, because the *wh*-object in (105-a) is not the specifier of C.) Additionally, *koj* in SpecC and its trace in SpecI of course bear the same index, because they are in the same chain. Thus, the following indexing is obtained in (105-a):

$$(106) \quad [\text{SpecC} [\text{SpecC} \text{Koj}_i ] \text{kogo}_j ] \text{C}_i [\text{IP } t_i [ \text{I } \text{vižda } ]_i t_j ] ?$$

By transitivity, C and I are now also co-indexed, and the IP barrier induced by the *wh*-features in C is opened up at S-structure. The subject trace  $t_i$  is marked [+ $\gamma$ ] at this level, and the ECP is fulfilled. Agreement, however, is a purely S-structural phenomenon; agreement features are invisible at LF (cf. Chomsky (1991)). Therefore, it is natural to assume that co-indexing via specifier/head agreement does not hold at LF anymore; then, co-indexing of I and C as a result of specifier/head agreement also invariably vanishes at LF. As a consequence, this additional means of voiding IP barriers does not cite a negative effect for the data discussed in the previous sections – co-indexing of I and C as a result of specifier/head agreement establishes a loophole only for S-structural movement to SpecC.<sup>37</sup>

As concerns (105-b), it is evident that specifier/head agreement cannot resolve the barrierhood of IP at S-structure. Here, I and SpecI are co-indexed, and so are the [+wh] C node and SpecC. However, SpecC is occupied by the *wh*-object, not by the *wh*-subject (which is adjoined to SpecC). Therefore, the indices of SpecI and SpecC are not identical; as a result, I and C do not bear the same index, and IP remains a barrier at S-structure, thereby inducing an ECP violation with the subject trace.

Furthermore, it must be guaranteed that co-indexing via agreement does not undermine the derivation of complementizer-trace effects.<sup>38</sup> To avoid this problem, I assume that subjects in SpecC can be co-indexed with C only if C

is not lexically filled, where lexical filling occurs if a complementizer is present, but not if C bears *wh*-features.

Thus, it seems that the asymmetry in (105) is derived within the approach developed in this chapter. In order to fully account for the Bulgarian data in (105), though, one has to ensure in addition that the options of voiding the barrierhood of IP in *wh*-clauses discussed in sections 5, 6, and 7 do not exist in Bulgarian. First, it must be guaranteed that Bulgarian does not exhibit abstract incorporation of I and C (like German), which would make IP transparent for subject movement in (105-b). But Bulgarian is not a V/2 language; therefore, C cannot be a strong functional head and abstract incorporation is not possible. Second, the I node in Bulgarian is not featureless (unlike the I node in Korean, for instance); hence, I is not just a positional category, but may erect an IP barrier.

It remains, then, to show that Bulgarian does not have the “Polish” option of voiding an IP barrier by adjunction to it. This case is somewhat more interesting, because Bulgarian is indeed a language with relatively free word order, which allows scrambling to IP. Cf. the following data, discussed already in chapter 3:

- (107) a. če [IP Ivan [VP otvori vratata ]]
  - that Ivan opened door-the
- b. če [IP Ivan [VP vratata<sub>i</sub> [VP otvori t<sub>i</sub> ]]]
  - that Ivan door-the opened
- c. če [IP vratata<sub>i</sub> [IP Ivan [VP otvori t<sub>i</sub> ]]]
  - that door-the Ivan opened

Thus, we have to ensure that a derivation of the ungrammatical (105-b) as in (108) is not well formed, although the option of adjunction to IP does in principle exist (in contrast to, e.g., English).

- (108) \*<sub>[SpecC [SpecC Kogo<sub>j</sub> ] koj<sub>i</sub> ] [IP t'<sub>i</sub> [IP t<sub>i</sub> vižda t<sub>j</sub> ]]</sub> ?
    - whom<sub>acc</sub> who<sub>nom</sub> sees
- 

As should be obvious by now, (108) is ruled out by the PUB at S-structure, because the subject trace  $t_i$  is bound ambiguously, by an intermediate trace  $t'_i$  in IP-adjoined position, and by its chain antecedent *koj*, which is right-adjoined to SpecC (an operator position). Note that a structure like (108) is well formed in languages like Polish, but only as an LF representation, if the *wh*-subject has undergone overt movement to an IP-adjoined position, and is then moved to SpecC at LF. This is not possible in Bulgarian, however,

because here, all *wh*-phrases are obligatorily moved to SpecC at S-structure, as Rudin (1988) has shown.

It is worth pointing out that the derivation (108) does not only have to be excluded in the framework of IP barriers developed in this chapter; given the standard analysis, intermediate adjunction of a *wh*-phrase to IP, as in (108), would also have the effect of destroying an ECP effect in examples like (105-b). Under this analysis,  $t_i$  in (108) would be properly governed by  $t'_i$  at S-structure, and receive the feature  $[+\gamma]$ . The intermediate trace  $t'_i$  in IP-adjoined position would receive the feature  $[-\gamma]$  at S-structure, because its antecedent *koj* is not the “head of SpecC.” However,  $t'_i$  could delete on the way to LF, and the resulting LF representation should be well formed, contrary to fact.

Thus, we have again encountered strong evidence for the PUB; without this constraint against improper movement, it would be a mystery why *wh*-subjects must substitute in SpecC in multiple questions in Bulgarian, and may not simply adjoin to SpecC in the syntax, after intermediate adjunction to IP. This conclusion holds independently of whether the standard analysis of *wh*-movement in multiple questions is adopted, or the analysis in terms of IP barriers.<sup>39</sup>

## 9. Residual issues

Finally, I want to discuss three remaining issues. First (in section 9.1), I re-address the question of LF movement of *wh*-subjects in languages like English. Second (in section 9.2), I turn to the question of exactly what kind of *wh*-phrase can cross an IP barrier in the course of LF movement. And third (in section 9.3), I briefly consider “residual” Superiority effects, which seem to resist a derivation from the ECP.

### 9.1. LF movement of subjects

In section 4.3, I have excluded examples like (36-a) in English (repeated here as (109-a)) as ECP violations, which can be traced back to the presence of an IP barrier at LF. After long-distance *wh*-movement at LF (as in (109-b)), this IP barrier in the matrix clause either precludes antecedent-government of the initial subject trace  $t_j$  directly, or, alternatively, precludes antecedent-government of an intermediate trace  $t'_j$  in the embedded SpecC position (which, being a trace of LF movement, cannot be deleted anymore).

- (109) a. ?\*Who<sub>i</sub>  $t_i$  expected [<sub>CP</sub> (that) [<sub>IP</sub> what<sub>j</sub> would happen ]] ?  
 b. ?\*[<sub>SpecC</sub> [<sub>SpecC</sub> who<sub>i</sub> ] what<sub>j</sub> ]  $t_i$  expected [<sub>CP</sub> ( $t'_j$ ) [<sub>IP</sub>  $t_j$  would happen ]]

In assuming (109-a) to involve a strong ECP violation, I have followed Chomsky (1981) and Aoun, Hornstein & Sportiche (1981), among others. However, according to Lasnik and Saito (1984: 270ff; 1992: 116), Tiedeman (1990), Kitahara (1993), and Grimshaw (1994), examples like (109) are somewhat less ungrammatical than typical ECP violations with subjects in complementizer-trace constructions, or Superiority effects. According to Lasnik & Saito and Tiedeman, (109) does not involve an ECP effect, because I turns into a proper governor of the subject trace at LF. To achieve this result, Tiedeman assumes that proper government at S-structure depends on the canonical direction of government; I does not govern the subject position in the canonical direction in English. However, so Tiedeman argues, the concept of directionality does not play a role anymore at LF. But under this view, (109-a) does not violate any principle; hence, it is unclear why this sentence is not totally well formed, for most speakers. Furthermore, as conceded by Tiedeman (1990: 665), assuming I to become a proper governor of the subject position at LF deprives one of the possibility of deriving standard Superiority effects (as in (1-b), repeated here as (110)) by invoking the ECP.

(110) \*I wonder [<sub>CP</sub> what<sub>j</sub> C [<sub>IP</sub> who<sub>i</sub> saw t<sub>j</sub> ]]

If I can properly govern SpecI at LF, then the trace of *who* in (110) will not violate the ECP anymore. The same problem arises in the analysis of Lasnik & Saito (1992: 116ff), where it is assumed that I turns into a proper governor for a subject trace in SpecI at LF, after I raising to C (or, indeed, to IP, in a non-structure-preserving way). If I raising to C (or IP) is possible throughout (as is assumed by Lasnik & Saito (1992)), Superiority effects, as in (110), are not derivable anymore from the ECP. Thus, in these approaches, the Superiority condition must be stated as a primitive condition of UG. Note, however, that this step, apart from being conceptually problematic, also implies that sentences with *wh*-subjects and sentences with *wh*-adjuncts in situ in English cannot be ruled out by the same constraint, which strikes me as an unattractive result. (Recall from section 2 that for certain cases of *wh*-adjuncts in situ in English, it is impossible to invoke the Superiority condition.)

Interestingly, for these reasons, Lasnik & Saito (1984) reject the idea that I turns into a proper LF governor for SpecI throughout. They eventually assume that I can move to C at LF only if SpecC (i.e., COMP, in their framework) is not filled by a *wh*-phrase. Thus, after I-to-C-movement, I turns into a proper governor for SpecI (as in the later approach in Lasnik & Saito (1992)). Under this view, Superiority effects with subjects can be derived from the ECP. However, the solution is still fairly ad hoc; moreover, it is still unclear why examples like (109-a) are not absolutely well formed (Lasnik & Saito (1984:

272) consider a few alternatives to account for the deviance of (109-a), but do not settle on a specific proposal).

Now, if it really is the case that (109-a) is somewhat better than, e.g., (110) or a sentence involving a typical complementizer-trace effect in English, what factor might be responsible for that? I think that the key to a solution might be that (109-a) differs in one important respect from (110) and other ECP violations with subject traces. In one version of the LF representation (109-b) (the one where LF movement has applied successive-cyclically), it is an intermediate trace of an argument which induces an ECP effect, and not an initial trace, as in the LF representation of (110), or in the case of complementizer-trace effects. However, as we have seen above, intermediate traces of *wh*-moved arguments are in general either deletable on the way to LF, or they do not have to be generated in the first place. Therefore, I will tentatively assume that, for those speakers of English who find (109-a) better than, e.g., (110), the following statement holds; how this is to be derived from the theory of proper government is another matter, which I will leave open here.

- (111) ECP violations induced by intermediate traces of arguments are weaker than other ECP violations.

A similar effect may also plausibly be assumed to show up for those speakers of German who tolerate *wh*-subjects in complex NPs (cf. note 18), as in (63-a), repeated here as (112).

- (112) ?\*Wer bezweifelt [<sub>NP</sub> die Tatsache [<sub>CP</sub> daß was den Fritz  
 who doubts the fact that what<sub>nom</sub> ART Fritz  
 beeindruckt hat ]] ?  
 impressed has

Here, if *was* moves to the matrix clause in one swoop at LF, the initial trace in SpecI is not properly governed. If, however, there is successive-cyclic LF movement via the embedded SpecC position, the initial trace is antecedent-governed by the intermediate trace in SpecC; this latter trace is not properly governed (because of the CNPC island), but may induce a weaker ECP effect, according to (111).<sup>40</sup>

## 9.2. Lexical government or $\Theta$ -government?

Thus far, I have assumed that the notion of  $\Theta$ -government is relevant in the (disjunctive) formulation of the ECP. That is, only categories which are  $\Theta$ -governed may cross an IP barrier at LF without inducing an ECP violation. However, most of the evidence presented so far is also compatible with the

hypothesis that only lexically governed categories may cross an IP barrier at LF. Let me now discuss a few examples which help to decide this issue.

According to Aoun et al. (1987: 550), ECM subjects can undergo movement to SpecC at LF in English; cf.:

(113) Who<sub>i</sub> t<sub>i</sub> [<sub>VP</sub> expected [<sub>IP</sub> what<sub>j</sub> to happen ] ] ?

After LF movement of *what*, a structure as in (114) results.

(114) [<sub>SpecC</sub> [<sub>SpecC</sub> who<sub>i</sub> ] what<sub>j</sub> ] ... [<sub>VP</sub> expected [<sub>IP</sub> t<sub>j</sub> ... ] ]

Here, t<sub>j</sub>, the trace of *what*, is lexically governed, but not  $\Theta$ -governed. Hence, if the concept of  $\Theta$ -government were relevant for the ECP, it would have to be accompanied with the concept of Case-marking – under this view, a trace is properly governed if it is  $\Theta$ -marked *or* Case-marked (cf. Chomsky (1986) and Lasnik & Saito (1984)).

However, it has also been noted (by Huang (1982), Aoun (1986), Aoun et al. (1987), and Koster (1987), among others) that certain adverbs of place, direction, and time ('referential adjuncts,' in Aoun's (1986) terminology) may stay in situ at S-structure in multiple questions in English without inducing ungrammaticality. This implies that they may undergo LF movement to SpecC without violating the ECP. Thus, consider the examples in (115):

- (115) a. Who<sub>i</sub> [<sub>IP</sub> t<sub>i</sub> came when<sub>j</sub> ] ?  
 b. Who<sub>i</sub> [<sub>IP</sub> t<sub>i</sub> lives where<sub>j</sub> ] ?

Here, *when* and *where* can stay in situ, which indicates that these *wh*-phrases can fulfill the ECP without being antecedent-governed. A similar situation arises in Baker-style multiple questions; (116-a), with *where* in situ in the embedded clause, can be interpreted as a multiple direct question. This shows that *where* can undergo long-distance LF movement in one swoop, adjoining to the matrix SpecC, without inducing an ECP effect (as in (116-b)).

- (116) a. Who<sub>i</sub> [<sub>IP</sub> t<sub>i</sub> remembers [<sub>CP</sub> what we bought where<sub>j</sub> ] ] ?  
 b. [<sub>SpecC</sub> [<sub>SpecC</sub> who<sub>i</sub> ] where<sub>j</sub> ] [<sub>IP</sub> ... [<sub>CP</sub> ... t<sub>j</sub> ] ]

The conclusion to be drawn from (115) and (116) is that non-arguments like *when* and *where* are properly governed by the verb. And indeed, Larson (1988), Rizzi (1990), Speas (1990), and Stroik (1990) have argued that certain adverbials in English are base-generated very close to the verb (closer than arguments even); recall that I have reached the same conclusion in chapter 4 with respect to German.

Furthermore, recall that IOs in double object constructions can be located either close to the verb (in the lower VP, according to the theory developed in chapter 4), in which case they occur in a PP and are asymmetrically c-

commanded by DOs; or in a more remote position (in the specifier of the VP-shell, according to the theory of chapter 4), in which case they receive structural dative Case and asymmetrically c-command DOs. Interestingly, it looks as though an IO which is supported by a Case-assigning preposition is not sensitive to an IP barrier at LF in English, whereas a dative-shifted IO is. This contrast is shown in (117):<sup>41</sup>

- (117) a. Who<sub>i</sub> [<sub>IP</sub> t<sub>i</sub> gave a book to whom<sub>j</sub> ] ?  
 b. \*Who<sub>i</sub> [<sub>IP</sub> t<sub>i</sub> gave whom<sub>j</sub> a book ] ?

Apart from lending further support to the theory of dative movement assumed in chapter 4, the data in (117) again show that what is relevant for proper government by a lexical category is not whether or not a  $\Theta$ -role is assigned, but rather how close to the base position of the verb a category appears at S-structure. In conclusion, the hypothesis that a more liberal notion than  $\Theta$ -government is relevant for the ECP, is confirmed by the behaviour of ECM-subjects, non-arguments like *when* or *where*, and IOs in double object constructions in English. I will not attempt here to discuss the notion of “lexical” government that appears to be necessary for an empirically adequate disjunctive formulation of the ECP in any more detail. For present purposes, it may suffice to point out that the notion of “direct selection” introduced in section 4.2 of chapter 4 above (during the discussion of the notion of barrier), enriched by the notion of Case-assignment, might eventually properly characterize the set of categories the traces of which are exempt from an antecedent-government requirement. The disjunctive ECP would then require that traces be either antecedent-governed, or directly selected, where direct selection is understood as in (118) (= (37) of chapter 4), with the notion of Case-assignment integrated into clause (a)).

- (118) *Direct Selection (“Lexical Government”)*:  
 A zero-level category Y directly selects XP iff (a) or (b) holds:  
 a. Y assigns a  $\Theta$ -role or Case to XP within YP.  
 b. Y' immediately dominates XP.

Note that given that P, A, and N do not count as proper ( $\Theta$ - or lexical) governors of traces (cf. chapter 2), we can safely add the requirement “Y = V” in (118). Also note that the notion of “lexical government” in (118) still guarantees that adjunct traces in SpecC position that are governed from outside, by the matrix verb, nevertheless fail to fulfill the “lexical government part” of the ECP, and consequently, depend on antecedent-government; this was one of Lasnik & Saito’s (1984; 1992) main reasons for not assuming a strict notion of “lexical government” (i.e., as government by a lexical category) in the disjunctive formulation of the ECP. Finally, let me remark that, in what



(120-ab) instantiate overt *wh*-extractions from a control infinitive, where a *wh*-argument in situ in the matrix clause is crossed in violation of the Superiority condition (but in accordance with the ECP); these examples are completely analogous to the degraded English example (119-a). Similarly, (120-cd) show that ECM-subjects in German may undergo S-structural *wh*-movement across a *wh*-argument in situ in the matrix clause, in contrast to what seems to be the case in English (cf. (119-b)). And finally, (120-e) shows that *wh*-extraction from PP across a *wh*-argument in situ is also possible in German, unlike in English (cf. (119-c)).

This contrast between English and German suggests of course that the same parameter which is responsible for the differences with respect to *wh*-in-situ discussed in sections 4 and 5 above is also relevant here. In the present framework, this would imply that in (119), an IP barrier is responsible for the ill-formedness, whereas the lack of an IP barrier accounts for the acceptability of (120). However, it then seems that one would have to state that LF traces of *wh*-arguments must be antecedent-governed if they intervene between two members of another *wh*-chain, which would clearly be ad hoc and, eventually, no more than a restatement of the facts. For these reasons, the problem posed by (119-abc) must remain unsolved here. It should be kept in mind, though, that the examples in (119-abc) appear to be less deviant than those Superiority effects which *are* reducible to the ECP (cf. Kayne (1984: 190), and literature cited there). If this is correct, an ECP account of (119) (more generally, any analysis that treats (119) and other illicit occurrences of *wh*-in-situ, as they have been discussed in this chapter, on a par) is even empirically problematic.

Finally, just to complicate matters once more, consider an example like (121), which has been brought to my attention by Werner Frey (p.c.); also see Frey (1989) and Buring & Hartmann (1993).

(121) ??Wen<sub>i</sub> hat wer<sub>j</sub> geglaubt [<sub>CP</sub> t'<sub>i</sub> daß der Fritz t<sub>i</sub> mag] ?  
 whom<sub>acc</sub> has who<sub>nom</sub> believed that ART Fritz likes

Here, a *wh*-phrase has undergone successive-cyclic *wh*-movement from a *finite* clause to the matrix SpecC position, crossing an intervening *wh*-subject. The exact status of examples like this one is relatively unclear. However, speakers generally agree that (121) is worse than, e.g., the sentences in (120), but not as bad as clear ECP effects in German (as they show up, for instance, with adjunct movement across a barrier). Again, it seems to me that the approach to *wh*-in-situ developed in this chapter does not pave the way for a simple analysis of what looks like an unreducible Superiority effect in (121) – given the assumptions so far, (121) should be completely well formed.

## 10. Conclusion

Let me summarize the main findings of this chapter. I have proposed that an IP which is transparent for S-structural movement may turn into a barrier at LF if it is embedded by a C node bearing a [+wh] feature. This was shown to follow from the theory of barriers adopted throughout this book, by making the minimal assumption that *wh*-features render an otherwise empty C node filled at LF, so that I and C become distinct, and barrierhood of IP arises. I have argued that this theory does not only account for ECP effects with LF movement as well as the “standard” theory of constraints on *wh*-movement at LF (which relies on the assumption that a category adjoined to SpecC fails to properly c-command, hence antecedent-govern, its IP-internal trace); it also is both conceptually and empirically superior to the standard approach.

On the conceptual side, the approach to *wh*-in-situ in terms of IP barriers has the following advantages, compared to the standard approach. First, a unified notion of “command” relations can be used in the theory of government (viz., “m-command,” rather than strict “c-command”). Second, the problem of how *wh*-objects adjoined to SpecC may bind their traces (without antecedent-government being possible) completely vanishes. And third, the hypothesis that IP does not have an exceptional status with respect to the theory of barriers (as assumed in Chomsky (1986)) is again confirmed – IP may (under certain circumstances) turn into a barrier at LF, just like any other XP.

More importantly, there are empirical advantages of the approach advocated in this chapter. First, we have an explanation of the fact that *wh*-movement at LF is far less restricted in German than it is in English or French. This explanation rests on an assumption that was independently motivated in chapter 2; in a nutshell, I and C are more “closely related” (i.e., they undergo “abstract incorporation”) in German than they are in English or French. Second, it now follows straightforwardly that IP-adjunction of *wh*-phrases in languages like Polish or Russian (which has independently been shown to be obligatory at S-structure) circumvents ECP effects in the course of LF movement of *wh*-subjects or *wh*-adjuncts in these languages – adjunction to a barrier voids its blocking effect on movement. Again, in the standard theory, it is unclear why overt operator scrambling to IP in Russian or Polish makes *wh*-movement at LF possible for subjects and adjuncts (particularly since it can be shown that subjects and adjuncts in these languages are not lexically governed). Third, the fact that *wh*-adjuncts (and *wh*-subjects) can freely occur in multiple questions in languages such as Korean, Chinese, or Japanese finds a natural explanation in the approach in terms of IP barriers, as soon as one takes into consideration that I is at best a purely positional category without inherent features in these languages, so that an IP barrier cannot arise in the first place. Again, the standard approach to *wh*-in-situ cannot subsume all available evidence in these languages – it necessarily fails

as soon as sentences with two *wh*-adjuncts in situ show up. And fourth, if IP is a barrier in *wh*-clauses at LF in a language without obligatory *wh*-movement at S-structure like French, it follows that LF movement of a *wh*-adjunct to SpecC is impossible even in a simple question, whereas overt movement of a *wh*-adjunct in a simple question *is* possible. This fact also does not find a plausible, non-ad hoc explanation in the standard theory of *wh*-in-situ.

Finally, I would like to point out that the PUB has again proven to be an important part of the theory of movement. In particular, I have argued that the PUB explains why successive-cyclic *wh*-movement at LF in a language like German is not completely grammatical – the PUB precludes successive-cyclic movement from a SpecC position to a position right-adjoined to SpecC (cf. section 5.2). Moreover, the PUB guarantees that a language like Bulgarian, where IP is a possible adjunction site for scrambling at S-structure, may not use this escape hatch in order to circumvent ECP effects with movement of a *wh*-subject to the (right-) adjunction site of SpecC (cf. section 7). In conclusion, both the theory of locality conditions, and the theory of improper movement, as they have been adopted so far, are corroborated by the evidence from *wh*-movement at LF.

# Chapter 6

## Topicalization

### 1. Introduction and overview

Topicalization in the Germanic languages has been analysed both as an instance of *wh*-movement (i.e., movement to SpecC), and as an instance of scrambling to IP (i.e., adjunction). In this chapter, I want to show (following Müller & Sternefeld (1990: 37ff; 1993: sec. 3) that topicalization is neither movement to SpecC, nor adjunction to IP. Rather, it is best conceived of as movement into the specifier of a verbal functional head T. This functional head T projects a TP that intervenes between CP and IP, and serves as the landing site of V/2 movement in the Germanic languages. Furthermore, I argue that the CP/TP structure is uniform – by hypothesis, it occurs in all Germanic languages, as well as in all types of clauses, irrespective of whether or not topicalization or V/2 movement has applied. It turns out that the interaction of an articulated theory of CP/TP structure (and of the filling of the specifiers and heads of CP and TP) on the one hand, and the PUB on the other, makes the right predictions for the properties of topicalization in the Germanic languages. In particular, differences between topicalization and other types of A-bar movement can now be accounted for.

I proceed as follows. In section 2, I confront topicalization with adjunction to IP, i.e., scrambling, and show that the two movement types must be formally distinguished, because they differ substantially with respect to a number of properties. First, scrambling is iterable, which topicalization is not; second, embedded topicalization blocks long-distance movement, in contrast to scrambling; third, clause-bound movement is prohibited if topicalization applies, but not if scrambling applies; fourth, topicalization often triggers verb raising, unlike scrambling; fifth, whereas scrambling in the Germanic languages is strictly clause-bound, topicalization may apply long-distance; and

finally, embedded topicalization is sensitive to bridge contexts, in contrast to scrambling.

In section 3, I show that basically the same conclusion applies in the case of *wh*-movement – topicalization must not be analysed as substitution in SpecC either, because these two movement types crucially differ in several respects. First, *wh*-movement is “C-oriented,” which topicalization is not; second, topicalization is in turn “V/2-oriented,” which *wh*-movement is not; third, topic islands are always strict, which *wh*-islands are not; and finally, *wh*-movement even of arguments often may not leave a finite *wh*-island at all, whereas argument topicalization from finite *wh*-islands has an intermediate status.

Section 4 contains the proposal that topicalization is movement to SpecT. The CP/TP hypothesis is introduced, a first potential consequence of an interaction of the CP/TP hypothesis and the PUB is presented (concerning the explanation of the prohibition against topicalization of *wh*-phrases in multiple questions), and an account of the option of long-distance topicalization via SpecT positions is given. This account relies on the idea that CP and TP may, in certain cases (viz., if only one of the two specifiers is filled), “match,” i.e., count as a single projection for certain purposes (such as the theory of barriers).

In section 5, the idea is put forward that, of the two clausal functional heads C and T, only one can be the “designated” head of a clause; the remaining head is not “activated.” The *Wh*-Criterion, then, is generalized so as to cover not only *wh*-movement, but also topicalization; the resulting condition is called the “Specifier Criterion.” The Specifier Criterion requires a *wh*-moved XP to agree with a designated C node, and a topicalized XP to agree with a designated T node. This condition already suffices to account for a number of phenomena. It ensures that topics cannot occur in SpecC (i.e., to the left of a complementizer); that *wh*-phrases cannot occur in SpecT; and that a *wh*-phrase in SpecC and a topic in SpecT may never co-occur (since then, they both require a designated head to agree with, although there is only one such head in a clause).

Section 6 gives an account of the distribution of embedded topicalization; this process is confined to bridge contexts (in most Germanic languages). By the Specifier Criterion, embedded topicalization requires a designated T node to agree with. The idea then is that a designated T node of an embedded clause (be it filled via V/2 movement or not) is an activated *verbal* functional category (in contrast to C, which is *nominal*), and, as such, requires “status-government” (or “assignment of verbal Case”) by the matrix predicate (like other embedded verbal categories, cf. Bech (1955/57)). Government of an embedded T from outside, however, may take place only in bridge contexts, i.e., if the NP-shell is resolved via incorporation. Hence, embedded topicalization

can apply only in bridge contexts, which are transparent for government of a designated T node.

In sections 7 and 8, the relation between designation of a clausal functional head and its (S-structural) visibility is addressed. I argue that in languages like German, there is a strict one-to-one correspondence between visibility and designation; this assumption produces a number of welcome effects concerning the distribution of V/2 and complementizers in German. As regards the non-V/2 language English, it is shown that the relation between designation and visibility is somewhat weaker in the case of T – a visible T node (i.e., residual V/2) always indicates designation, but not vice versa. However, as far as C is concerned, it turns out that the null hypothesis can be maintained, i.e., (finite) C in English is visible at S-structure if and only if it is designated; this uniform analysis makes the correct predictions for the distribution of so-called “complementizer-drop” constructions in English, but requires an additional PF rule of “complementizer insertion” in embedded topicalization structures. In general, the picture that emerges from the discussion of the relation between designation and visibility in sections 7 and 8 is that less cross-linguistic variation in core grammar must be assumed than is often thought (as regards the distribution of complementizers and V/2 in the Germanic languages), if one is willing to attribute certain phenomena to the periphery, in this case, to two PF rules.

In section 9, the strict nature of topic islands in the Germanic languages is derived. The basic idea is that the strong topic island effect can be explained by a conspiracy of (a) the PUB, (b) the theory of locality (ECP and Subjacency), and (c) the condition that a designated T node must be status-governed.

The observation that finite *wh*-islands are stricter for *wh*-movement than for topicalization is tackled in section 10. I contend that this follows ultimately from the fact that, in finite *wh*-clauses, SpecT is still available as an escape hatch, whereas SpecC is not. This escape hatch can be used by topics in the course of long-distance movement, but not by *wh*-phrases, because of the PUB.

Section 11 deals with the structure of infinitives, and the licensing of clausal functional heads in this type of clause. I suggest that infinitives, like finite clauses, exhibit a CP/TP structure, despite some apparent evidence to the contrary. The only difference is that TP in infinitivals is underspecified for verbal features. This, inter alia, accounts for the fact that topicalization may not apply in infinitives, and explains the observation that both topicalization and *wh*-extraction from *wh*-infinitives is better than *wh*-movement from finite *wh*-clauses.

In section 12 the analysis is extended so as to cover *wh*-movement and top-

icalization in root clauses. Some remaining problems are discussed in section 13, before I draw a conclusion.

## 2. Topicalization is not adjunction

In Baltin (1982), Johnson (1988), Rochemont (1989), and Lasnik & Saito (1989; 1992: ch. 3), (embedded) topicalization in English is analysed as adjunction to IP. Given that left-adjunction to IP is to be identified with scrambling, this implies that English does in fact have scrambling to IP, in contrast to what was assumed in chapter 3 above. And indeed, this is exactly what Lasnik & Saito (1989: 5f; 1992: 193) assume. However, it is well known that topicalization in English is in principle unbounded; accordingly, it is generally assumed that topicalization may apply in a successive-cyclic fashion, via SpecC (cf. Chomsky (1977)). Thus, consider a typical instance of long-distance topicalization in English, to what seems to be an IP-adjoined position (from Lasnik & Saito (1989: 20; 1992: 81f)).

- (1) John said that  
 [IP this book<sub>i</sub> [IP he thought [CP t'<sub>i</sub> (that) you would like t<sub>i</sub> ]]]
- 

Here, it seems that the topic *this book* has left the embedded clause via intermediate substitution in SpecC, so as to circumvent the CP barrier. However, this kind of successive-cyclic movement clearly violates the PUB, as indicated in (1) –  $t_i$  is bound ambiguously, by an intermediate trace in the embedded SpecC position, and by its chain antecedent in the matrix IP-adjoined position. Thus, given the PUB, an analysis of long-distance topicalization as shown in (1) cannot be maintained. And indeed, there is evidence in abundance which shows that long-distance topicalization does not involve adjunction to IP, i.e., scrambling – this movement type differs from scrambling in a number of respects.

### 2.1. Iterability

First note that topicalization in English can take place only once in a clause (cf. Lasnik & Saito (1989; 1992)). This is shown for clause-bound topicalization in (2-a), and for long-distance topicalization in (2-b).

- (2) a. \*John said [CP that [FP on the table ]<sub>i</sub> [NP this book ]<sub>j</sub> you would put t<sub>j</sub> t<sub>i</sub> ]

- b. \*John said [CP that [PP on the table ]<sub>i</sub> [NP this book ]<sub>j</sub> he thought  
[CP that you would put t<sub>j</sub> t<sub>i</sub> ]]

Scrambling, on the other hand, can be iterated. This is shown for German in (3-a), for Russian in (3-b) (cf. Zemskaja (1973)), and for Japanese in (3-c) (cf. Saito (1985)).

- (3) a. daß dem Fritz<sub>i</sub> die Geschichte<sub>e</sub><sub>j</sub> [IP niemand t<sub>i</sub> t<sub>j</sub> glaubt ]  
that ART Fritz<sub>dat</sub> the story<sub>acc</sub> nobody<sub>nom</sub> believes
- b. čto knigu<sub>i</sub> mne<sub>j</sub> [IP Maksim dal t<sub>j</sub> t<sub>i</sub> ]  
that book<sub>acc</sub> me<sub>dat</sub> Maxim gave
- c. Naihu-de<sub>i</sub> Bill-o<sub>j</sub> [IP John-ga t<sub>i</sub> t<sub>j</sub> sasita ]  
knife-with Bill<sub>acc</sub> John<sub>nom</sub> stabbed

In (3-abc), clause-bound scrambling is iterated. Interestingly, even long-distance scrambling, if it is possible at all, can be iterated. Consider, for instance, (4-a) from Russian (cf. Zemskaja (1973)), and (4-b) from Korean (cf. Lee (1992)) (also see section 4.2 of chapter 3).

- (4) a. čto ty<sub>i</sub> menja<sub>j</sub> vižu [CP čto t<sub>i</sub> ljubiš' t<sub>j</sub> ]  
that you<sub>nom</sub> me<sub>acc</sub> I-see that love  
“that I see that you love me.”
- b. [IP Kūrim-ūl<sub>i</sub> [IP Yōnghi-eke<sub>j</sub> [IP Ch'ōlsu-ka [CP ai-ka t<sub>j</sub> t<sub>i</sub>  
picture<sub>acc</sub> Yōnghi<sub>dat</sub> Ch'ōlsu<sub>nom</sub> child<sub>nom</sub>  
chu-ōss-ta-ko ] saengkakha-n-ta ]]  
give-PAST-DECL-C think-PRES-DECL

## 2.2. Long-distance movement

Second, it is well known that topics create strict islands for long-distance movement (like *wh*-movement or topicalization) in the Germanic languages. This is shown for English in (5) (cf. Rochemont (1989), Lasnik & Saito (1989)).

- (5) a. \*What<sub>i</sub> do you think [CP t'<sub>i</sub> that [ for Ben's car ]<sub>j</sub> [IP Mary will pay t<sub>j</sub> t<sub>i</sub> ] ] ?
- b. \*That man<sub>i</sub> I know [CP t'<sub>i</sub> that [ this book ]<sub>j</sub> [IP Mary gave t<sub>j</sub> to t<sub>i</sub> ]]

The same situation occurs in Icelandic (cf. Zaenen (1980), den Besten et al. (1983)):

- (6) a. \*Hvar<sub>i</sub> heldur tu [CP ad Olaf<sub>j</sub> hafi<sub>k</sub> [IP Egill t<sub>k</sub> t<sub>j</sub> t<sub>i</sub> séd ] ] ?  
where think you that Olaf<sub>acc</sub> has Egil<sub>nom</sub> seen
- b. \*I álsskánúm<sub>i</sub> held ég [CP ad vodka<sub>j</sub> eigi<sub>k</sub> [IP Olafur t<sub>k</sub> t<sub>j</sub> t<sub>i</sub> ]]  
in refrigerator think I that vodka keeps Olaf<sub>acc</sub>

Also, topics create strict islands for long-distance movement in German:

- (7) a. \*Ich weiß wen<sub>i</sub> du sagtest [CP Fritz<sub>j</sub> habe<sub>k</sub> [IP t<sub>j</sub> t<sub>i</sub>  
I know who<sub>acc</sub> you said Fritz<sub>nom</sub> has<sub>subj</sub>  
getroffen t<sub>k</sub> ]]  
met
- b. \*Den Hans<sub>i</sub> sagte sie [CP Fritz<sub>j</sub> habe<sub>k</sub> [IP t<sub>j</sub> t<sub>i</sub> getroffen t<sub>k</sub> ]]  
ART John<sub>acc</sub> said she Fritz<sub>nom</sub> has<sub>subj</sub> met

In addition, the topic island effect holds in Frisian (cf. de Haan and Weerman (1986), in Swedish (cf. Platzack (1986) and Engdahl (1986)); it also appears to hold in Yiddish, as observed by Travis (1984), den Besten and Moed-van Walraven (1986), and den Besten (1989) (but cf. Diesing (1990) for a different view as regards the islandhood of clauses with internal topicalization in Yiddish, and den Besten (1989: 162-166) for a refutation of her analysis).<sup>1</sup>

In contrast to topicalization, scrambling does not create islands for either long-distance *wh*-movement or long-distance topicalization. This is shown for German in (8).

- (8) a. Wie<sub>i</sub> meinst du [CP t'<sub>i</sub> daß dieser Frau<sub>j</sub> [IP der Fritz t<sub>i</sub> t<sub>j</sub>  
how think you that this woman<sub>dat</sub> ART Fritz<sub>nom</sub>  
geholfen hat ] ] ?  
helped has
- b. Dafür<sub>i</sub> glaube ich [CP t'<sub>i</sub> daß [IP ihren Freund<sub>j</sub> [IP jede Frau  
for this believe I that her friend<sub>acc</sub> every woman<sub>nom</sub>  
t<sub>i</sub> t<sub>j</sub> hassen würde ] ] ]  
hate would

In (8-ab), an object is adjoined to the embedded IP, i.e., scrambled, according to previous assumptions. This IP-adjunction obviously does not have any negative impact on long-distance fronting of [+wh] adjuncts (as in (8-a)) or [-wh] adjuncts (as in (8-b)). Similarly, scrambling to IP does not block long-distance movement in languages like Russian (cf. Pesetsky (1982)) or Korean (cf. Lee (1992)).

Now, given that scrambling to IP does not create an island for long-distance extraction, it is obvious that a severe problem arises for approaches where topicalization is analysed as adjunction to IP. Lasnik & Saito (1989; 1992), for instance, assume that topic islands are due to the fact that adjunction to IP (i.e., topicalization, in their system) creates a barrier for long-distance movement.<sup>2</sup> The fact that what I take to be clear a instance of adjunction (viz., scrambling structures) does not block other types of movement, in contrast to topicalization, hence strongly suggests (a) that adjunction does

not create additional barriers, and (b) that topicalization, which evidently creates an additional barrier, is not to be analysed as adjunction to IP.

### 2.3. Clause-bound movement

Third, topicalization blocks clause-bound *wh*-movement in languages like English (cf. (9)) or German (cf. (10)).<sup>3</sup>

- (9) a. \*I wonder [<sub>CP</sub> to whom<sub>i</sub> that book<sub>j</sub> he gave t<sub>j</sub> t<sub>i</sub> ]  
 b. \*What<sub>i</sub> in the living room<sub>j</sub> did Mary find t<sub>i</sub> t<sub>j</sub> ?
- (10) a. \*Ich frage mich [<sub>CP</sub> warum<sub>i</sub> den Fritz<sub>j</sub> hat diese Frau t<sub>i</sub>  
 I ask myself why ART Fritz<sub>acc</sub> has this woman<sub>nom</sub>  
 t<sub>j</sub> geküßt ]  
 kissed  
 b. \*Warum<sub>i</sub> den Fritz<sub>j</sub> hat diese Frau t<sub>i</sub> t<sub>j</sub> geküßt ?  
 why ART Fritz<sub>acc</sub> has this woman<sub>nom</sub> kissed

In (9-a) and (10-a), it is shown that, in the presence of embedded topicalization, movement to the embedded SpecC position is impossible; In (9-b) and (10-b), on the other hand, matrix clause topicalization has occurred, blocking movement to the local SpecC position in the same way. Again, as one might expect, scrambling does not block clause-bound *wh*-movement to SpecC, in either embedded or matrix clauses. This is shown for German in (11).

- (11) a. Ich weiß nicht [<sub>CP</sub> was<sub>i</sub> dem Fritz<sub>j</sub> diese Frau t<sub>j</sub> t<sub>i</sub>  
 I know not what<sub>acc</sub> ART Fritz<sub>dat</sub> this woman<sub>nom</sub>  
 geschenkt hat ]  
 given has  
 b. Was<sub>i</sub> hat dem Fritz<sub>j</sub> diese Frau t<sub>j</sub> t<sub>i</sub> geschenkt ?  
 what<sub>acc</sub> has ART Fritz<sub>dat</sub> this woman<sub>nom</sub> given

### 2.4. Verb raising

A fourth difference between topicalization and scrambling concerns verb movement. Movement to a specifier position of a functional projection often induces head movement, whereas adjunction does not induce head movement. Thus, *wh*-movement to a SpecC position of a root clause induces V/2 movement to C in many languages (cf. Rizzi (1991), and the discussion in section 12 below); similarly, object shift in the Scandinavian languages, which has been shown to be an instance of substitution in the specifier of a functional category, always triggers verb raising (cf. Holmberg (1986) and Vikner (1990: ch. 4; 1994)). Again, topicalization behaves exactly like other, well-established types of specifier movement in this respect, and not like scrambling.

Thus, topicalization in German obligatorily induces V/2 movement; cf. (12-a) vs. (12-b):

- (12) a. Ich glaube [<sub>CP</sub> Fußball<sub>i</sub> mögen<sub>j</sub> [<sub>IP</sub> viele t<sub>i</sub> t<sub>j</sub> ]]  
 I believe football<sub>acc</sub> like many<sub>nom</sub>
- b. \*Ich glaube [<sub>CP</sub> Fußball<sub>i</sub> - [<sub>IP</sub> viele t<sub>i</sub> mögen ]]  
 I believe football<sub>acc</sub> many like

The same goes for Yiddish, as evidenced by the contrast in (13) (cf. den Besten (1989: 140), among others).

- (13) a. Ix bin zix mexaie [<sub>CP</sub> vos in nujork<sub>i</sub> voinen<sub>j</sub> [<sub>IP</sub> mir t<sub>j</sub> t<sub>i</sub> ]]  
 I am REFL glad that in New York live we
- b. \*Ix bin zix mexaie [<sub>CP</sub> vos in nujork<sub>i</sub> - [<sub>IP</sub> mir voinen<sub>j</sub> t<sub>i</sub> ]]  
 I am REFL glad that in New York we live

Also, topicalization triggers V/2 movement in Norwegian. This is shown in (14) (cf. Taraldsen (1986: 18)).

- (14) a. Vi tenkte [<sub>CP</sub> (at) penger<sub>i</sub> ville [<sub>IP</sub> han ikke ha t<sub>i</sub> ]]  
 we thought that money would he not have
- b. \*Vi tenkte [<sub>CP</sub> (at) penger<sub>i</sub> - [<sub>IP</sub> han ikke ville ha t<sub>i</sub> ]]  
 we thought that money he not would have

At first sight, it seems that English is an exception in this respect. Here, topicalization without verb movement is of course what happens regularly; indeed, verb raising is most often impossible, cf. (15-a) vs. (15-b).

- (15) a. John said that [ this book ]<sub>i</sub> he would not recommend t<sub>i</sub>
- b. \*John said that [ this book ]<sub>i</sub> would<sub>j</sub> he t<sub>j</sub> not recommend t<sub>i</sub>

However, closer inspection reveals that there are indeed cases where topicalization induces Subject-Aux Inversion (i.e., V/2 movement) in English. If a negative item (more precisely, a monotone decreasing quantifier; cf. Ladusaw (1979)) undergoes topicalization in English, V/2 movement of an auxiliary or modal verb occurs. Consider the following examples (cf. Kayne (1984: 225f), May (1985: 10), Rochemont (1989), Rizzi (1991), and Drubig (1992), among others).

- (16) a. (I think that) [ in no case ]<sub>i</sub> will [<sub>IP</sub> he give up t<sub>i</sub> ]
- b. I personally think [<sub>CP</sub> that [ under no circumstances ]<sub>i</sub> will [<sub>IP</sub> he be willing to go along with us t<sub>i</sub> ]]
- c. [ Only/no/few spies that he trusts ]<sub>i</sub> would [<sub>IP</sub> Dulles send t<sub>i</sub> inside Russia ]

Thus, whatever is responsible for the absence of V/2 movement with topicalization of non-negative XPs in English, and whatever accounts for the prohibition against main verbs undergoing V/2 movement in this language (ultimately, whatever explains the fact that English, unlike other Germanic languages, has only “residual” V/2 movement; cf. Rizzi (1991)), the data in (16) clearly indicate that topicalization in English ends in a specifier position, so that it may trigger head movement in principle.<sup>4</sup>

Needless to say, scrambling never induces verb raising, which follows automatically given that it is an adjunction process. Thus, compare (17-a) and (17-b) in German.<sup>5</sup>

- (17) a. Ich glaube [<sub>CP</sub> daß [<sub>IP</sub> den Hans<sub>i</sub> [<sub>IP</sub> keiner t<sub>i</sub> gesehen  
I believe that ART Hans<sub>acc</sub> no-one<sub>nom</sub> seen  
hat ]]]  
has
- b. \*Ich glaube [<sub>CP</sub> daß [<sub>IP</sub> den Hans<sub>i</sub> hat<sub>j</sub> [<sub>IP</sub> keiner t<sub>i</sub>  
I believe that ART Hans<sub>acc</sub> has no-one<sub>nom</sub>  
gesehen t<sub>j</sub> ]]]  
seen

## 2.5. Locality

Furthermore, topicalization and scrambling differ crucially with respect to locality. As noted in chapter 3, scrambling in languages like German or Dutch is strictly clause-bound, cf.:

- (18) a. \*daß du [<sub>VP</sub> Hygrometer<sub>i</sub> [<sub>VP</sub> meinst [<sub>CP</sub> würde<sub>j</sub> [<sub>IP</sub> Antje t<sub>i</sub>  
that you hygrometers think would Antje  
mögen t<sub>j</sub> ]]]]  
like
- b. \*daß keiner [<sub>VP</sub> Hygrometer<sub>i</sub> [<sub>VP</sub> sagt [<sub>CP</sub> daß Antje t<sub>i</sub> mag ]]]  
that no-one hygrometers says that Antje likes

These examples show that long-distance scrambling in German may not cross a finite CP in successive-cyclic fashion, irrespective of whether the CP is a V/2 clause (cf. (18-a)) or a *daß*-clause (cf. (18-b)). However, unlike scrambling (but like *wh*-movement) topicalization may apply long-distance, in a successive-cyclic mode, in German:

- (19) a. Hygrometer<sub>i</sub> glaube ich [<sub>CP</sub> t<sub>i</sub> würde Antje t<sub>i</sub> mögen ]  
hygrometers believe I would Antje like
- b. Hygrometer<sub>i</sub> glaube ich [<sub>CP</sub> t<sub>i</sub> daß Antje t<sub>i</sub> mögen würde ]  
hygrometers believe I that Antje like would

Again, this strongly suggests that topicalization is not adjunction to IP – otherwise, we would expect (19-ab) to induce an ECP effect or a PUB violation, as was demonstrated for long-distance scrambling in German in chapter 3.

## 2.6. Bridge contexts

Finally, it has often been noted that embedded topicalization is licensed only in special contexts. For instance, Haider (1984: 79ff) and Grewendorf (1989: 54) have observed that, by and large, embedded topicalization in German is only possible in clauses which are governed by a bridge predicate.<sup>6</sup> Thus, consider the following data.

- (20) a. Ich glaube [<sub>CP</sub> den Fritz<sub>i</sub> mag [<sub>IP</sub> jeder t<sub>i</sub> ]]  
 I believe ART Fritz<sub>acc</sub> likes everyone
- b. \*Ich bedaure [<sub>CP</sub> den Fritz<sub>i</sub> mag [<sub>IP</sub> jeder t<sub>i</sub> ]]  
 I regret ART Fritz<sub>acc</sub> likes everyone
- c. \*Mich hat überrascht [<sub>CP</sub> den Fritz<sub>i</sub> mag [<sub>IP</sub> jeder t<sub>i</sub> ]]  
 me<sub>acc</sub> has surprised ART Fritz<sub>acc</sub> likes everyone
- d. \*obwohl den Fritz<sub>i</sub> mag [<sub>IP</sub> jeder t<sub>i</sub> ]  
 although ART Fritz<sub>acc</sub> likes everyone

In (20-a), the embedded clause is the complement of a bridge verb (viz., *glauben* ('believe')), and embedded topicalization is possible. In (20-b), on the other hand, the matrix verb (*bedauern* ('regret')) does not exhibit bridge properties, and embedded topicalization is impossible. Similarly, embedded topicalization is illicit in subject clauses in German (cf. (20-c)), and in adjunct clauses (cf. (20-d)). These data pattern exactly with the *wh*-extraction data in (21) (cf. chapter 2):

- (21) a. Wie<sub>i</sub> glaubst du [<sub>CP</sub> t'<sub>i</sub> daß das t<sub>i</sub> geschehen ist ] ?  
 how believe you that that happened is
- b. \*Wie<sub>i</sub> bedauerst du [<sub>CP</sub> t'<sub>i</sub> daß das t<sub>i</sub> geschehen ist ] ?  
 how regret you that that happened is
- c. \*Wie<sub>i</sub> hat dich überrascht [<sub>CP</sub> t'<sub>i</sub> daß das t<sub>i</sub> geschehen ist ] ?  
 how has you<sub>acc</sub> surprised that that happened is
- d. \*Wie<sub>i</sub> schläfst du [ obwohl t'<sub>i</sub> das t<sub>i</sub> geschehen ist ] ?  
 how sleep you although that happened is

Successive-cyclic *wh*-extraction of an adjunct is possible if the matrix verb has bridge properties (cf. (21-a)), but not if it lacks bridge properties (cf. (21-b)), if the embedded clause is a subject clause (as in (21-c)), or if it is an adjunct clause (as in (21-d)). In chapter 2 and chapter 3, I have argued that finite clauses are dominated by an NP-shell (plus an additional PP-shell in the case

of adjunct clauses), and that only bridge predicates can incorporate the empty head of the NP-shell. Hence, only in (21-a) can the barrierhood of the NP-shell be resolved via non-distinctness of heads; consequently, only in (21-a) can an intermediate trace in the embedded SpecC position be antecedent-governed by its chain antecedent in the next higher SpecC position; in (21-bcd), the intermediate traces  $t'_i$  remain ungoverned, and violate the ECP (being adjunct traces, they cannot be deleted on the way to LF).

Thus, the complete parallelism between (21) and (20) suggests that embedded topicalization in German is only possible in *governed* contexts. Indeed, more or less the same situation is found with embedded topicalization in English (cf. Hooper & Thompson (1973)):

- (22) a. I think [<sub>CP</sub> that to Tom<sub>i</sub> [<sub>IP</sub> Mary gave a book t<sub>i</sub> ]]  
 b. \*I resent [<sub>CP</sub> that to Tom<sub>i</sub> [<sub>IP</sub> Mary gave a book t<sub>i</sub> ]]  
 c. \*[<sub>CP</sub> that to Tom<sub>i</sub> [<sub>IP</sub> Mary gave a book t<sub>i</sub> ] ] really surprised me  
 d. \*... because to Tom<sub>i</sub> [<sub>IP</sub> Mary gave a book t<sub>i</sub> ]

In (22-a), where the embedded clause is governed by a bridge predicate, embedded topicalization is possible; it is impossible in (22-b), where the matrix verb lacks bridge properties, in (22-c), where the embedded clause is a subject, and in (22-d), where the embedded clause is an adjunct.

Similar restrictions on embedded topicalization hold in most Germanic languages, such as Swedish, Danish, and Norwegian (cf., e.g., Platzack (1986), den Besten (1989) and Vikner (1990)).<sup>7</sup>

Crucially, scrambling to IP is not restricted in this way. As shown by the following German data, it is possible in complements of both bridge and non-bridge verbs (cf. (23-ab)), in subject clauses (cf. (23-c)), and in adjunct clauses (cf. (23-d)).

- (23) a. Ich glaube [<sub>CP</sub> daß dem Fritz<sub>i</sub> [<sub>IP</sub> diese Frau t<sub>i</sub> ein Buch  
 I believe that ART Fritz<sub>dat</sub> this woman<sub>nom</sub> a book  
 gegeben hat ]]  
 given has  
 b. Ich bedaure [<sub>CP</sub> daß dem Fritz<sub>i</sub> [<sub>IP</sub> diese Frau t<sub>i</sub> ein Buch  
 I regret that ART Fritz<sub>dat</sub> this woman<sub>nom</sub> a book  
 gegeben hat ]]  
 given has  
 c. Mich hat überrascht [<sub>CP</sub> daß dorthin<sub>i</sub> [<sub>IP</sub> keiner t<sub>i</sub> gehen  
 me<sub>acc</sub> has surprised that there no-one go  
 will ]]  
 wants-to

- d. obwohl den Fritz<sub>i</sub> [IP jeder t<sub>i</sub> mag ]  
 although ART Fritz<sub>acc</sub> everyone likes

As a descriptive generalization, to be derived from independently motivated principles, we may therefore state that embedded topicalization depends on government by the matrix predicate, whereas embedded scrambling does not depend on government from outside.

Summarizing so far, we have seen that there is evidence in abundance which shows that topicalization is not to be analysed as adjunction to IP, i.e., as scrambling – these two movement types clearly differ with respect to many properties, and must be formally kept apart.

### 3. Topicalization is not movement to SpecC

The properties of topicalization discussed in the previous section directly support the hypothesis that this movement type lands in a specifier position; recall, for instance, the evidence concerning (lack of) iterability, the fact that topicalization may apply long-distance, in successive-cyclic fashion, and the tendency of topicalization to trigger head movement. Thus, the null hypothesis clearly is that topicalization is to be analysed as (involving) *wh*-movement, as has indeed been proposed by Chomsky (1977) and many others.<sup>8</sup> In what follows, I will examine, and reject, this hypothesis.

#### 3.1. Complementizers

First note that an embedded topic can never occur with a complementizer to its right in the Germanic languages. This is shown for English in (24) (cf. Rochemont (1989) and Lasnik & Saito (1989; 1992), among others).<sup>9</sup>

- (24) a. ?Bill says [CP John<sub>i</sub> [IP Mary doesn't like t<sub>i</sub> ]]  
 b. \*Bill says [CP John<sub>i</sub> that [IP Mary doesn't like t<sub>i</sub> ]]

As observed by Grewendorf (1988: 243ff) and Brandt, Reis, Rosengren & Zimmermann (1992: 8), among others, the same restriction holds in German (note again that topicalization in German has induced V/2 movement, in contrast to (24-a) in English):

- (25) a. Ich glaube [CP den Fritz<sub>i</sub> hat [IP sie t<sub>i</sub> gesehen ]]  
 I believe ART Fritz<sub>acc</sub> has she<sub>nom</sub> seen  
 b. \*Ich glaube [CP den Fritz<sub>i</sub> daß [IP sie t<sub>i</sub> gesehen hat ]]  
 I believe ART Fritz<sub>acc</sub> that she<sub>nom</sub> seen has

Similarly, constructions analogous to (24-b) and (25-b) are ruled out in Dutch, cf. Weerman (1989: 64ff).

On the other hand, a complementizer may show up (in fact, strongly tends to show up, cf. note 9) to the left of an embedded topic in English; compare (26) with (24-b).

(26) Bill says [<sub>CP</sub> that John<sub>i</sub> [<sub>IP</sub> Mary doesn't like t<sub>i</sub> ]]

Similarly, embedded topics may co-occur with a complementizer to their left in most other Germanic languages (cf., for instance, the Yiddish and Norwegian data (13) and (14)), but not in German (for reasons to which I will turn later). In conclusion, if a topic and a complementizer may co-occur at all in a language, the complementizer shows up to the left of the topic, and not to the right of it.

This forms a sharp contrast to *wh*-phrases. In languages where the Doubly Filled COMP Filter does not hold, i.e., where a *wh*-phrase and a complementizer may co-occur at all, the complementizer has to be located to the right of the *wh*-phrase, and not to the left of it. This is shown for German in (27).<sup>10</sup>

(27) a. Ich weiß nicht [<sub>CP</sub> wen<sub>i</sub> daß [<sub>IP</sub> du t<sub>i</sub> gesehen hast ]]  
 I know not who<sub>acc</sub> that you seen have  
 b. \*Ich weiß nicht [<sub>CP</sub> daß wen<sub>i</sub> [<sub>IP</sub> du t<sub>i</sub> gesehen hast ]]  
 I know not that who<sub>acc</sub> you seen have

These data indicate that the landing site of topicalization differs from the landing site of *wh*-movement – whereas *wh*-movement ends up in the specifier of a C position which may in principle be filled by a lexical complementizer, topicalization ends up in a position to the right of a C node (or a complementizer). Given the result arrived at in the last section, viz., that topicalization has the characteristic properties of movement to a specifier position, we may now draw the preliminary conclusion that there exists a specifier position, hence another maximal projection, between C' and IP, which is the landing site for topicalization in the Germanic languages. This view is corroborated if one takes into account the interaction of V/2, topicalization, and *wh*-movement.

### 3.2. V/2 movement

As shown by (25-a), repeated here as (28-a), embedded topics obligatorily co-occur with V/2 in German (compare (28-b)):

(28) a. Ich glaube [<sub>CP</sub> den Fritz<sub>i</sub> hat [<sub>IP</sub> sie t<sub>i</sub> gesehen ]]  
 I believe ART Fritz<sub>acc</sub> has she<sub>nom</sub> seen  
 b. \*Ich glaube [<sub>CP</sub> den Fritz<sub>i</sub> [<sub>IP</sub> sie t<sub>i</sub> gesehen hat ]]  
 I believe ART Fritz<sub>acc</sub> she<sub>nom</sub> seen has

However, as noted by Haider (1984: 91ff), Reis (1985a: 293ff), and Grewendorf (1988: 205ff), embedded *wh*-phrases never co-occur with V/2 in German (although they can co-occur with a complementizer, cf. (27-a)):

- (29) a. \*Ich sagte ihm [CP wen<sub>i</sub> hat [IP sie t<sub>i</sub> gesehen ]]  
 I said him<sub>dat</sub> who<sub>acc</sub> has she<sub>nom</sub> seen  
 b. Ich sagte ihm [CP wen [IP sie t<sub>i</sub> gesehen hat ]]  
 I said him<sub>dat</sub> who<sub>acc</sub> she<sub>nom</sub> seen has

The same contrast exists in Yiddish (cf. den Besten (1989: 163)):

- (30) a. \*Ikh veys nit [CP vuhin<sub>i</sub> geyt [IP ir t<sub>i</sub> ]]  
 I know not where go you<sub>plur</sub>  
 b. Ikh veys nit [CP vuhin<sub>i</sub> [IP ir geyt t<sub>i</sub> ]]  
 I know not where you<sub>plur</sub> go

Similarly, *wh*-phrases in embedded clauses never trigger Subject-Aux Inversion (i.e., V/2 movement) in English, unlike negative items (recall the examples in (16)); cf. Rizzi (1991). This is shown in (31).

- (31) a. \*I don't know [CP what<sub>i</sub> is [IP Mary doing t<sub>i</sub> ]]  
 b. I don't know [CP what<sub>i</sub> C [IP Mary is doing t<sub>i</sub> ]]

Taken together, the evidence discussed so far indicates that *wh*-phrases are "C-oriented," whereas topics are "V-oriented," in a sense to be made precise. Given the conclusion arrived at in the last subsection, viz., that (embedded) topicalization lands in a specifier position of an XP which intervenes between CP and IP, we may now conclude that this intermediate projection differs from CP in that it has *verbal* features – the head position of this projection acts as the landing site of V/2 movement. Before I sketch the approach to this intermediate projection developed in Müller & Sternefeld (1990; 1993), however, I will first present more evidence to the effect that topicalization and *wh*-movement must be kept apart.

### 3.3. Long-distance topicalization, topic islands, and *wh*-islands

In general, it seems to be the case that topic islands, i.e., islands created by topicalization, are much stricter than *wh*-islands in the Germanic languages. This is shown for German in (32).

- (32) a. \*Radios<sub>i</sub> glaube ich [CP gestern<sub>j</sub> hat [IP Fritz t<sub>j</sub> t<sub>i</sub> repariert ]]  
 radios<sub>acc</sub> believe I yesterday has Fritz fixed

- b. ??Radios<sub>i</sub> weiß ich nicht [CP wie<sub>j</sub> (daß) [IP man t<sub>j</sub> t<sub>i</sub> repariert ]]  
 radios<sub>acc</sub> know I not how that one fixes

In (32-a), an adjunct (*gestern* ('yesterday')) is topicalized in the embedded clause. This embedded topicalization strictly blocks long-distance topicalization of a [-wh] direct object. The resulting example is much worse than one would expect if only a typical (weak) Subjacency violation were involved. In particular, it is much worse than (32-b), where long-distance topicalization of a direct object applies from a *wh*-island. In this case, the resulting sentence is not particularly bad in German (as was first noted by Fanselow (1987: 56ff)).

At first sight, it looks as though Rizzi's (1990) theory of Relativized Minimality might be successfully invoked, in order to account for the contrast between (32-a) and (32-b). According to Relativized Minimality, X-movement may not skip an intervening X-position. Applying this theory to the case at hand, one might try to distinguish not only between head movement, A-movement, and A-bar movement (as is done by Rizzi), but also between topicalization and *wh*-movement, for the purposes of Relativized Minimality (see chapter 1). Under this assumption, (32-a) (involving topicalization across an intervening topic) violates Relativized Minimality, whereas (32-b) (with topicalization across an intervening *wh*-element) does not. However, it seems that such an approach is not viable. For one thing, in (32-a), a direct object is moved; but direct objects are generally exempt from Relativized Minimality effects, according to Rizzi (1990).

Furthermore, relativization in German behaves exactly like topicalization with respect to topic islands and *wh*-islands; i.e., topic islands are strict (cf. (33-a)), whereas *wh*-islands are rather weak, in comparison (cf. (33-b)).

- (33) a. \*die Radios die<sub>i</sub> ich glaube [CP gestern hat [IP Fritz t<sub>i</sub>  
 the radios which I believe yesterday has Fritz  
 repariert ]]  
 fixed
- b. ??die Radios die<sub>i</sub> ich nicht weiß [CP wie (daß) [IP man t<sub>i</sub>  
 the radios which I not know how that one  
 repariert ]]  
 fixes

Relativization, however, is not in general to be treated on a par with topicalization. (Note, for instance, that relativization never induces verb raising in German.) Therefore, it is unclear why (33-a) should involve a violation of Relativized Minimality.

Finally, and perhaps most importantly, a Relativized Minimality approach predicts that, if long-distance topicalization is bad across a topic island, and much better across a *wh*-island, the opposite should be the case with *wh*-

movement – it should be bad across a *wh*-island, and much better across a topic island. We will see in the following section that this prediction is not borne out.

### 3.4. Long-distance *wh*-movement, topic islands, and *wh*-islands

It appears that in most Germanic languages, topic islands are strict not only for topicalization, but also for *wh*-movement, in contrast to what one would expect under an approach in terms of (a revised version of) Relativized Minimality. This is shown for German in (34-a) (cf. also (7-a)). Interestingly, as shown in (34-b), *wh*-extraction of a direct object from a *wh*-island is also fairly impossible (cf. Müller (1989: 217) and Bayer (1990: 22ff)), in contrast to what we have seen to be the case with topicalization and relativization, as in (32-b) and (33-b).

- (34) a. \*Was<sub>i</sub> glaubst du [CP gestern<sub>j</sub> hat [IP Fritz t<sub>j</sub> t<sub>i</sub> repariert ]] ?  
           what<sub>acc</sub> believe you yesterday has Fritz fixed
- b. ?\*Welches Radio<sub>i</sub> weißt du nicht [CP wie<sub>j</sub> (daß) [IP man t<sub>j</sub> t<sub>i</sub>  
           which radio<sub>acc</sub> know you not how that one  
           repariert ]] ?  
           fixes

Again, it also seems to be true for other languages that *wh*-movement from a (finite) *wh*-island gives results which are worse than a weak Subjacency effect, as it appears to occur with topicalization or relativization (of objects) from *wh*-islands. Thus, by and large, *wh*-extractions from *wh*-islands in English are tolerable only if the island is created by a *wh*-infinitive, and fairly bad if extraction takes place from a finite *wh*-clause (cf. Chomsky (1986), Frampton (1990), and chapter 2 above). Something similar appears to be the case even in Italian, where *wh*-islands have been argued to be less strict – here, relativization or topicalization of an object from a *wh*-island is fine, whereas *wh*-movement of an object from such an island is illicit (cf. Rizzi (1982)).

Summarizing, if we combine the evidence from the previous section, and the evidence to be gained from (34), we end up with two further asymmetries between topicalization and *wh*-movement. First, topic islands are stricter than *wh*-islands (for topicalization and relativization); and second, *wh*-movement is “more sensitive” to a (finite) *wh*-island than topicalization is.

In conclusion, we have seen that there is good reason not to analyse topicalization as movement to SpecC, i.e., as *wh*-movement. Rather, it seems that it is best described as an A-bar movement type, the landing site of which is the specifier of a functional projection which intervenes between CP and IP. The head of this functional projection is verbal in nature, and acts as the land-

ing site of verb movement in the Germanic V/2 languages. I will now outline the theory of topicalization developed in Müller & Sternefeld (1990; 1993) in order to account for the asymmetries between topicalization and other types of A-bar movement, in particular scrambling and *wh*-movement, as they have emerged in the preceding two sections.

## 4. Topicalization is movement to SpecT

### 4.1. The proposal

In Müller & Sternefeld (1990; 1993), it is proposed that topicalization is neither movement to SpecC nor adjunction to IP, but movement into the specifier of a functional projection which intervenes between CP and IP, viz., TP, with T being the landing site of V/2 movement. The structure of CP in the Germanic languages, under this view, looks as in (35).

(35) [CP (wh-XP) [C' C [TP (topic-XP) [T' [T (V/2) ] [IP ... ]]]]]

Typical instances of embedded topicalization in the Germanic languages, with both C being filled by a complementizer, and T being filled by V/2 movement, then look as in (36-a) in English (= (16-a)), or (36-b) in Danish (cf. Vikner (1990)).

(36) a. I think [CP SpecC [C that ] [TP in no case<sub>i</sub> [T will ] [IP he give up t<sub>i</sub> ]]]  
 b. Hun sagde [CP SpecC [C at ] [TP vi<sub>i</sub> [T skulle ] [IP t<sub>i</sub> ikke købe  
 she said that we should not buy  
 denne bog ]]]  
 this book

In effect, the “CP/TP” hypothesis amounts to being a generalization of the “CP recursion” hypothesis, as it has been proposed for embedded topicalization in the Germanic languages by Chomsky (1977), Platzack (1986), den Besten (1989), Vikner (1990), and Authier (1992), among others. According to this classic hypothesis, the embedded clauses in (36) exhibit a CP/CP structure, rather than a CP/TP structure, as assumed here. However, given the arguments in favour of the CP/TP hypothesis that were presented in the preceding two sections, it seems to me that the CP recursion hypothesis has a number of shortcomings.

First, we have seen that it does not suffice to claim that the two clausal functional heads which precede IP in cases like (36-ab) are C nodes, because only the upper functional head can be filled by a complementizer, whereas only the lower functional head is a possible landing site for verb movement in the embedded case. In other words, it looks as though C is inherently

“nominal,” whereas T is inherently “verbal,” and there does not appear to be a straightforward way to account for this under the assumption that the two heads belong to one and the same kind of category (viz., C). In line with this, it is unclear under a CP recursion approach why *wh*-phrases always end up in the upper specifier, and topics only in the lower. Since both specifiers bear identical features from the start (being specifiers of C nodes), there is no obvious way to distinguish between the landing site of *wh*-movement and the landing site of topicalization, in contrast to what is the case with the CP/TP approach, as we will see later.

Second, proponents of the CP recursion hypothesis have (more or less) unanimously assumed that CP recursion occurs only if it is needed, i.e., only in the case of embedded topicalization in the presence of a lexical complementizer, as in (36-ab). However, as is well known, this substantially complicates matters of selection – now, one has to assume that C optionally selects CP or IP. In contrast, under the approach advocated here, Germanic phrase structure is strictly homogeneous; it always contains a CP which embeds a TP, whether topicalization occurs or not. Selection, therefore, is as simple as possible – C selects TP, and T selects IP, with no variation or optionality involved.

Furthermore, it proves difficult to formulate *restrictions* on CP recursion, such as the fact that it appears to be confined to bridge contexts. Authier (1992) and Kroch & Iatridou (1992) suggest that CP recursion is possible only if C is governed; but such a condition is both empirically and conceptually problematic. It is empirically problematic because, as we have seen, what is dependent on bridge contexts is not “CP recursion,” (i.e., the co-occurrence of a complementizer and an embedded topic), but rather, embedded topicalization itself. Recall from section 2.6 (examples (20-abcd)) that embedded topicalization in German occurs in more or less exactly the same contexts as embedded topicalization in English, but does not exhibit “CP recursion” (in the sense that a complementizer and a topic co-occur). Moreover, the statement that CP recursion is possible only if C is governed is conceptually problematic because one does not see why exactly this condition should hold. However, we will later see that the “context-dependency” of embedded topicalization receives a natural explanation on the basis of the CP/TP hypothesis.

For these reasons, I believe that the CP/TP hypothesis adopted here shares all of the advantages of the CP recursion theory of embedded topicalization, but evades some of its shortcomings.<sup>11</sup> That said, let us directly consider an empirical consequence of the assumption that topicalization and *wh*-movement end up in different types of positions.

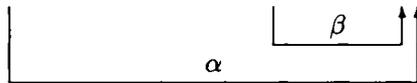
### 4.2. The non-existence of *wh*-topicalization

It has been noted by Lasnik & Uriagereka (1988: 156), Lasnik & Saito (1989: 30; 1992: 103f), Rizzi (1991: 9), and Epstein (1992: 247f), among others, that *wh*-phrases cannot undergo topicalization in multiple questions in English. Thus, compare (37-a) with (37-b).

- (37) a. Who<sub>i</sub> t<sub>i</sub> said [<sub>CP</sub> that John likes who<sub>j</sub> ] ?
- b. \*Who<sub>i</sub> t<sub>i</sub> said [<sub>CP</sub> that who<sub>j</sub> John likes t<sub>j</sub> ] ?

A well-formed sentence like (37-a), with a *wh*-phrase in situ in the embedded clause, can be interpreted as a multiple question; i.e., the in-situ *wh*-phrase *who* undergoes long-distance movement to the matrix SpecC position at LF, which is possible given that the Subjacency condition does not hold at LF, so that LF movement of the object *who<sub>j</sub>* may take place in one swoop (an intermediate trace of LF movement of *who<sub>j</sub>* would not be properly governed, and would also be undeletable; cf. chapter 5). However, S-structural topicalization of the *wh*-phrase in the embedded clause, as in (37-b), gives rise to ungrammaticality. This fact is explained by the PUB, given two straightforward assumptions. First, the PUB applies at S-structure and at LF in English, as it does in German (cf. chapter 3). And second, and most importantly, the landing site of *wh*-movement (at LF) is different from the landing site of topicalization; more precisely, *wh*-movement is movement to SpecC (adjunction to SpecC in the case *wh*-movement at LF, as it applies in (37)), whereas topicalization is movement to SpecT, as argued for in the previous section. With these assumptions in mind, consider (38), which is the (relevant part of the) structure of (37-b) after LF movement of the embedded *wh*-phrase from the embedded topic position to the matrix SpecC position.

- (38) \* [<sub>CP</sub> [<sub>SpecC</sub> ... who<sub>j</sub> ] C ... [<sub>CP</sub> - C [<sub>TP</sub> t'<sub>j</sub> T [<sub>IP</sub> ... t<sub>j</sub> ... ]]] ]



As indicated, the variable *t<sub>j</sub>* is now ambiguously bound, from two different types of A-bar positions, viz., the embedded SpecT position (which is occupied by an intermediate trace), and the matrix SpecC-adjoined position (which contains the *wh*-phrase). Hence, the PUB is violated in (38). Incidentally, the prohibition against topicalization of *wh*-phrases in English is now analysed in more or less the same way as the prohibition against scrambling of *wh*-phrases in German. Both times, LF movement of the *wh*-phrase to SpecC induces ambiguous binding, and thus leads to a PUB violation.

Now, given that movement obligatorily leaves traces, as I have assumed throughout, it seems that (37-b) can also be ruled out by the ECP, given the

theory of *wh*-movement at LF developed in chapter 5. After LF movement as in (38), the intermediate trace  $t_j$  is not properly governed by its chain antecedent, due to the presence of an IP barrier in the matrix clause. Thus, it seems that the PUB, although it makes the correct prediction for (37-b), does not have to be invoked after all in order to rule out *wh*-topicalization in multiple questions.

One might try to counter this objection as follows. First, it is worth noting that the PUB rules out (37-b) irrespective of whether or not one adopts the approach to *wh*-movement at LF developed in the last chapter. And second, it is a fact that topicalization of *wh*-phrases in multiple questions is also impossible in German, as shown in (39-a) vs. (39-b).

- (39) a. Wer<sub>i</sub> glaubt  $t_i$  [<sub>CP</sub> Fritz habe wen<sub>j</sub> gesehen ] ?  
           who believes                 Fritz has<sub>subj</sub> who<sub>acc</sub> seen
- b. \*Wer<sub>i</sub> glaubt  $t_i$  [<sub>CP</sub> [<sub>TP</sub> wen<sub>j</sub> habe Fritz  $t_j$  gesehen ] ] ?  
           who believes                                 who<sub>acc</sub> has<sub>subj</sub> Fritz     seen

But, as argued in chapter 5, IP is not a barrier in *wh*-clauses at LF in German. Hence, the deviance of (39-b) cannot be due to the ECP, but would follow from the PUB – after LF movement of the embedded *wh*-phrase in (39-b), the initial trace  $t_j$  is ambiguously bound, by an intermediate trace  $t'_j$  in the embedded SpecT position, and by the *wh*-phrase *wen* in the matrix SpecC-adjoined position.

So far, so good. Unfortunately, however, there is a more urgent problem with the PUB-related account of the ban against topicalization of *wh*-phrases, to my mind. As noted in chapter 3 and chapter 5, PUB effects which arise only at LF in general tend to be somewhat weaker, and more variable, than PUB effects which arise at S-structure. Thus, operator scrambling in German gives rise only to relatively mild deviance; a typical example is (40-a) (cf. chapter 3, section 5). Similarly, successive-cyclic LF movement of a *wh*-adjunct in German (which results in ambiguous binding, from a SpecC position and a SpecC-adjoined position, cf. chapter 5, section 5.2) is not strongly ungrammatical; a relevant example is (40-b).

- (40) a. ??Wie haben [<sub>IP</sub> was<sub>i</sub> [<sub>IP</sub> die Neubauten  $t_i$  gespielt ] ] ?  
           how have            what     the new buildings     played
- b. ??Wann<sub>i</sub> hat sie  $t_i$  gesagt [<sub>CP</sub> daß sie ihn weshalb<sub>j</sub> geküßt hat ] ] ?  
           when has she said            that she him why     kissed has

Sentences like (37-b) in English and (39-b) in German are strongly ungrammatical, though. Therefore, the conclusion must be drawn that an explanation in terms of a PUB violation at LF is not fully satisfactory.<sup>12</sup> And indeed, I will show in section 5 that topicalization of *wh*-phrases (unlike scrambling of

*wh*-phrases, or successive-cyclic LF movement of *wh*-phrases) violates a strict S-structural condition (viz., the Specifier Criterion), in addition to the PUB at LF.

### 4.3. Successive-cyclic topicalization

Thus far, we have seen that there is reason to assume that the landing site of topicalization is different from the landing sites of both scrambling and *wh*-movement; it was suggested that this landing site is SpecT, an A-bar specifier which agrees with T, the landing site of V/2 movement. The question now is, How does this approach help to solve the problem for the PUB that came up with the very existence of long-distance topicalization; recall the discussion of (1). Given the CP/TP hypothesis, the only successive-cyclic derivation of (1) that is compatible with the unambiguous binding requirement looks as in (41).

- (41) John said that [<sub>TP</sub> this book<sub>i</sub> T [<sub>IP</sub> he thought [<sub>CP</sub> – (that) [<sub>TP</sub> t'<sub>i</sub> T [<sub>IP</sub> you would like t<sub>i</sub> ]]]]]]

Here, t<sub>i</sub> is unambiguously bound, by the intermediate trace t'<sub>i</sub> in the embedded SpecT position, and by the topic *this book* itself, which occupies the matrix SpecT position. Thus, at first sight it looks as though the problem with (1) has disappeared. Such a conclusion would be premature, though. Recall from chapter 2 and chapter 3 that CP is a barrier for any element which does not occupy SpecC; this assumption has proven necessary in order to account for (a) *wh*-islands; (b) the clause-boundedness of scrambling in German; (c) the strict Freezing effect which arises after movement to SpecC; (d) the PRO theorem; and so forth. But then, (41) should exhibit a Subjacency violation, because *this book* and t'<sub>i</sub> are separated by a CP barrier. Furthermore, successive-cyclic long-distance topicalization of adjuncts should always result in an ECP violation, contrary to fact.

The problem is solved in Müller & Sternefeld (1990; 1993) as follows. Elaborating on ideas put forward by Haider (1988), it is suggested that CP and TP in sentences like (41) can be “identified” – they “match” (in Haider’s terminology), and, for certain purposes, behave just like a single XP.<sup>13</sup> Matching, then, is defined as in (42).

- (42) *Matching:*  
Two functional XPs match iff one immediately dominates the other, and at least one specifier position of these projections is empty.

Furthermore, it is assumed that movement into the specifier of an XP of a matching projection has the same effect as adjunction – the barrierhood of one XP of a matching projection can always be undone by moving into any of its

specifiers. Then, the embedded CP in (41) ceases to be a barrier for  $t'_i$  – here, only one specifier of the embedded CP/TP system is filled, so that matching is possible, and long-distance topicalization becomes legitimate. Note that if both specifiers of the CP/TP system in the embedded clause were filled (by either overt XPs, or their traces), CP and TP would fail to match, and CP would turn into a barrier. This will become relevant later, in the discussion of topic islands (in section 9).

## 5. The Specifier Criterion

The CP/TP distinction per se does not yet explain the asymmetries between topicalization and other movement types, as presented in sections 2 and 3 above. However, it paves the way for an explanation of these data, if it is accompanied by a theory of licensing of specifiers and heads of CP and TP. In what follows, I will outline the basic assumptions concerning SpecC, SpecT, C, and T, in the framework of Müller & Sternefeld (1990; 1993). First, note that C and T are, from a functional point of view, competing heads; both might be regarded as “complementizers” of a clause in the sense that they precede IP. However, CP is a potentially “nominal” category (cf. Kayne (1984)), whereas TP is inherently “verbal” (cf. Stechow & Sternefeld (1988: sec. 11.7)). A natural assumption then is that a clause cannot be both nominal and verbal at the same time; therefore, one of the two clausal functional heads must be “activated” or “designated,” and the other must remain “inactivated” or “inert.” This can be stated as in (43).

(43) *Uniqueness of the Designated Head:*

Exactly one of the two functional heads C and T is the designated head of CP. CP is “nominal” if C is the designated head, and CP is “verbal” if T is the designated head.

The question arises of whether or not determination of the designated head of CP is free, i.e., whether either functional clausal head can be selected as the designated head. In Müller & Sternefeld (1990; 1993), it is argued that this is not the case. There, it is assumed that, if nothing else is said, C is the designated head of a clause, by default. This implies that, normally, the clausal system is “nominal;” it may become “verbal” only via a specific procedure of T licensing, to which I will turn in section 6 below.

We have seen above that the empirical evidence suggests that topicalization is “V-oriented,” and *wh*-movement (in the embedded case), “C-oriented.” These relations are spelled out more formally in condition (44), the *Specifier Criterion*.

(44) *Specifier Criterion:*

A [ $\pm wh$ ]-phrase in (A-bar) SpecX must agree with an appropriate designated head X, where C is appropriate for [ $+wh$ ] phrases, and T is appropriate for [ $-wh$ ] phrases (“topics”).

Condition (44) can be viewed as a generalization of the *Wh*-Criterion developed by May (1985), Koster (1987), Noonan (1989), and Rizzi (1989; 1991), among others; it differs from these proposals in that it does not only cover *wh*-phrases, but also topics, and incorporates the insight that these processes differ in the nature of the landing site (although they both involve movement to an A-bar specifier).

Certain distributional properties of *wh*-phrases and topics can be derived from (44). First notice that it now follows that topics can never occur in SpecC; cf. the English example (24-b) and the German example (25-b), repeated here as (45-a) and (45-b), respectively.

- (45) a. \*Bill says [<sub>CP</sub> John<sub>i</sub> that [<sub>TP</sub> [<sub>IP</sub> Mary doesn't like t<sub>i</sub> ]]]  
 b. \*Ich glaube [<sub>CP</sub> den Fritz<sub>i</sub> [<sub>C</sub> daß ] [<sub>TP</sub> [<sub>IP</sub> sie t<sub>i</sub> gesehen  
 I believe ART Fritz<sub>acc</sub> that she<sub>nom</sub> seen  
 hat ]]]  
 has

If the topic precedes the TP, as in (45-ab), the only a priori possible derivation involves movement to SpecC, as depicted. (Recall from chapter 3 that adjunction to CP is not an option in English or German.) In SpecC, however, the topic violates the Specifier Criterion, because it does not agree with T, but rather with C.

Second, it follows from (44) that *wh*-phrases can never be moved into the SpecT position – in this position, they obviously do not agree with C, but with T. This partially accounts for the fact that the presence of a *wh*-phrase in a simple embedded question is not compatible with embedded V/2 movement, as was shown in (29-a) for German, and in (31-a) for English. If the structure of these examples is as in (46-ab), the Specifier Criterion is violated.

- (46) a. \*Ich sagte ihm [<sub>CP</sub> [<sub>TP</sub> wen<sub>i</sub> [<sub>T</sub> hat ]<sub>j</sub> [<sub>IP</sub> sie t<sub>i</sub> gesehen t<sub>j</sub> ]]]  
 I said him<sub>dat</sub> who<sub>acc</sub> has she<sub>nom</sub> seen  
 b. \*I don't know [<sub>CP</sub> [<sub>TP</sub> what<sub>i</sub> [<sub>T</sub> is ] [<sub>IP</sub> Mary t<sub>j</sub> doing t<sub>i</sub> ]]]

Here, the *wh*-phrases show up in SpecT, and agree with T; but, according to (44), if a *wh*-phrase is located in an A-bar specifier position, it must agree with C, and not with T.

Note that basically the same considerations apply in the case of *wh*-topicalization in multiple questions, as in (37-b) in English, and (39-b) in

German. These examples are repeated with the relevant structure in (47-a) and (47-b), respectively.

- (47) a. \*Who<sub>i</sub> t<sub>i</sub> said [CP that [TP who<sub>j</sub> T John likes t<sub>j</sub> ]] ?  
 b. \*Wer<sub>i</sub> glaubt t<sub>i</sub> [CP [TP wen<sub>j</sub> habe Fritz t<sub>j</sub> gesehen ]] ?  
     who believes                      who<sub>acc</sub> has<sub>subj</sub> Fritz    seen

In section 4.2, I have shown that, after LF movement of the embedded *wh*-phrases to the matrix SpecC position, the PUB is violated in (47-ab). However, I have concluded that this cannot yet be the whole story, because the sentences in (47) are significantly worse than typical PUB violations of LF (as in operator scrambling constructions and cases of successive-cyclic *wh*-movement at LF in German). Now, it is evident that the Specifier Criterion is violated in (47-ab); in both cases, a *wh*-phrase in an A-bar specifier position agrees with T, rather than with C, and strong ungrammaticality arises.

Whereas this reasoning appears to be conclusive with respect to (47-a) in English, where the *wh*-phrase actually follows a lexical complementizer, it is not yet so in the case of (46-ab) and (47-b), because here, alternative derivations are a priori conceivable, where the *wh*-phrase does not actually show up in SpecT, but rather in SpecC. We will later see that these derivations are also excluded, so that the prohibition against *wh*-topicalization is fully derived. Before that, however, let me point out a third consequence of the Specifier Criterion (44). As noted in section 2.3, topicalization blocks clause-bound *wh*-movement (recall the English and German examples in (9) and (10)), whereas scrambling does not (cf. (11)). Given the partition of the left periphery of clauses into CP and TP, examples like (9-a) and (10-a) have the structures in (48-a) and (48-b), respectively.

- (48) a. \*I wonder [CP to whom<sub>i</sub> C [TP that book<sub>j</sub> T [IP he gave t<sub>j</sub> t<sub>i</sub> ]]]  
 b. \*Ich frage mich [CP warum<sub>i</sub> C [TP den Fritz<sub>j</sub> [T hat ] [IP diese  
     I ask REFL    why                      ART Fritz<sub>acc</sub> has    this  
     Frau        t<sub>i</sub> t<sub>j</sub> geküßt ]]]  
     woman<sub>nom</sub>                      kissed

Here, a *wh*-phrase occurs in SpecC, and a topic in SpecT. According to (44), both A-bar specifiers must agree with a *designated* clausal functional head, viz., C and T, respectively. However, by (43), there can be only one designated head per clause. Hence, whatever is chosen as the designated head in the embedded clause in examples like (48-ab), one A-bar specifier ends up without a designated head, and the Specifier Criterion (44) is violated: Either C is the designated head, so that the *wh*-phrase in SpecC fulfills (44), and the topic in SpecT violates this condition; or T is the designated head, so that the topic in SpecT fulfills the Specifier Criterion, and the *wh*-phrase in SpecC

remains without a designated head to agree with, in violation of (44). Thus, the prohibition against a co-occurrence of a *wh*-phrase (in SpecC) and a topic in (SpecT) in a single clause is derived. Notice in passing that, since there is no condition comparable to the Specifier Criterion in the case of scrambling, the co-occurrence of *wh*-movement and scrambling in a single clause is not illegitimate, and sentences like (11-a) in German (which is repeated here as (49)) are correctly predicted to be grammatical – here, C can be the designated head, and the *wh*-phrase does not violate the Specifier Criterion.

- (49) Ich weiß nicht [CP was<sub>i</sub> dem Fritz<sub>j</sub> diese Frau t<sub>j</sub> t<sub>i</sub>  
 I know not what<sub>acc</sub> ART Fritz<sub>acc</sub> this woman<sub>nom</sub>  
 geschenkt hat ]  
 given has

## 6. The distribution of embedded topicalization

Let me now address the issue of embedded topicalization. First recall from section 2.6 that embedded topicalization in most of the Germanic languages is possible only if the embedded clause is in principle transparent for government from outside. In other words, embedded topicalization appears to be confined to bridge contexts, by and large; recall the discussion of (20) in German, and (22) in English. The relevant examples are repeated here (adapted to the CP/TP structure) in (50) and (51), respectively.

- (50) a. Ich glaube [CP [TP den Fritz<sub>i</sub> [T mag ] [IP jeder t<sub>i</sub> ]]]  
 I believe ART Fritz<sub>acc</sub> likes everyone  
 b. \*Ich bedaure [CP [TP den Fritz<sub>i</sub> [T mag ] [IP jeder t<sub>i</sub> ]]]  
 I regret ART Fritz<sub>acc</sub> likes everyone  
 c. \*Mich hat überrascht [CP [TP den Fritz<sub>i</sub> [T mag ] [IP jeder t<sub>i</sub> ]]]  
 me<sub>acc</sub> has surprised ART Fritz<sub>acc</sub> likes everyone  
 d. \*obwohl [TP den Fritz<sub>i</sub> [T mag ] [IP jeder t<sub>i</sub> ]]  
 although ART Fritz<sub>acc</sub> likes everyone
- (51) a. I think [CP that [TP to Tom<sub>i</sub> T [IP Mary gave a book t<sub>i</sub> ]]]  
 b. \*I resent [CP that [TP to Tom<sub>i</sub> T [IP Mary gave a book t<sub>i</sub> ]]]  
 c. \*[CP that [TP to Tom<sub>i</sub> T [IP Mary gave a book t<sub>i</sub> ]]] really surprised me  
 d. \* ... because [TP to Tom<sub>i</sub> T [IP Mary gave a book t<sub>i</sub> ]]]

In Authier (1992) and Kroch & Iatridou (1992), it is assumed that embedded topicalization in English, which most often implies “CP recursion” (in

their framework; i.e., the co-occurrence of a complementizer and an embedded topic) is possible only in governed contexts; something similar has been stated for embedded topicalization in German by Haider (1984) and Grewendorf (1988; 1989), among others. Given the approach to government taken in chapter 2, the matrix verb governs into the embedded CP in (50-a) and (51-a) (because the NP-shell is resolved via abstract noun incorporation), but not in (50-b) and (51-b) (where incorporation is not possible, due to a lexical property of the matrix predicate which is formally definable as a lack of m-selection). Also, government into the embedded clause fails to take place in (50-c) and (51-c), where the NP-shell cannot be resolved via incorporation, either for structural reasons (as argued in chapter 2), or because of a general lack of m-selection by I (as suggested in chapter 4); and the same goes for (50-d) and (51-d), where there are even two barriers present (viz., PP and NP, given the assumptions about the structure of adjunct clauses in chapter 2). Let us now see how the idea that embedded topicalization depends on government by the matrix predicate can be given a more principled explanation, under the present approach.

Given the Specifier Criterion, embedded topicalization always requires a designated T. As noted before, T is inherently verbal; i.e., we may think of a designated T node as an activated verbal category. Now, as is well known, an embedded verbal category usually requires government by an item that determines its *status* (“*status-governs*” it; cf. Bech (1955/57), and Stechow (1984) for extensive discussion), or, in more recent terminology, *assigns verbal Case* to it (cf. Fabb (1984)). Under these assumptions, it follows that embedded topicalization requires a lexically governed T node – a designated T, unlike a designated C, requires government by a matrix predicate. Thus, I will assume condition (52), which may ultimately follow as a theorem from a more articulated theory of status-government (or verbal Case-assignment).

(52) *Licensing Condition for Designated T:*

A designated embedded T node must be governed by a lexical category.

It now follows that (50-bcd) and (51-bcd) are ungrammatical. If T is to be the designated head of CP, it must be governed by the matrix verb. Government from outside, however, is not possible here, so that T cannot be designated. Hence, the embedded topics in these examples, which require a designated T node to agree with, violate the Specifier Criterion (44). In (50-a) and (51-a), on the other hand, T can be governed from outside, and the embedded topics fulfill (44) – they can agree with a designated licensed T node.

Two additional remarks are in order. Note first that this analysis crucially rests on the matching theory introduced in section 4; in (50) and (51), CP and TP match (because only one specifier of the CP/TP system is filled), so that CP is not a barrier for T, and government of T by the matrix predicate

becomes possible; the matching mechanism ensures that the T position is governed as soon as the C position is governed.<sup>14</sup> We will later see (in the discussion of topic island effects in section 9) that non-matching of CP and TP does indeed have damaging consequences on T licensing, even in bridge contexts.

Second, it is worth pointing out that this approach to embedded topicalization does not differentiate between languages where embedded topicalization induces V/2 movement to T (like German), and languages where T remains empty in general (like English, with the proviso made above for negative XPs). Under this view, the presence or absence of a verb in T in embedded topicalization structures does not have any impact on the government requirement of a designated T – it is simply a side effect of the fact that German is, and English is not, a V/2 language. I address this difference in the following two sections.

## 7. C and T in German

Let us start by asking the question, What is the relation between designation and visibility of C and T in a language like German? The simplest answer probably looks like this:

(53) *Visibility Condition for Clausal Functional Heads:*

A clausal functional head (C or T) is designated if and only if it is visible at S-structure.

According to (53), there is a one-to-one correspondence between designation and visibility (or “lexical filling”) of a clausal functional head in German. This implies that in V/2 clauses, where T is filled by verb raising, T is the designated head in German. Similarly, in *daß*-clauses, C is the designated head. The only case where the strict relationship between designation and visibility appears to break down in German concerns embedded *wh*-questions, as in (54).

(54) Ich weiß nicht [<sub>CP</sub> wen<sub>i</sub> C [<sub>TP</sub> T [<sub>IP</sub> du t<sub>i</sub> gesehen hast ]]]  
 I know not who<sub>acc</sub> you seen have

Here, it seems that there is no visible clausal functional head in the embedded clause. However, by the Uniqueness condition (43), every clause must have a designated functional head. Moreover, we know that the *wh*-phrase in the embedded SpecC position in (54) requires a designated C node to agree with. This apparent dilemma disappears as soon as we take into account the fact that a lexical complementizer can indeed optionally be present in embedded *wh*-questions in many varieties of German; recall (27-a), repeated here as (55).

- (55) Ich weiß nicht [CP wen<sub>i</sub> daß [TP [IP du t<sub>i</sub> gesehen hast ]]]  
 I know not who<sub>acc</sub> that you seen have

Thus, let us assume that, at the relevant level (viz., S-structure – cf. the formulation of (53)), a complementizer is present not only in (55), but in (54), too; this complementizer is then deleted on the way to PF, by a PF rule like (56).

- (56) *Complementizer Deletion in German (PF):*  
*daß* →  $\phi$ /[+wh]—

The complementizer deletion rule (56) is optional for most speakers of German, and obligatory for some (i.e., in the most formal registers; cf. note 10, and chapter 2). It has the effect of deleting a complementizer *daß* in the context of an immediately preceding *wh*-phrase.

Given that a designated C node counts as visible at S-structure in sentences like (54), condition (53) can be maintained. This condition has some far-reaching consequences. Most importantly, it guarantees that German is a language with “obligatory V/2 movement,” and accounts for what has been called the “complementary distribution” of V/2 and a lexical complementizer in this language.<sup>15</sup> Thus, (53) excludes (matrix or embedded) clauses where both C and T remain empty in German; cf.:

- (57) a. \*[CP C [TP T [IP Das Buch schlecht ist ]]]  
           the book bad is  
       b. \*Ich glaube [CP C [TP T [IP viele kommen werden ]]]  
           I believe many come will

Either C or T must be designated in (57-ab); the designated head must be visible at S-structure, by (53). PF deletion of a complementizer in C being confined to *wh*-contexts, the examples in (57-ab) cannot have a visible clausal functional head, and therefore violate (53).

Similarly, it follows from (53) that V/2 movement must apply if topicalization occurs in German:

- (58) a. \*[CP C [TP [ Frank Wuttigs Wecker ]<sub>i</sub> T [IP ich t<sub>i</sub> nicht mag ]]]  
           Frank Wuttig’s alarm clock I not like  
       b. \*Ich glaube [CP C [TP den Fritz<sub>i</sub> T [IP viele t<sub>i</sub> mögen ]]]  
           I believe ART Fritz many like

Third, it follows that a complementizer and V/2 movement (i.e., filling of T) may not simultaneously occur in a single clause – in other words, complementizers and V/2 are in “complementary distribution” in German.

- (59) \*Ich glaube [CP daß [TP den Fritz<sub>i</sub> mögen<sub>j</sub> [IP viele t<sub>i</sub> t<sub>j</sub> ]]]  
 I believe that ART Fritz like many

On the one hand, presence of *daß* implies designation of C; on the other hand, presence of the finite verb in T requires designation of T (as does presence of the embedded topic). Hence, (53) is violated in (59).

Along the same lines, it can also be derived that C and T may not simultaneously be filled in sentences like (60), where *wh*-movement (and not topicalization, as in (59)) has applied.

- (60) \*Ich weiß [CP wen<sub>i</sub> daß [TP [T mögen<sub>j</sub> ] [IP viele t<sub>i</sub> t<sub>j</sub> ]]]  
 I know who that like many

Finally, it turns out that the prohibition against V/2 movement in embedded *wh*-clauses in German can be explained on the basis of the Visibility condition (53). I have argued in section 5 that a structure like (46-a), repeated here as (61-a), is excluded by the Specifier Criterion, since the *wh*-phrase is located in SpecT, rather than in SpecC. However, alternative analyses of V/2 in embedded *wh*-clauses, as depicted in (61-bc), must also be ruled out.

- (61) a. \*Ich sagte ihm [CP [TP wen<sub>i</sub> [T hat ]<sub>j</sub> [IP sie t<sub>i</sub> gesehen t<sub>j</sub> ]]]  
 I said him<sub>dat</sub> who<sub>acc</sub> has she<sub>nom</sub> seen  
 b. \*Ich sagte ihm [CP wen<sub>i</sub> [TP hat [IP sie t<sub>i</sub> gesehen ]]]  
 I said him<sub>dat</sub> who has she seen  
 c. \*Ich sagte ihm [CP wen<sub>i</sub> hat<sub>j</sub> [TP t<sub>j</sub> [IP sie t<sub>i</sub> gesehen ]]]  
 I said him<sub>dat</sub> who has she seen

In (61-bc), the *wh*-phrase does not occupy SpecT, but SpecC, as required. However, (61-b) is excluded by the Visibility condition (53). Since V/2 movement to T has applied in (61-b), T is visible and hence must be designated, by (53). The *wh*-phrase in SpecC, on the other hand, requires a designated C node to agree with, due to the Specifier Criterion. Since C and T cannot both be designated (because of the Uniqueness condition (43)), it follows that the occurrence of a *wh*-phrase in an embedded SpecC position and the presence of a finite verb in T are mutually exclusive. But what if verb raising does not stop in T, but rather ends up in the C position, as shown in (61-c)? In this analysis, the *wh*-phrase in SpecC agrees with a C node which we may assume to be designated. Verb movement to C, then, makes the designated C node visible, and a combination of *wh*-in-SpecC and embedded V/2 movement is predicted to be possible after all, contrary to fact. Clearly, what must be prohibited is verb movement to an embedded C position (on C nodes in root clauses, see section 12 below). In order to rule out verb movement to C in embedded clauses, I will assume that an embedded C node is not featureless, and thus resists verb incorporation; cf. Rizzi (1991) and Grimshaw (1994).<sup>16</sup>

Notice that this account of the ban against V/2 movement in embedded *wh*-clauses differs from other analyses of the phenomenon in one important respect. In Haider (1984: 91ff), Müller (1991: 188ff), and Rizzi (1991) it is assumed that V/2 movement in embedded clauses is blocked in the presence of a *wh*-phrase in SpecC due to the presence of *wh*-features in the complementizer system of the embedded clause.<sup>17</sup> However, this assumption appears to be empirically problematic. It has been observed in Stechow & Sternefeld (1988: 393 & 400) that the co-occurrence of a *wh*-phrase in SpecC and embedded V/2 movement is also illegitimate in cases of partial *wh*-movement (cf. Riemsdijk (1983), Stechow & Sternefeld (1988: 350ff), and McDaniel (1989)), as it has been discussed in chapter 3, section 2.1, and chapter 5, section 4.2. Consider the following examples.

- (62) a. Was glaubte sie [<sub>CP</sub> wann<sub>i</sub> (daß) [<sub>TP</sub> T [<sub>IP</sub> er t<sub>i</sub> ins Wirtshaus  
 what believed she when that he into-the pub  
 geht ]]] ?  
 goes
- b. \*Sie glaubte [<sub>CP</sub> wann<sub>i</sub> (daß) [<sub>TP</sub> T [<sub>IP</sub> er t<sub>i</sub> ins Wirtshaus  
 she believed when that he into-the pub  
 geht ]]]  
 goes
- c. \*Was glaubte sie [<sub>CP</sub> wann<sub>i</sub> geht [<sub>IP</sub> er t<sub>i</sub> ins Wirtshaus ]] ?  
 what believed she when goes he into-the pub

(62-a) is a standard example for a sentence involving partial *wh*-movement to the embedded SpecC position in the presence of a scope-marker *was* in the SpecC position of the matrix clause. Optionally (for most speakers), a complementizer *daß* is present in the embedded clause. (62-b) shows that the matrix verb *glauben* ('believe') does not permit an embedded question – this implies that the *wh*-phrase in the embedded SpecC position in (62-a) must be located in the specifier position of a [-*wh*] C node, and not in that of a [+*wh*] C node. With this in mind, consider (62-c). The combination of a partially moved *wh*-phrase in the embedded SpecC position on the one hand, and embedded V/2 movement on the other, leads to strong ungrammaticality. This fact then clearly indicates that *wh*-features in an embedded clause do not play a role in blocking embedded V/2, contrary to what is assumed in Haider (1984), Müller (1991), and Rizzi (1991).

However, under the present assumptions, (62-c) is ruled out in exactly the same way as the example in (61), where a *wh*-phrase occupies the specifier of a [+*wh*] C node. Either, the *wh*-phrase in (62-c) occupies SpecT; then, it violates the Specifier Criterion. Alternatively, it occupies SpecC, but verb movement has stopped in T; then, the *wh*-phrase is located in the "correct" position, but it nevertheless fails to satisfy the Specifier Criterion, because it does not agree

with a *designated* C node (the lexical filling of T indicating designation of this node, according to (53)). Finally, an analysis of (62-c) according to which the *wh*-phrase occupies SpecC, and verb movement (more precisely, movement of T) to C has occurred (as in (61-c)), is ruled out by the fact that embedded C nodes are not featureless, and therefore block incorporation. Thus, since there is no well-formed derivation in (62), the sentence with partial *wh*-movement and embedded V/2 is ungrammatical, just like the sentence in (61) is.

Summarizing, we have seen that the strict Visibility condition (53) makes the right predictions for a V/2 language like German. Let us now consider English.

## 8. C and T in English

Ideally, the condition(s) governing the relationship between designation and S-structural visibility of a clausal functional head (C or T) in English should differ as little as possible from the Visibility condition in German. Consider first the Visibility requirement for T in English. Evidently, English is not a (strict) V/2 language; in particular, V/2 movement does not occur in embedded clauses with topicalization of non-negative XPs. However, we have seen that topicalization always requires a designated T node, because of the Specifier Criterion. (Recall from section 6 that this assumption has made it possible to account for the distribution of embedded topicalization in English and German in the same way.) Thus, the conclusion to be drawn is that in languages without obligatory V/2, like English, the visibility requirement for T is somewhat weaker, in that it does not force a designated T to be visible. But let us nevertheless assume that there still is a relation between designation and visibility of T in languages like English, namely the following:

(63) *Visibility Condition for T (English):*

A clausal functional head T is designated if it is visible at S-structure.

(63) differs from (53) (with respect to T) in that the bi-conditional formulation in (53) is replaced by a weaker implication. According to (63), there can be instances of designated, invisible T (in the case of embedded topicalization, for instance), but visibility of T always indicates designation – i.e., if V/2 movement has occurred, T must be designated, by (63). This weaker requirement for T in English still suffices to rule out a combination of embedded V/2 movement and *wh*-in-SpecC, just as (53) does in German. Cf. (31-a), which is repeated here with the three a priori possible analyses, in (64) through (66).

(64) \*I don't know [<sub>CP</sub> [<sub>TP</sub> what<sub>i</sub> [<sub>T</sub> is<sub>j</sub> ] ] [<sub>IP</sub> Mary t<sub>j</sub> doing t<sub>i</sub> ]]

(65) \*I don't know [<sub>CP</sub> what<sub>i</sub> C [<sub>TP</sub> [<sub>T</sub> is<sub>j</sub> ] ] [<sub>IP</sub> Mary t<sub>j</sub> doing t<sub>i</sub> ]]

(66) \*I don't know [<sub>CP</sub> what<sub>i</sub> [<sub>C</sub> is<sub>j</sub> ] [<sub>TP</sub> [<sub>T</sub> t'<sub>j</sub> ] [<sub>IP</sub> Mary t<sub>j</sub> doing t<sub>i</sub> ]]]

As noted before (cf. (46-b)), the Specifier Criterion is violated straightforwardly if *what* occupies SpecT, rather than SpecC, as in (64). (65) also violates the Specifier Criterion, because V/2 movement of the auxiliary *is* to T indicates designation of T, by (63), so that C cannot be the designated clausal head in (65), and the embedded *wh*-phrase does not have a designated head to agree with. Finally, (66) is ruled out because the embedded C node, although not designated, is still not featureless, and blocks verb incorporation.

Let us now turn to the relation between visibility and designation in the case of C in English. Clearly, the null hypothesis is that (53) holds for (finite) C in all Germanic languages. However, it is well known that there are a number of differences between the complementizer systems of German and English. The English complementizer system differs from the German complementizer system in at least three respects. I will address these differences in turn, and show that the null hypothesis (i.e., that C in English is visible at S-structure if and only if it is designated) cannot only be maintained, but even receives additional corroboration.

First, English complementizers can be missing without inducing V/2, unlike what is the case in German. But, as observed by Erteschik-Shir (1973) and Stowell (1981; 1985), this "complementizer drop" phenomenon is confined to bridge environments. Consider the data in (67).

- (67) a. He said [<sub>NP</sub> [<sub>CP</sub> (that) John did it ]]  
 b. He resented [<sub>NP</sub> [<sub>CP</sub> \*(that) John did it ]]  
 c. [<sub>NP</sub> [<sub>CP</sub> \*(That) John did it ]] impressed everyone

In (67-a), the matrix verb has bridge properties. Given the theory of bridge verbs developed in chapter 2, this implies that abstract incorporation of the empty N head into the matrix verb is an option. Abstract incorporation resolves the NP (-shell) barrier, and government of the embedding verb into CP becomes possible. In (67-b), the matrix verb is not a bridge predicate; hence, the embedded CP is not transparent for government from outside; accordingly, complementizer drop is not an option. Finally, (67-c) shows that complementizer drop does not occur in subject clauses; again, we have seen that the NP-shell of subject clauses can never be cracked by noun incorporation, so that subject clauses are not transparent for government.

The task now is to derive the relevance of government transparency for complementizer drop, in the system developed so far. It turns out that this can be achieved without additional stipulations. Note that I have assumed that the relation between designation and visibility is not absolutely strict for T in English (cf. (63)), whereas, by assumption, it is strict for C in this language (i.e., the distribution of C is regulated by (53) in English, as it is in German).

But this implies that only T, and not C can be non-overt (at S-structure), and yet be designated. Therefore, it must be T, rather than C, which is the designated head in the “complementizer drop” configurations in (67-abc) – a designated C node would have to be visible. But a designated T node must be licensed via (status-) government by a higher predicate; recall condition (52). This immediately accounts for the facts in (67). Thus, complementizer drop constructions in English are analysed exactly on a par with embedded V/2 constructions in German (viz., as “designated T” constructions), which seems to be empirically correct in the light of the (near-) identical distribution. The only fundamental difference is that English is not a strict V/2 language, whereas German is.

A second difference between English and German complementizers is that English complementizers are obligatorily deleted in embedded *wh*-clauses in most dialects (cf. Chomsky & Lasnik (1977), who also mention some exceptions), although they must be designated in these contexts (because of the Specifier Criterion); German complementizers are only optionally deleted in these contexts, for many speakers. I take it that there is no deep reason for the obligatoriness of this deletion process in English. The most straightforward and simple way to handle this phenomenon seems to me to assume that, at the relevant level of representation (viz., S-structure), a complementizer is always present in embedded *wh*-questions in English. This complementizer is then obligatorily deleted on the way to PF, by a PF rule of *that*-deletion which looks exactly like the (optional) *daß*-deletion rule assumed above for German (cf. (56)):

- (68) *Complementizer Deletion in English (PF):*  
*that* →  $\phi$ /[+wh]—

Third, and finally, we have seen that English complementizers differ from German complementizers in that they regularly occur in embedded topicalizations (the same goes for Scandinavian and Yiddish complementizers; cf. Vikner (1990) for a detailed overview). I.e., in English (in the case of negative topics), Scandinavian, and Yiddish, there is no “complementary” distribution of complementizers and V/2. However, by my previous assumptions, only one clausal functional head can be designated in embedded topicalizations, and this must be T. Thus, it looks at first sight as though a dilemma arises for (53) in examples like (36-ab) (repeated here in (69)), from English and Danish, respectively.

- (69) a. I think [<sub>CP</sub> SpecC [<sub>C</sub> that ] [<sub>TP</sub> in no case<sub>i</sub> [<sub>T</sub> will ] [<sub>IP</sub> he give up t<sub>i</sub> ]]]

- b. Hun sagde [<sub>CP</sub> SpecC [<sub>C</sub> at ] [<sub>TP</sub> vi<sub>i</sub> [<sub>T</sub> skulle ] [<sub>IP</sub> t<sub>i</sub> ikke købe  
 she said that we should not buy  
 denne bog ]]]  
 this book

Here, C appears to be visible, but it cannot be designated. However, closer inspection suggests that this issue, again, is PF-related, and might be of no major theoretical importance for syntax proper. Rochemont (1989: 147) notes that there are speakers of English for whom a complementizer in embedded topic constructions is not necessary; something similar appears to hold in Norwegian (Taraldsen (1986)), Swedish (Platzack (1986)), and Yiddish (den Besten (1989)), where lexicalization of a designated T is obligatory – in contrast to English, these languages exhibit obligatory V/2 movement. Consequently, it seems to me that the variable and incidental status of the phenomenon at hand is best accounted for by assuming a PF rule of complementizer insertion in cases like (69-ab) which is the counterpart of the complementizer deletion rule in (68). This rule can be formulated for English as follows.

- (70) *Complementizer Insertion (PF):*  
 C → that/\_ topic

The rule depends contextually on the presence of a topic in SpecT; it is obligatory for most speakers of English, and optional for some. Similar rules apply (obligatorily or optionally) in the Scandinavian languages and Yiddish. German, in contrast, does not employ a rule like (70) at all – here, complementizers and V/2 may never co-occur. Notice that under this approach there is no deep reason for the complementary distribution of complementizers and V/2 in German – this property is due only to the fact that the (analogue of the) “peripheral” PF rule (70) is not operative in this language. Indeed, Platzack (1992) argues that the co-occurrence of V/2 and complementizers was permitted in earlier stages of German, in fact until Early New High German. This conclusion may not be unproblematic, since there is the possibility that other factors intervene, and what looks like non-complementary distribution of complementizers and V/2 at first sight might actually be due to, e.g., the fact that earlier varieties of German are not yet strictly verb-final (Marga Reis (p.c.)); but if Platzack’s analysis is tenable, this clearly suggests that the complementary distribution of complementizers and V/2 in German is but a peripheral phenomenon.

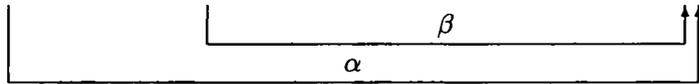
Summarizing the main findings of this section, it has turned out that a unified analysis of embedded topicalization in the Germanic languages does not appear to be out of reach, if we are willing to accept two premises. First, an abstract approach which differentiates between visibility and designation

of clausal functional heads is both possible and conceptually adequate; and second, it is possible to distinguish between “core” properties of the CP/TP system, which are the result of requirements imposed by strict S-structural constraints (with very little cross-linguistic variation involved), and “peripheral” phenomena which are dealt with by PF rules.

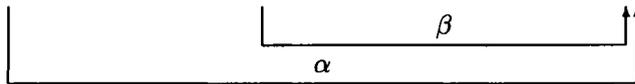
### 9. Topic islands

Given the system developed so far, an explanation of the topic island constraint that holds in the Germanic languages (cf. the remarks in section 2.2 above) is straightforward. Consider first topicalization across a topic island, as in the English example (5-b) or the German example (7-b), which are repeated here as (71-a) and (71-b), respectively.

(71) a. \*That man<sub>i</sub> I know [CP t'<sub>i</sub> that [TP this book<sub>j</sub> T Mary gave t<sub>j</sub> to t<sub>i</sub> ]]



b. \*Den Hans<sub>i</sub> sagte sie [CP t'<sub>i</sub> C [TP Fritz<sub>j</sub> habe<sub>k</sub> [IP t<sub>j</sub> t<sub>i</sub>  
 ART John<sub>acc</sub> said she Fritz<sub>nom</sub> has<sub>subj</sub>



getroffen t<sub>k</sub> ]]]  
 met

If long-distance topicalization from the embedded clause is to apply successive-cyclically, the only escape hatch of the embedded clause is SpecC. The use of this position in the case of topicalization, however, induces a PUB violation, with the topic traces t<sub>i</sub> in (71-ab) being bound ambiguously, from a SpecC and a SpecT position, as depicted. Direct movement in one swoop, on the other hand, would give rise to a strong Subjacency violation (with TP and CP being bounding nodes), which we may assume to be almost indistinguishable from a genuine ECP violation.

But this cannot yet be the whole story. Recall that topic islands are strict not only for long-distance topicalization, but also for long-distance wh-movement; cf., for instance, the English example (5-a) or the German example (7-a), which are repeated here:

(72) a. \*What<sub>i</sub> do you think [CP t'<sub>i</sub> that [TP for Ben's car T [IP Mary will pay t<sub>i</sub> ]]] ?

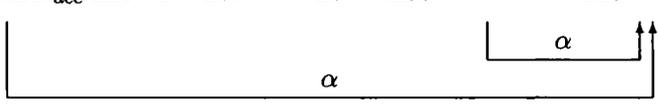
- b. \*Ich weiß wen<sub>i</sub> du sagtest [<sub>CP</sub> t'<sub>i</sub> C [<sub>TP</sub> Fritz<sub>j</sub> habe<sub>k</sub> [<sub>IP</sub> t<sub>j</sub> t<sub>i</sub>  
 I know who<sub>acc</sub> you said Fritz<sub>nom</sub> has<sub>subj</sub>  
 getroffen t<sub>k</sub> ]]]  
 met

In these cases, successive-cyclic movement via the embedded SpecC position does of course not induce a PUB effect. Why, then, are the sentences (72-ab) nonetheless strongly ungrammatical? The answer is provided by the theory of matching of CP and TP outlined in section 4.

Recall that an embedded topic requires a designated T node, and that a designated T node requires (status-) government by the matrix predicate. T government is only possible if CP and TP match – otherwise, CP is a barrier which blocks assignment of verbal Case to T, and the designated T then violates the licensing condition (52). But given the notion of matching in (42), CP and TP do not match in topic island constructions if successive-cyclic movement via SpecC applies; in this case, both SpecC and SpecT are filled (SpecC by an intermediate trace, and SpecT by a topic), so that the two functional projections cannot be identified anymore. In (72-ab) (as in (71-ab)), then, the embedded designated T node is not licensed, because it cannot be governed by the matrix predicate, due to the lack of CP/TP matching. Again, if an intermediate trace is not present in (72-ab), i.e., if movement has occurred in one swoop, we end up with a strong Subjacency violation (with two barriers crossed), which I have assimilated to an ECP effect. Thus, the strict nature of topic islands for both topicalization and *wh*-movement is accounted for – topic islands, ultimately, reduce to a lack of T licensing.<sup>18</sup>

## 10. *Wh*-islands

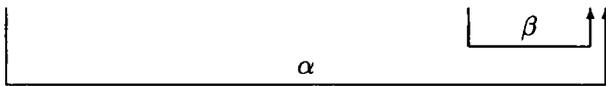
Let me now turn to *wh*-islands. Recall from sections 3.3 and 3.4 that finite *wh*-islands are typically weak for long-distance topicalization, whereas strong ungrammaticality arises with long-distance *wh*-movement. Consider first the case of topicalization. As shown in (32-b) (repeated here as (73)), topicalization of an object across a *wh*-island in German is only mildly deviant:

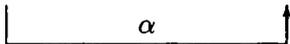
- (73) ??[<sub>CP</sub> [<sub>TP</sub> Radios<sub>i</sub> weiß ich nicht [<sub>CP</sub> wie (daß) [<sub>TP</sub> t'<sub>i</sub> T [<sub>IP</sub> man t<sub>i</sub>  
 radios<sub>acc</sub> know I not how that one  
  
 repariert ]]]]  
 fixes



This intermediate trace  $t'_i$  can be deleted on the way to LF, so that the CP barrier induces a Subjacency effect, but not an ECP violation.

Thus, the relative transparency of finite *wh*-islands for long-distance topicalization of arguments is accounted for. But, as was shown in section 3.4, *wh*-movement across a finite *wh*-island is far worse in German, even if it is an argument that undergoes movement. Basically the same phenomenon seems to occur in other languages, like English (cf. Chomsky (1986)) or Italian (cf. Rizzi (1982)). Consider an example like (34-b), repeated here in two possible derivations:

- (76) a. *\*Welches Radio<sub>i</sub> weißt du nicht [CP wie<sub>j</sub> C [TP t'<sub>i</sub> man t<sub>j</sub> t<sub>i</sub> which radio<sub>acc</sub> know you not how one repariert ] ] ?*  
*fixes*
- 

- b. *\*Welches Radio<sub>i</sub> ... [CP ... [TP ... t<sub>i</sub> ... repariert ] ] ?*
- 

In (76-a), successive-cyclic movement has applied, via the embedded SpecT position (which is the only a priori conceivable escape hatch of the embedded clause). This derivation exhibits only a weak Subjacency effect, but it violates the PUB (at S-structure), as indicated, so that strong ungrammaticality results. In (76-b), on the other hand, one-swoop movement has applied, crossing two barriers (CP and TP), so that a severe Subjacency violation arises.

This analysis accounts for the strong deviance of *wh*-movement of an argument across a finite *wh*-island in German (and other languages). What it does not account for, though, is the fact that, for many speakers, examples like the one in (76) are not quite as bad as typical topic island effects. Also, it seems to me that movement of a *wh*-adjunct, as in (77), is still worse than argument movement in (76).

- (77) *\*Warum<sub>i</sub> weißt du nicht [CP wen<sub>j</sub> C [TP (t'<sub>i</sub>) T [IP er t<sub>i</sub> t<sub>j</sub> getroffen hat ] ] ] ?*  
*why know you not who he met has*

According to the approach to *wh*-islands and long-distance extraction pursued here, (77) should have more or less exactly the same status as (76). At present, I have no convincing solution to offer for this problem; but one should bear in mind that many intervening factors may affect grammaticality judgements in

the case of extraction, and that these judgements are best viewed as relative, not as absolute (see Lasnik & Saito (1992)).<sup>19</sup>

Note finally that under the present assumptions, multiple extraction from a single clause is predicted to be halfway possible under certain circumstances. Consider (78).

- (78) ??Dem Fritz<sub>j</sub> weiß ich nicht [<sub>CP</sub> was<sub>i</sub> [<sub>TP</sub> t'<sub>j</sub> du glaubst [<sub>CP</sub> t'<sub>i</sub> daß  
 ART Fritz<sub>dat</sub> know I not what<sub>acc</sub> you believe that  
 [<sub>TP</sub> t'<sub>j</sub> [<sub>IP</sub> man t<sub>j</sub> t<sub>i</sub> kaufen sollte ]]]]]  
 one buy-for should

Both the topic *dem Fritz* in the matrix SpecT position, and the *wh*-phrase *was* in the embedded SpecC position, originate in the most deeply embedded clause. Between *den Fritz* and t'<sub>j</sub>, a bounding node CP intervenes (due to non-matching of CP and TP), which induces a Subjacency effect; the same goes for the relation between t'<sub>j</sub> and t'<sub>i</sub>. Similarly, the *wh*-phrase *was* is separated from its chain successor t'<sub>i</sub> by a TP barrier; and there is another TP barrier between t'<sub>i</sub> and t<sub>i</sub>. However, no ECP effect, PUB effect, or another strong licensing violation occurs in (78). Therefore, if we make the additional assumption that multiple Subjacency violations do not add up in a sentence (contra Chomsky (1986)), the relative acceptability of (78) follows straightforwardly from the analysis given so far. Consider now (79).

- (79) \*Wem<sub>j</sub> sagte sie [<sub>CP</sub> t'<sub>j</sub> [<sub>TP</sub> ein Buch<sub>i</sub> hätte sie gedacht [<sub>CP</sub> t'<sub>j</sub> daß  
 who<sub>dat</sub> said she a book had she thought that  
 [<sub>TP</sub> t'<sub>i</sub> [<sub>IP</sub> man t<sub>j</sub> t<sub>i</sub> kaufen sollte ]]]]] ?  
 one buy-for should

(79) differs from (78) in that *wh*-movement of *wem* ends up in the highest clause, whereas the topic *ein Buch* is located in an intermediate SpecT position. Therefore, a topic island effect occurs in (79), as in the case of (71) and (72), and multiple extraction is barred.

## 11. Infinitives

Let me return to the issue of *wh*-islands once more. Thus far, I have only been concerned with finite *wh*-islands. As is well known (cf. Chomsky (1986: 36ff) and Frampton (1990), among others), non-finite *wh*-islands are much less strict. The relative transparency of *wh*-infinitives in English is shown in (80).

- (80) a. What<sub>i</sub> did you tell him [<sub>CP</sub> t'<sub>i</sub> [<sub>IP</sub> PRO not to read t<sub>i</sub> ] ] ?  
 b. ??What<sub>i</sub> did you wonder [<sub>CP</sub> [ to whom ]<sub>j</sub> [<sub>IP</sub> PRO to give t<sub>i</sub> t<sub>j</sub> ] ] ?

(80-a) is a standard example for successive-cyclic *wh*-movement from an infinitive in English, via an intermediate SpecC position; interestingly, examples like (80-b), where a non-finite *wh*-island is crossed, have an intermediate status, which we may classify as a typical weak Subjacency violation, as it occurs in argument topicalizations across a finite *wh*-island (recall, for instance, (73) in German). On the other hand, extraction of a *wh*-adjunct is impossible from *wh*-infinitives in English:

(81) \*How<sub>i</sub> did you wonder [<sub>CP</sub> what<sub>j</sub> [<sub>IP</sub> PRO to fix t<sub>j</sub> t<sub>i</sub> ] ] ?

Given this state of affairs, two approaches suggest themselves. On the one hand, one might assume that infinitives are structurally “impoverished,” in the sense that they lack a TP which might act as a barrier and bounding node in (80); on the other hand, it might be possible that TP is present in infinitives, and that fact that (80-b) has an intermediate status, and is not fully ungrammatical, is due to some other reason (than the absence of TP). I will now discuss the consequences of both approaches.

First suppose that infinitives in general lack a TP. This is not a priori implausible, and corresponds more or less to what I have assumed in chapter 2, as regards NP-shells; recall that (successive-cyclic) extraction from object infinitives does not appear to be constrained by lexical variation, and that subject infinitives are not islands in German either – this was accounted for by assuming that infinitives lack an NP-shell. Now, if TP is not present in the embedded infinitive in (80) and (81), the *wh*-argument in (80) crosses only one bounding node (viz., CP), and a weak Subjacency effect arises, in accordance with the actual status of the example. In (81), on the other hand, crossing of one CP barrier suffices to give rise to a strong ECP effect. Thus, the data in (80) and (81) are straightforwardly explained if TP is not present in infinitives.

Another potential argument in support of this assumption is based on the impossibility of topicalization in infinitives. As observed by Hooper & Thompson (1973: 458), topicalization in English infinitives is strongly ungrammatical; cf. the contrast between (82-a) (without topicalization) and (82-b) (with topicalization):

- (82) a. My friends tend [<sub>CP</sub> [<sub>IP</sub> PRO to support [ the more liberal candidates ] ] ]  
 b. \*My friends tend [<sub>CP</sub> [ the more liberal candidates ]<sub>i</sub> [<sub>IP</sub> PRO to support t<sub>i</sub> ] ]

The non-existence of embedded topicalization in infinitives does of course follow if there is no TP, hence no landing site (SpecT) for this movement type in the first place. On the other hand, if a TP is present in infinitives, it seems that, if nothing else is said, we should indeed expect embedded topicalization

to be possible, given that (a) infinitives are always transparent for government by the embedding predicate (so that a designated T node could receive verbal Case), and (b) non-V/2 languages like English permit a designated T node to be “invisible,” i.e., not lexically filled (cf. the Visibility condition (63)).

Thus, there is some evidence that a TP does not occur in infinitivals. Let us nevertheless now pursue the second alternative, which is based on the assumption that the CP/TP structure occurs in both finite and non-finite clauses. A first argument for this hypothesis is conceptual in nature. Clearly, subcategorization is simplified if C uniformly selects TP (and not TP or IP, depending on whether the clause is finite or not). Furthermore, consider the case of long-distance topicalization from infinitives. As is shown in (83-ab), topicalization behaves exactly like *wh*-movement in this respect.

- (83) a. [TP This book<sub>i</sub> I told you [CP t'<sub>i</sub> [IP PRO not to read t<sub>i</sub> ]]]  
 b. ??[TP This book<sub>i</sub> I told you [CP when [IP PRO to read t<sub>i</sub> ]]]

(83-b) indicates that, in the presence of a *wh*-phrase in the SpecC position of the infinitive, long-distance topicalization in English induces a mild Subjacency violation, roughly on a par with that in (80-b). By the same reasoning, (83-a) then strongly suggests that long-distance topicalization from infinitives may apply successive-cyclically, as indicated. However, if TP is not present in the embedded infinitive in (83-a), the only escape hatch is SpecC, and we would therefore expect a PUB violation in (83-a), contrary to fact.

Indeed, further support for the idea that long-distance topicalization from infinitives may apply successive-cyclically can be gained by considering the free word order (i.e., scrambling) language German. Consider the contrast in (84).

- (84) a. [TP Dieses Buch<sub>i</sub> hat keiner [CP t'<sub>i</sub> [IP t<sub>i</sub> zu lesen.] ] abgelehnt ]  
           this book has no-one to read rejected  
 b. \*daß [IP dieses Buch<sub>i</sub> [IP keiner [CP (t'<sub>i</sub>) [IP t<sub>i</sub> zu lesen ] ] abgelehnt  
           that this book no-one to read rejected  
           hat ]]  
           has

(84-a) instantiates a case of topicalization from an infinitive, which is grammatical. Long-distance scrambling from the “incoherent” infinitive in (84-b), in contrast, is impossible (for most speakers). (As noted before, I have nothing to say about the nature of “coherent” or “transparent” infinitives which permit long-distance scrambling in German.) Given the analysis presented in chapter 3, examples like (84-b) are ruled out by a conspiracy of the PUB and the ECP – an intermediate trace in the escape hatch of the embedded clause (which is a specifier position) induces a PUB violation, and an intermediate

trace in an IP-adjoined position is not properly governed, but required at LF by the principle of Full Representation, so that an ECP violation arises at LF. But given that this approach to (84-b) is basically on the right track, the grammaticality of (84-a) then strongly suggests that infinitives are not transparent for A-bar movement per se, and, hence, that long-distance topicalization from an infinitive, as in (84-a), does indeed proceed via an intermediate escape hatch. The PUB, then, seems to require that this escape hatch is SpecT, and from this we can conclude that TP is present in infinitives.

If infinitives in general exhibit a CP/TP structure, the very option of successive-cyclic movement in cases like (80-a) (*wh*-movement) or (83-a) (topicalization) is due to matching of CP and TP. Similarly, topicalization from non-finite *wh*-islands, as in (83-b) in English, is predicted to involve only a weak Subjacency effect – since SpecC and SpecT are both filled, CP and TP do not match, and CP is a barrier and bounding node. However, it is the only one, and therefore, the sentence has an intermediate status.

But now, two problems arise. First, what about *wh*-movement from *wh*-infinitives, as in (80-b)? Given that CP and TP do not match, we expect a strong Subjacency effect here, just as in the case of finite *wh*-islands, and not only a weak Subjacency effect. And second, if there is a TP present in infinitives, why does embedded topicalization never occur here, even in languages like English which do not require a designated T node to be visible (cf. (82-b))? In Müller & Sternefeld (1990: 54f) it is contended that both problems can receive a simple solution, once the role of the Specifier Criterion in infinitives is clarified. Notice that so far, I have not said anything about specifier licensing in infinitives; I will do that now.

In section 7 it was concluded that the Visibility condition (53) (repeated here in (85)) holds for all kinds of clausal functional heads in German.

(85) *Visibility Condition for Clausal Functional Heads:*

A clausal functional head is designated if and only if it is visible at S-structure.

This assumption rules out *wh*-infinitives altogether in German – a prediction which indeed appears to be empirically borne out (cf. Tappe (1984), Giusti (1986), Grewendorf (1988), Trissler (1988), and Sabel (1993)). If we are willing to abstract away from some putative counterexamples (cf. the literature just cited), for which alternative analyses suggest themselves, the generalization that *wh*-infinitives do not occur in German can be regarded as well-established. Cf.:

- (86) \*Ich weiß nicht [<sub>CP</sub> was<sub>i</sub> C [<sub>TP</sub> PRO t<sub>i</sub> zu tun ]]  
 I know not what to do

Here, the *wh*-phrase *was* requires a designated C node, by the Specifier Criterion. Given (85), a designated C node must be visible in German; however, it cannot be made visible, for the simple reason that there are no infinitival complementizers in German.

Another prediction of (85) for German is that topicalization should not occur in infinitives. Since German of course permits scrambling in infinitives, this prediction is not as easy to test as in English, which does not allow scrambling. Thus, an analogue of the English example (82-b) is possible in German, cf.:

- (87) daß man [<sub>CP</sub> an alle<sub>i</sub> einen Brief t<sub>i</sub> zu schicken ] versuchte  
           that one       to all a       letter to send       tried

In principle, the XP *an alle* might occupy a SpecT position, or it might be adjoined to IP or VP. But closer inspection reveals that only the second possibility exists, i.e., that topicalization may not apply in German infinitives. I will now give three arguments to this effect.

First, as is observed in Grewendorf & Sabel (1994), Frank, Lee & Rambow (1992), and Müller (1994), among others, XPs which contain traces (so-called “remnants,” see Thiersch (1985) and den Besten & Webelhuth (1987; 1990)) may not undergo scrambling, but they can be topicalized. Thus, in (88-a), a coherent infinitive (an infinitive from which scrambling has occurred, and which therefore contains a trace)  $\alpha$  is topicalized, and the result is fine. In (88-b), the same remnant infinitive  $\alpha$  is scrambled, leading to ill-formedness. At present, it is not important how this constraint on remnant movement can be derived; cf. the literature just cited for proposals. The point is that in (88-c), the coherent infinitive  $\alpha$  has undergone fronting within an infinitive, and the result is bad. This clearly suggests that fronting in infinitives in German (as in (87)) must be scrambling, and may not be topicalization – otherwise, we would expect (88-c) to have the status of (88-a), rather than that of (88-b). Finally, (88-d) shows that a sentence that is almost exactly like (88-c) – the only difference being that remnant scrambling has not taken place – is fine; therefore, we can conclude that the ill-formedness of (88-c) does not have an independent reason; it must be due to an illicit application of scrambling of a remnant category.

- (88) a. [ $\alpha$  t<sub>i</sub> Zu lesen ]<sub>j</sub> hat keiner [ das Buch ]<sub>i</sub> t<sub>j</sub> versucht  
           to read   has no-one the book       tried  
       b. \*daß [ $\alpha$  t<sub>i</sub> zu lesen ]<sub>j</sub> keiner [ das Buch ]<sub>i</sub> t<sub>j</sub> versucht hat  
           that       to read   no-one the book       tried   has

- c. \*Wieder hat keiner [CP [ $\alpha$  t<sub>i</sub> zu lesen ]<sub>j</sub> [ das Buch ]<sub>i</sub> t<sub>j</sub> zu  
 again has no-one to read the book to  
 versuchen ] abgelehnt  
 try rejected
- d. Wieder hat keiner [CP [ das Buch zu lesen ] zu versuchen ]  
 again has no-one the book to read to try  
 abgelehnt  
 rejected

Exactly the same situation arises with scrambling vs. topicalization of a remnant NP. In (89-a) a remnant NP is topicalized; in (89-b) the same remnant NP is scrambled. In (89-c) a remnant NP is fronted within an infinitive; the resulting sentence patterns exactly with scrambling in (89-b), rather than with topicalization in (89-a), and thus indicates that topicalization is not an option in infinitives in German. Again, (89-d) ensures that (89-c) is not ruled out by some independent constraint.

- (89) a. [NP Ein Buch t<sub>i</sub> ]<sub>j</sub> habe ich gestern [PP über die Liebe ]<sub>i</sub> t<sub>j</sub>  
 a book have I yesterday about the love  
 gelesen  
 read
- b. \*daß ich [NP ein Buch t<sub>i</sub> ]<sub>j</sub> gestern [PP über die Liebe ]<sub>i</sub> t<sub>j</sub>  
 that I a book yesterday about the love  
 gelesen habe  
 read have
- c. \*Ich werde [CP [NP ein Buch t<sub>i</sub> ]<sub>j</sub> gestern [PP über die Liebe ]<sub>i</sub> t<sub>j</sub>  
 I will a book yesterday about the love  
 gelesen zu haben ] noch bedauern  
 read to have yet regret
- d. Ich werde [CP (gestern) [NP ein Buch über die Liebe ] (gestern)  
 I will yesterday a book about the love yesterday  
 gelesen zu haben ] noch bedauern  
 read to have yet regret

Another argument against the topicalization analysis of (87) is based on the fact that scrambling is categorially selective (cf. chapter 3, section 6). Thus, scrambling of VPs is in general somewhat deviant in German (cf. (90-a)), whereas topicalization of VPs is unproblematic (cf. (90-b)). The contrast in (90-cd), then, indicates that VP-fronting within an infinitive in German necessarily involves scrambling, and may not be analysed as an instance of topicalization – as regards the degree of (un-) grammaticality, (90-c) patterns with the scrambling case (90-a), and not with the topicalization case (90-b).

- (90) a. ??daß sie [VP das Geschirr gespült ]<sub>i</sub> gestern wohl nicht mehr  
 that she the dishes washed yesterday PRT not anymore  
 t<sub>i</sub> haben  
 have
- b. [VP Das Geschirr gespült ]<sub>i</sub> werden sie gestern wohl nicht  
 the dishes washed will they yesterday PRT not  
 mehr t<sub>i</sub> haben  
 anymore have
- c. ??Sie haben [CP [VP das Geschirr gespült ]<sub>i</sub> gestern mal wieder  
 they have the dishes washed yesterday once again  
 nicht t<sub>i</sub> zu haben ] dann zugegeben  
 not to have then admitted
- d. Sie haben [CP gestern mal wieder nicht [VP das Geschirr  
 they have yesterday once again not the dishes  
 gespült ] zu haben ] dann zugegeben  
 washed to have then admitted

Finally, we know that topicalization may apply long-distance, whereas scrambling from (incoherent) infinitives is clause-bound. This also helps to distinguish between the two possible analyses of fronting in infinitivals in German. If this process can be an instance of topicalization, we expect it to be able to apply long-distance; if, however, it is to be analysed as scrambling, long-distance movement should not be an option. With this in mind, consider the data in (91).

- (91) a. \*daß [ dieses Buch ]<sub>i</sub> keiner [CP t<sub>i</sub> zu lesen ] abgelehnt hat  
 that this book no-one to read rejected has
- b. [NP Dieses Buch ]<sub>i</sub> hat keiner [CP t<sub>i</sub> zu lesen ] abgelehnt  
 this book has no-one to read rejected
- c. daß keiner [CP<sub>1</sub> schon gestern [CP<sub>2</sub> den Aufruf nächste  
 that no-one already yesterday the appeal next  
 Woche zu unterschreiben ] abgelehnt zu haben ] bedauert  
 week to sign rejected to have regrets
- d. \*daß keiner [CP<sub>1</sub> [ den Aufruf ]<sub>i</sub> schon gestern [CP<sub>2</sub> t<sub>i</sub> nächste  
 that no-one the appeal already yesterday next  
 Woche zu unterschreiben ] abgelehnt zu haben ] bedauert  
 week to sign rejected to have regrets

(91-a) merely shows that an infinitival CP embedded by *ablehnen* ('reject') cannot be construed coherently (for most speakers), and blocks long-distance scrambling (cf. also (84-b)). In (91-b) (cf. (84-a)), on the other hand, long-distance topicalization from the same infinitival CP occurs, and the resulting

sentence is well formed. The sentence in (91-c) may be somewhat difficult to parse, but it is clearly acceptable. Here, a matrix infinitive (CP<sub>1</sub>) occurs which is itself embedded. The incoherent infinitival CP *den Aufruf nächste Woche zu unterschreiben* ('the appeal next week to sign') (i.e., CP<sub>2</sub>), which is selected by *ablehnen* ('reject'), is preceded by a temporal adverbial XP *schon gestern* ('already yesterday'), which belongs to the matrix clause of the most deeply embedded infinitive, i.e., to CP<sub>1</sub>. The strong ungrammaticality of (91-d), then, suggests that the infinitival CP<sub>1</sub> in (91-d) does not have an accessible landing site for topicalization; the only a priori possible derivation of (91-d) then involves (long-distance) scrambling, and is ill formed.

In conclusion, the evidence to be gained from the data in (88) – (91) strongly suggests that German does not exhibit topicalization in infinitives, and thus corroborates the assumption that the Visibility condition (85) holds for all kinds of clausal functional heads in German, be they finite or non-finite; this implies that the Uniqueness Condition does not hold for infinitives in German. On the other hand, as concerns English, we have already concluded that finite T does not obey the Visibility condition in its strict form (cf. (63)) – finite T in English may be designated without being visible. The fact that *wh*-infinitives are possible in English, in contrast to German (cf. (86)) leads to the conclusion that in English, non-finite designated C, unlike finite designated C, may be invisible at S-structure; cf. (92) (and also (80-b) and (83-b)).

(92) I don't know [<sub>CP</sub> what<sub>i</sub> C [<sub>TP</sub> T [<sub>IP</sub> PRO to do t<sub>i</sub> ]]]

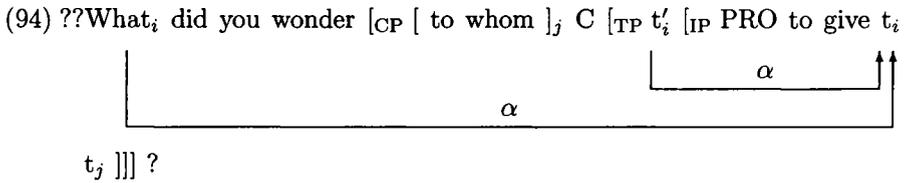
However, embedded topicalization in infinitives is just as impossible in English as it is in German; cf. Hooper & Thompson's example (82-b), which is repeated here with the relevant structure assignment as (93).

(93) \*My friends tend [<sub>CP</sub> [<sub>TP</sub> [ the more liberal candidates ]<sub>i</sub> T [<sub>IP</sub> PRO to support t<sub>i</sub> ]]]

In order to rule out (93) in English, it does hardly seem possible to assume that non-finite T, unlike finite T, must be visible in English. Why, then, is (93) ungrammatical? In Müller & Sternefeld (1990: 54), it is proposed that the TP projection in non-finite clauses is "defective" throughout (i.e., also in German). The TP is structurally present, but T does not contain enough verbal features to license a topic in SpecT, which depends on agreement with a designated verbal functional head. Thus, (93) violates the Specifier Criterion, and not some Visibility condition.

This approach to the prohibition against topicalization in infinitives has an interesting consequence for *wh*-movement from non-finite *wh*-islands. Given that TP is in a sense underspecified, and merely a "positional" category (in the terminology of Stechow & Sternefeld (1988: 390ff); cf. also the pertinent remarks in chapter 4 (section 4.3) and chapter 5 (section 7)), it is natural to

assume that SpecT does not really qualify as a topic position for the purposes of the PUB, but is merely identified as a specifier position. As such, SpecT in infinitives is not a possible landing site for topicalization (or any other movement type), but it is a possible escape hatch for all kinds of specifier movement. Thus, long-distance scrambling from incoherent infinitival CPs is blocked (cf., for instance, (84-b) and (91-a) in German); but long-distance *wh*-movement from non-finite *wh*-clauses (unlike long-distance *wh*-movement from finite *wh*-clauses) may apply successive-cyclically, via SpecT; SpecT in infinitives is underspecified and therefore does not induce ambiguous binding in the case of successive-cyclic *wh*-movement, as shown in (94) (= (80-b)).



Still, CP and TP do not match in the embedded clause, because SpecC and SpecT are both filled. Therefore, CP is a barrier and bounding node, and induces a weak Subjacency effect in the case of argument movement in (94); by the same reasoning, adjunct movement from non-finite *wh*-islands results in strong ungrammaticality – the ECP is violated due to the CP barrier (cf. (81)).

Thus, the two problems that came up with the assumption that infinitives exhibit an articulated CP/TP structure, like finite clauses, are now solved. Topicalization in infinitives is impossible, and *wh*-movement from non-finite *wh*-islands is possible, because SpecT is underspecified with respect to verbal features. The CP/TP hypothesis, hence, can be maintained in full generality, even in the case of infinitives.

## 12. Root clauses

Up to now, nothing has been said about the Specifier Criterion in root clauses. Let us first consider topicalization in English and German. In English, root topicalization behaves more or less exactly like embedded topicalization – unless a negative XP is topicalized, there is no V/2 movement. This is shown in (95).



The Specifier Criterion requires that the topic *to John* in (95) agrees with a designated T node. Given the assumption (63), a designated T node does not have to be visible in English; hence, (95) is well formed.

Similarly, root topicalization in German is like embedded topicalization in this language, as far as the Specifier Criterion is concerned. Since in German, S-structural visibility and designation of a clausal functional head always go hand in hand (cf. the Visibility condition (53)), the contrast in (96) follows without further stipulation – only in (96-b) can the Visibility condition (eventually, the Specifier Criterion) be fulfilled.

- (96) a. \* $[_{CP} [_C e] [_{TP} \text{Den Fritz}_i [_T e] [_{IP} \text{jeder } t_i \text{ sah } ]]]$   
           ART Fritz                          everyone saw
- b.  $[_{CP} [_C e] [_{TP} \text{Den Fritz}_i [_T \text{sah}_j] [_{IP} \text{jeder } t_i t_j ]]]$   
           ART Fritz<sub>acc</sub> saw                  everyone

Now, the question that arises is, How can *wh*-phrases in root questions satisfy the Specifier Criterion in either English or German? Consider, again, first English.

- (97) a. \* $[_{CP} \text{To whom}_i [_C' [_C e] [_{TP} [_T e] [_{IP} \text{Mary gave a book } t_i ]]]]]$  ?  
       b.  $[_{CP} \text{To whom}_i [_C' [_C \text{did}_j] [_{TP} [_T t_j] [_{IP} \text{Mary give a book } t_i ]]]]]$  ?

Given the Specifier Criterion, fronted *wh*-phrases in simple root questions must occur in SpecC. But unlike in the embedded case, C may not remain empty here, cf. (97-a); rather, V/2 movement must apply, as in (97-b). Thus, two questions must be answered with respect to (97). First, why can we not assume that C is actually visible at S-structure in (97), but then undergoes obligatory PF deletion, just as in the embedded case? And second, why is V/2 movement not only possible, but even obligatory in *wh*-root clauses like (97-b), in contrast to what was the case with embedded *wh*-clauses, which strongly resist verb raising in English? Before trying to give an answer to these questions, it is perhaps worth pointing out that, as far as *wh*-root clauses are concerned, the German evidence patterns exactly with the data from English – i.e., *wh*-phrases in root SpecC positions obligatorily trigger V/2 movement:

- (98) a. \* $[_{CP} \text{Wen}_i [_C e] [_{TP} [_T e] [_{IP} \text{jeder } t_i \text{ sah } ]]]$  ?  
           whom<sub>acc</sub>                          everyone saw
- b.  $[_{CP} \text{Wen}_i [_C \text{sah}_j] [_{TP} [_T t'_j] [_{IP} \text{jeder } t_i t_j ]]]$  ?  
           whom<sub>acc</sub> saw                          everyone

Again, the questions arise of why an approach in terms of (obligatory) complementizer deletion in (98-a) fails, and why V/2 movement now is not only possible, but even obligatory, in contrast to the embedded case. I contend that both questions can be answered if one makes the following assumption.

- (99) There are no root complementizers in the Germanic languages.

(99) simply seems to be a fact about the Germanic languages (but cf. Noonan (1989) and Rizzi & Roberts (1990) on root complementizers in Québec French); complementizers like *daß* in German or *that* in English always indicate embedding.<sup>20</sup> Hence, it is explained why complementizer deletion at PF cannot save examples like (97-a) or (98-a) – there is no complementizer present in the first place (i.e., at S-structure) which might be deleted (on the way to PF).

The absence of root complementizers in Germanic points to a more general property of the C node in root clauses. This category does not bear any independently motivated features whatsoever; it is a purely positional category, just like non-finite T (cf. the previous section). Not being embedded in addition, it does not appear to be implausible to assume that root C nodes do not bear any features which might block verb incorporation. Therefore, V/2 movement to C can apply in *wh*-root clauses like (97-b) in English, and (98-b) in German. Furthermore, V/2 movement must apply because the fronted *wh*-phrases require a designated C node, by the Specifier Criterion, and a designated finite C node must be visible at S-structure in both English and German (cf. sections 7 and 8 above), which of course it is after verb incorporation – more precisely, T incorporation (cf. Rizzi (1991) and Grimshaw (1994) for related considerations).

In conclusion, the basic evidence from root clauses can be integrated into the approach to *wh*-phrase and topic licensing developed in this chapter without further problems, given the natural assumption (99). German and English differ with respect to root topicalization because a designated T does not have to be visible in English, whereas it must be visible in German; the two languages do not differ with respect to *wh*-movement because a designated finite C node, by assumption, must be visible (at S-structure) in both languages.

Still, various questions remain. Consider, e.g., the licensing of *wh*-subjects in root clauses in English:

(100) Who came ?

In Müller & Sternefeld (1993), it is tentatively suggested that (100) does not violate the Specifier Criterion because, according to Chomsky's (1986: 48ff) Vacuous Movement Hypothesis, string-vacuous movement of the *wh*-subject to SpecC does not have to apply in cases like (100). Then, *who* in (100) does not occupy an A-bar specifier at S-structure (it undergoes *wh*-movement only at LF), and therefore does not have to obey the Specifier Criterion, which is a purely S-structural constraint. However, as noted before, the Vacuous Movement Hypothesis is not compatible with the theory of IP barriers and *wh*-movement at LF developed in chapter 5 (LF movement of a *wh*-subject to the SpecC position of *wh*-clauses being ruled out by the ECP in English; cf. the following section for an adaptation of the IP barriers theory to the

CP/TP structure). Hence, I conclude that the *wh*-phrase in (100) is in SpecC at S-structure already. It must be the case, then, that the Specifier Criterion can be fulfilled in (100) by virtue of agreement between the trace of the *wh*-phrase in SpecI, and the finite verb in I; cf. Rizzi (1989; 1991) for a proposal to this effect.

As regards V/2 movement in root clauses with *wh*-subjects in English, as in (101), Koopman (1983: 347ff) and Rizzi (1989; 1990), among others, suggest that examples like this one are ruled out by the ECP, more or less in analogy to a typical complementizer-trace effect.

(101) \* $[_{CP} \text{Who}_i [_{C'} \text{did}_j [_{TP} [_{T} t_j] ] [_{IP} t_i \text{come} ]]] ] ?$

As noted in chapter 2, however, V/2 movement (more precisely, I-movement) resolves an IP barrier; since, furthermore, I do not assume that there exists a specific “head-government” requirement as part of the ECP (cf. Rizzi (1990: ch. 2)), which might be invoked to derive an ECP violation in (101), a problem seems to arise with examples like the one at hand. But notice first that alternative approaches to (101), which are not related to the ECP, are conceivable in principle (cf., for instance, Bayer (1990: 6ff)). Moreover, Koster (1987: 210ff) argues that (101) should not be ruled out as ungrammatical by a general, inviolable principle like the ECP. Here, I will follow his line of reasoning, and assume that both (100) and (101) are possible in principle.

### 13. Conclusion

The preceding analysis of topicalization and V/2 movement in the Germanic languages undoubtedly leaves open a number of important problems. Let me name just a few.

First, we have seen that topicalization requires V/2 movement to T in German finite clauses (root and embedded), which eventually follows from the Specifier Criterion (cf. (58-ab)). Furthermore, by the Visibility condition (53), either C or T must be visible at S-structure, i.e., “filled,” in German (cf. (57-ab)). However, these assumptions do not yet suffice to rule out sentences like (102) in German:

(102) \* $[_{CP} - C [_{TP} - [_{T} \text{hat}_i] ] [_{IP} \text{keiner gewonnen } t_i ]]]$   
 I believe has no-one won

Here, T is visible, hence designated; the matrix predicate *glauben* (‘believe’) is a bridge verb, so that status-government of the embedded T node should be possible. Why, then, is (102) ungrammatical? It seems that, in general, there is a complementary requirement to the Specifier Criterion, which we might call “Head Criterion.” I.e., not only does an XP in SpecT require a

designated T to agree with. Also, a designated lexical T (unlike a designated C node) appears to require a specifier (lexical XP or trace) to agree with; this assumption would then suffice to trigger topicalization in (102). Related questions arise, concerning verb-initial yes/no questions in German and English, or the phenomenon of verb-initial declarative clauses embedded by adjectives in Swiss German (cf. Stechow & Sternefeld (1988)). I have nothing to say about these issues here, though.

A second unsolved problem concerns residual V/2 movement with topicalization in English. According to the analysis developed in this chapter, we can derive that English topicalization of non-negative XPs does not trigger V/2 movement; it is unclear, however, why V/2 movement is actually prohibited with topicalization of non-negative XPs in English; cf. the contrast between (103-a) and (103-b) (= (15-ab)).

- (103) a. John said [<sub>CP</sub> that [<sub>TP</sub> [ this book ]<sub>i</sub> [<sub>T</sub> e ] [<sub>IP</sub> he would not recommend t<sub>i</sub> ]]]  
 b. \*John said [<sub>CP</sub> that [<sub>TP</sub> [ this book ]<sub>i</sub> [<sub>T</sub> would<sub>j</sub> ] [<sub>IP</sub> he t<sub>j</sub> not recommend t<sub>i</sub> ]]]

Conversely, the analysis given explains why residual V/2 movement is possible with topicalization of negative XPs (viz., because there is a possible landing site T), and also accounts for the fact that residual V/2 movement in embedded clauses is confined to bridge contexts (V/2 indicates a designated T node, which in turn must be status-governed if it is embedded). What it does not explain, though, is the obligatoriness of V/2 in these cases, compare (104-a) (= (16-a)) with (104-b).

- (104) a. I think that [<sub>CP</sub> C [<sub>TP</sub> [ in no case ]<sub>i</sub> [<sub>T</sub> will ] [<sub>IP</sub> he give up t<sub>i</sub> ]]]  
 b. \*I think that [<sub>CP</sub> C [<sub>TP</sub> [ in no case ]<sub>i</sub> [<sub>T</sub> e ] [<sub>IP</sub> he will give up t<sub>i</sub> ]]]

Thus, it looks as though the theory developed so far has to be enriched by additional constraints which then correctly account for the evidence in (103) and (104); cf. Rizzi (1991), Grimshaw (1994) (and the literature cited there) for some relevant discussion.

Third, if the CP/TP hypothesis is to be maintained, something must be said about the theory of IP barriers, as it was developed in chapter 2 and chapter 5. According to this theory, IP is a barrier if I is distinct from C. Thus far, I have assumed that I is distinct from C if (a) V/2 movement (conceived of then as I-to-C movement) has not applied; (b) C is non-empty (i.e., filled by a complementizer at S-structure, or filled by *wh*-features at LF); and, finally, (c) I and C cannot be co-indexed, co-indexing being possible only if both I and C are "strong." Now that it is assumed that TP intervenes between IP and CP, these three conditions for the barrierhood of IP must be revised appropriately.

The revision of condition (a) is fairly straightforward. V/2 movement now being conceived of as I-to-T (rather than I-to-C) movement (with the option of subsequent T-to-C movement only in *wh*-root clauses; cf. section 12), we may simply assume that I-to-T movement opens up an IP barrier.

As concerns condition (b), it would suffice to assume that the barrierhood of IP can be resolved via empty identification only if both competing clausal functional heads (C and T) are empty, and not only C (as was postulated before). This modification also captures the fact that topicalization in English exhibits complementizer-trace effects, just like *wh*-movement (cf. Lasnik & Saito (1992: 82)). This is shown in (105).

(105) \*John<sub>i</sub> I think [<sub>CP</sub> that [<sub>TP</sub> t'<sub>i</sub> T [<sub>IP</sub> t<sub>i</sub> won the race ]]]

Here, IP is a barrier for t<sub>i</sub> because, although T is empty, C is not. Topicalization in German, on the other hand, does not exhibit complementizer-trace effects, again just like *wh*-movement in this language, cf. (106).

(106) Fritz<sub>i</sub> glaube ich [<sub>CP</sub> daß [<sub>TP</sub> t'<sub>i</sub> T [<sub>IP</sub> t<sub>i</sub> gekommen ist ]]]  
 Fritz<sub>nom</sub> believe I that come is

Furthermore, as was noted in section 10, long-distance topicalization of a subject from a finite *wh*-island gives rise only to a Subjacency effect, and not to an ECP violation; cf. (75), which is repeated here as (107).

(107) ??Linguisten weiß ich nicht mehr [<sub>CP</sub> warum (daß) [<sub>TP</sub> t'<sub>i</sub> T [<sub>IP</sub> t<sub>i</sub>  
 linguists know I no more why that  
 hier angerufen haben ]]]  
 here called have

As regards (106) and (107), it must be guaranteed, then, that IP is not a barrier for topicalization in German. This leads us to condition (c). In order to account for the well-formedness of (106), and the relative well-formedness of (107), one might suggest that, in languages where I have thus far assumed that indexco-indexing!of headsco-indexing of I and C is possible, co-indexing of I and T is relevant for resolving the barrierhood of IP. Co-indexing of I and T is possible only if both heads are “strong” functional categories; I is strong if it licenses *pro* in SpecI (as before), and T is strong if it obligatorily triggers V/2 if it is designated – i.e., in languages where the Visibility condition (53) holds for T, so that there is a one-to-one correspondence of designation and visibility in the case of T (like in German, Dutch, the Scandinavian languages, Yiddish, etc., but unlike in English). Thus, it seems that the theory of IP barriers can in principle be maintained under a CP/TP analysis of clauses, but at a certain cost – additional stipulations are called for which one might rightfully argue are not sufficiently motivated. For further discussion of the IP

barriers theory under the CP/TP hypothesis, cf. Müller & Sternefeld (1990: 55ff) and, in particular, Sternefeld (1991: 187ff), where a less descriptively oriented and conceptually more adequate analysis is developed, with certain different predictions.

Despite of these (and other) problems, I would like to contend that the basic approach to topicalization developed in this chapter enables us to explain a number of otherwise mysterious properties of this movement type in the Germanic languages, which set it apart from both *wh*-movement and scrambling. If the overall approach is viable, the main conclusions to be drawn are the following.

First, topicalization is a movement type *sui generis*, and not to be viewed as an instance of either *wh*-movement or scrambling.

Second, topicalization in the Germanic languages is uniformly movement to SpecT, the specifier of a verbal clausal functional head T that intervenes between C and I.

Third, the CP/TP structure is homogeneous in the sense that it is always present, even if neither V/2 movement nor topicalization has applied in a clause.

Fourth, at the relevant level of abstraction, the Germanic languages turn out to behave similarly with respect to topicalization. Differences between (e.g.) English and German, as regards the complementizer system, could be shown to be best accounted for by the postulation of PF deletion and insertion rules, which are in a way “peripheral” and may apply in a given language either optionally, or obligatorily, or not at all, with no deeper justification. The only central case where actual parametric variation in core grammar must be assumed has to do with V/2; i.e., given the approach advocated here, the relation between designation and visibility of T. I have argued that English does not require a designated T to be visible (i.e., filled via V/2 movement), unlike other Germanic languages, where there is a strict one-to-one correspondence between designation and visibility of T. Apart from these qualifications, topicalization in the Germanic languages emerges as a surprisingly homogeneous operation. General principles, like the Specifier Criterion (a generalization of the *Wh*-Criterion), the Uniqueness condition for designated heads, the status-government condition for designated T, and, again, the PUB, make it possible to account for the main bulk of data (in particular, the asymmetries between topicalization and other movement types) that were discussed in sections 2 & 3 of this chapter.



# Chapter 7

## Conclusion

I have set out to provide a detailed investigation of a number of movement types in German and other languages, and to derive asymmetries between those movement types without invoking construction-specific assumptions. I have argued that the basic properties of a given movement type should ideally follow from the interaction of three different subtheories (or modules) of a general theory of movement, viz.:

- (1) a. a theory of locality conditions;
- b. a theory of conditions on the moved item; and
- c. a theory of improper movement.

As concerns (1-a), I have developed a theory of barriers that is based on the notions of rigid minimality and incorporation; with respect to (1-b), I have basically adopted the approach pursued by Lasnik & Saito (1984; 1992), with a few modifications. Most importantly, however, I have tried to show that the module of movement theory that is basically responsible for the existence of asymmetries between movement types is (1-c), i.e., the theory of improper movement. I have argued that the theory of improper movement primarily comprises a fine-grained system of landing sites, as depicted (in a somewhat simplified way) in (2), and the PUB, which is repeated once more in (3).

- | (2) | <i>Movement Type</i>               | <i>Landing Site</i>           |
|-----|------------------------------------|-------------------------------|
| a.  | <i>Wh</i> -Movement at S-Structure | is Substitution in SpecC      |
| b.  | Scrambling                         | is Left-Adjunction to XP      |
| c.  | Dative Movement                    | is Substitution in Spec $\mu$ |
| d.  | <i>Wh</i> -Movement at LF          | is Right-Adjunction to SpecC  |
| e.  | Topicalization                     | is Substitution in SpecT      |
| f.  | NP-Movement                        | is Substitution in SpecI      |

(3) *Principle of Unambiguous Binding* (PUB):

A variable that is  $\alpha$ -bound must be  $\beta$ -free in the domain of the head of its chain.

On the basis of the partition of movement types in (2), the PUB could be shown to play an important role in constraining successive-cyclic *wh*-movement at S-structure and at LF, scrambling, dative movement, topicalization, and NP-movement.

Still, many issues pertaining to the PUB have not been tackled in this book. Let me just name four, two of them empirical, and two conceptual in nature. First, although I have discussed a number of languages in the preceding chapters, the discussion has obviously centred on the properties of movement in German. My hope is that the essentials of what I have argued for can be maintained if more languages are taken into consideration, but this remains to be seen.

Second, I have mainly been concerned with the movement types depicted in (2). Other movement types I have either neglected, or not addressed at all. For instance, I have mentioned *quantifier raising* (QR) only in passing, in chapters 3 and 5; a more elaborate discussion of the interaction of the PUB and the movement type QR can be found in Müller & Sternefeld (1990; 1993). Similarly, although the notion of *head movement* has been central for the theory of barriers developed in chapter 2, I have not addressed the issue of improper head movement. As with QR, some pertinent remarks on improper head movement can be found in Müller & Sternefeld (1990; 1993). Furthermore, I have been very little concerned with *relativization* (in chapters 2 and 3, I have tentatively assumed it to be an instance of *wh*-movement; in chapter 6, I have noted that it patterns with topicalization, rather than with *wh*-movement, in some respects, but not in others; the preliminary conclusion then was that relativization should probably best be analysed as a movement type of its own). And I have said nothing at all about *extraposition*; this last issue, once more, is addressed in Müller & Sternefeld (1990; 1993); and, more extensively, in Müller (1994a). In general, it seems to me that all these (and other) movement types most likely lend further support to the PUB, upon closer inspection. But again, they might not.

Third, from a conceptual point of view, there is a peculiar asymmetry between specifier and (left-) adjoined position as concerns the PUB. Different types of specifiers (e.g., SpecC, SpecT, SpecI) count as different positions and induce ambiguous binding if they are used by a single item in the course of successive-cyclic movement; different types of left-adjunction sites, on the other hand (e.g., VP-Adj, IP-Adj, CP-Adj) count as the same kind of position for the purposes of the PUB, and can consequently be used by a single item in the course of successive-cyclic movement. Although it seems to me that there

is strong empirical evidence for this theory-internal asymmetry, I do not know of any independent reason for why this should be so.<sup>1</sup>

Finally, one might want to know why it is that certain kinds of traces (*viz.*, *variables*) do have to be unambiguously identified, whereas others (NP-traces) do not. I.e., the question arises of whether there is a deeper reason for a principle like the PUB that would also explain why, for instance, traces with a local chain antecedent in SpecI can be bound ambiguously. Here, psycholinguistic questions concerning parsing efficiency might enter; but I have nothing to say about this issue, and will have to leave it open.

Let me therefore stop here, and draw a general conclusion. I believe that a fine-grained distinction among landing sites (as in (2)), and a principle like the PUB that uses this distinction in order to guarantee unambiguity in variable identification, may contribute to a better understanding of the question of why movement types behave alike with respect to some properties, and differ with respect to others.

# Notes

## Notes to Chapter 1

1. A terminological remark is in order here. It is sometimes assumed that “long-distance” (or “long”) movement always refers to movement in one swoop, in contrast to “successive-cyclic” movement; cf., for instance, Cinque (1990). However, here and henceforth, I will generally not make this distinction, and use the notion of “long-distance” (or “long”) movement indiscriminately, with just the meaning of non-clause-bound movement, which then may either be one-swoop movement or successive-cyclic movement.

2. Besides this *contextual* classification of traces, there is an alternative concept, viz., the *intrinsic* classification of traces; both concepts are explored in Chomsky (1981; 1982). According to a (slightly simplified) version of the intrinsic classification, a trace is a variable if it has Case, and an anaphor, if it does not have Case. For the case at hand, the consequences are identical –  $t_i$  in (8-c) qualifies as an anaphor and the traces in (7) emerge as variables. Shortly, however, we will see that a contextual definition might be superior. I will return to the proper classification of traces in section 8 of chapter 4. Cf. Brody (1984) and Sternefeld (1991a) for extensive discussion.

3. One might object that although there is no explicit invoking of construction-specific assumptions, this approach still necessitates an implicit construction-specific assumption, viz., that traces of A-movement (more precisely, traces that are locally A-bound) are anaphors, and that traces of A-bar movement are variables, i.e., act as name-like expressions with respect to binding theory. Indeed, I do not think that this assumption follows from some deeper principle(s) – it must be stated as such. Clearly, it would be preferable on conceptual grounds to either subsume all traces left by an application of Move- $\alpha$  to one and the same principle of binding theory, or to entirely dispense with binding theory for an account of the distribution of traces (ultimately for the purposes of deriving constraints on movement). The first strategy is pursued in Koster (1978; 1987) and Aoun (1986); for the second strategy, cf. Müller (1993).

4. See chapter 3 for extensive justification of the claim that scrambling is A-bar movement (and not A-movement).

5. A qualification is due as concerns (13-a). In languages where multiple *wh*-movement at S-structure occurs (like Bulgarian), *wh*-movement at S-structure may also be right-adjunction to SpecC. Cf. Rudin (1988) and section 8 of chapter 5 below.

6. Similarly, a qualification is needed in the case of (13-d). In languages where overt *wh*-movement does not occur (like Japanese, Chinese, or Korean), *wh*-movement at LF may also be substitution in SpecC. This issue will be addressed in chapters 3 and 5. Also, I will argue in chapter 5 that *wh*-movement at LF can be substitution in a SpecC position in German if this SpecC position is occupied by a scope

marker *was* at S-structure. Note finally that for most cases, it will be immaterial whether *wh*-movement at LF is right-adjunction to SpecC, or left-adjunction to SpecC. Data from languages like Bulgarian, however, suggest an analysis in terms of right-adjunction. Cf. again Rudin (1988) and chapter 5.

7. Essentially the same conclusion applies in the case of the modifications of Chomsky's (1981) binding-theoretic approach to improper movement developed in Déprez (1989: 101ff) and Rizzi (1991a).

8. Predecessors of such a principle can be found in Chomsky (1973: 244), Williams (1974), Lasnik & Uriagereka (1988: 155f & 168), and Cinque (1990: 172). Note incidentally that the *representational* formulation of the PUB, as in (20), is by no means the only conceivable possibility; in Müller & Sternefeld (1994a), for instance, a *derivational* version of the PUB is developed. In most cases, the representational and the derivational formulation of the PUB have the same consequences. I will henceforth stick to the representational version given in (20), but not much hinges on this in the present context.

9. The domain of the head of a chain is the c-command domain of the first member of the chain.

## Notes to Chapter 2

1. According to (3), it is the property of being  $\Theta$ -governed that exempts a trace from an antecedent-government requirement. However, recent research suggests that this is too simple as it stands. Thus, Rizzi (1990) argues that only those traces that are assigned "referential  $\Theta$ -roles" do not have to be antecedent-governed. Cinque (1990) extends Rizzi's idea and suggests that only those items do not have to antecedent-govern their traces that have "intrinsic referential properties" (Cinque (1990: 19)), e.g. by being "D-linked" (in Pesetsky's (1987) sense). Other modifications are conceivable; in particular, it has been argued that the notion of "Case" plays an important role in exempting a trace from an antecedent-government requirement; cf. Lasnik & Saito (1984; 1992), Chomsky (1986), Koopman & Sportiche (1986; 1991), and Manzini (1990; 1992), among many others, for further discussion. Henceforth, for expository reasons, I will nonetheless maintain the distinction between  $\Theta$ -governed and non- $\Theta$ -governed traces as relevant for the question of whether or not antecedent-government of a trace must take place; I would like to contend, though, that a more articulated approach to conditions on moved items, e.g., along the lines of Rizzi (1990) and Cinque (1990), could be integrated into the system of assumptions adopted here without too many problems. (In section 9.2 of chapter 5, I will briefly return to this issue, and suggest that it is not the property of being " $\Theta$ -governed" that frees a trace from an antecedent-government requirement, but rather the property of being "directly selected" – however, this still will be an oversimplification.)

2. Originally, the Subjacency condition (which was introduced in Chomsky (1973)) and the ECP (which was introduced in Chomsky (1981)) did not have anything to do

with each other. In Chomsky (1986), it is proposed that the conditions can be unified to a certain extent. However, Subjacency (unlike government) is still considered to be a *two-node condition*, as in Chomsky (1973). Simplifying somewhat, Chomsky (1986) assumes that  $\beta$  is subjacent to  $\alpha$  only if  $\alpha$  and  $\beta$  are not separated by more than *one barrier* (i.e., only crossing of *two* barriers induces a Subjacency violation), whereas  $\beta$  cannot be governed by  $\alpha$  if  $\alpha$  and  $\beta$  are separated by a single barrier. This theory necessarily involves a number of complications; for instance, it crucially requires the idea that barrierhood can be “inherited” from a (potential) barrier. In contrast to this, it is suggested in Cinque (1990: ch. 1) and Lasnik & Saito (1992: 87ff) that Subjacency and antecedent-government can be (more or less) radically unified, as just assumed in the main text. Clearly, this is conceptually superior to Chomsky’s (1986) approach. Now, it is well known that such a radical unification faces several empirical problems (cf. in particular Chomsky (1986) and Lasnik & Saito (1992: 195) for discussion). However, at least for present purposes, a strict unification of Subjacency and antecedent-government seems possible.

3. The issue is complicated by (at least) two additional factors which must be taken into consideration, for a full account of data like (11-a) and (11-b). First, it appears to be the case that, for many speakers, subject *wh*-movement as in (11-a) is somewhat worse than *wh*-movement of an object in the same configuration, as in (i).

- (i) ??<sub>[NP Which problem ]<sub>i</sub></sub> do you wonder [<sub>CP whether John said [<sub>CP t'<sub>i</sub> [<sub>IP Mary solved t<sub>i</sub> ]]] ] ?</sub></sub></sub>

Here, I have nothing to say about this “surprising subject/object asymmetry,” which does not follow from the assumptions about proper government and Subjacency made so far; cf. Pesetsky (1984) and Rizzi (1990: 95ff) for discussion.

Second, it nevertheless seems to be a fact that object *wh*-extraction from a finite *wh*-island, as in (i), is still somewhat worse than object *wh*-extraction from a non-finite *wh*-island. I will briefly return to this problem in section 3.3, and in more detail, in chapter 6.

4. Actually, the approaches developed in Lasnik & Saito (1984) and in Lasnik & Saito (1992) are both somewhat more involved than the version that I have sketched in the text. In particular, Lasnik & Saito attempt to derive a number of crucial assumptions of their theory from independently motivated principles. But I believe that the simpler version outlined here suffices for the present purposes. Moreover, it turns out that some features of the more fine-grained versions of the “Lasnik/Saito mechanism” are actually incompatible with assumptions that I make here; for instance, I assume throughout that movement obligatorily leaves traces – this idea is given up by Lasnik & Saito (1984; 1992).

5. Note incidentally that in Müller & Sternefeld (1993), a notion of barrier is adopted which is based on Sportiche (1988; 1989) and Cinque (1990), and thus crucially involves the notion of “(non-) selection.” It is shown that such a notion of barrier is to a large extent compatible with a theory of improper movement of the type adopted here.

6. In chapter 5, I will argue that abstract incorporation in the literal sense, i.e., as head movement at LF, does not exist. There are various ways of formally executing the idea that heads in certain configurations behave as if they were incorporated, although they are not. For instance, Stechow (1992) suggests that abstract incorporation is actually to be conceived of as *overt* incorporation of an empty morpheme, which leaves a *lexical*, non-empty trace. Such an approach would comply with Chomsky's (1993) copy-theory of movement – after head movement and copying, the chain antecedent is deleted on the way to PF, and the trace remains lexical. Alternative conceptions of abstract incorporation are readily available. I will not dwell on this issue any further, though.

7. One additional remark is in order concerning the locality of head movement. Since Travis (1984), it is generally held that head movement is strictly local, in the sense that a head can only raise to the next governing head, and may not cross this head in the course of movement. This condition has become known as the Head Movement Constraint (HMC). Assuming traces of head movement to be subject to the ECP (more precisely, an antecedent government requirement) clearly is a first step towards deriving the HMC from independently established locality principles. However, it is well known that deriving the HMC in toto from the theory of barriers is a notoriously difficult task which, if it is to be accomplished at all, necessitates the introduction of additional, otherwise unmotivated assumptions into the theory of barriers (cf., for instance, Chomsky (1986), Baker (1988) and Sternefeld (1991a), among others). Therefore, it has often been proposed that the effects of the HMC should be derived not from the theory of barriers alone, but rather from the interaction of the theory of barriers with a general requirement that a head Y may not intervene between a head X and its trace (cf. Baker (1988: ch. 7) and Rizzi (1990: ch. 1)). In line with this, I continue to assume that traces of head movement are subject to an antecedent-government requirement (i.e., they must be p-commanded by their antecedents, and no barrier may intervene); I will leave open the question of how the HMC can be derived in full generality.

8. Given that German has overt V-to-I raising, the structure in (22-b), with the finite verb inside the matrix VP, is not quite adequate. In general, throughout this book, where nothing hinges on it, I will often not indicate V-to-I raising in examples.

9. Things might be slightly different with C nodes in question clauses. Indeed, in chapter 5 I will argue that C nodes bearing the feature [+wh], although empty at S-structure, count as filled at LF.

10. Cf., however, Aoun et al. (1987) for a different view.

11. Note that, in a way, this is just the opposite of what is assumed in Chomsky (1986). Chomsky maintains that IP never blocks government, although it may act as an “inherent barrier” for Subjacency, by stipulation. (Recall that in Chomsky's approach, one bounding node can be crossed without violating Subjacency, so that movement across IP to the local SpecC position is always possible.)

12. For the time being, I assume, following den Besten (1983), Haider (1984), and Vikner (1990), to name but a few, that V/2 movement is to be analysed as movement of (V to) I to C in all kinds of clauses (subject-initial or not, embedded or not, etc.).

Cf. Travis (1984), Zwart (1993; 1993a), and Diesing (1990) for a different view, and Müller & Sternefeld (1990; 1993) and chapter 6 below for some modifications of this assumption.

13. A possible problem arises in the shape of examples like those in (i) in English.

- (i) a. Who<sub>i</sub> did<sub>j</sub> [IP Bill t<sub>j</sub> see t<sub>i</sub> ] ?  
 b. Why<sub>i</sub> did<sub>j</sub> [IP Bill t<sub>j</sub> come t<sub>i</sub> ] ?  
 c. \*Who<sub>i</sub> did<sub>j</sub> [IP t<sub>i</sub> t<sub>j</sub> come ] ?

In (i-a) a *wh*-object has been moved to SpecC in a root clause, triggering V/2 movement of the auxiliary. Essentially the same happens in (i-b), where a *wh*-adjunct is raised to a root SpecC position. In contrast to that, Koopman (1983: 347ff) and Rizzi (1989; 1990), among others, have argued that examples like (i-c), with V/2 movement in simple questions where the *wh*-phrase is a subject, are ungrammatical in English, and should be ruled out by the ECP. According to the theory of barriers developed so far, however, t<sub>i</sub> in (i-c) can be antecedent-governed by its chain antecedent *who* in SpecC, because of I-to-C movement of *did*. Thus, in all of the examples in (i), the barrierhood of IP is resolved via V/2 movement to C. For the time being, I will follow Koster (1987: 210ff) in assuming that (i-c) does indeed not violate the ECP (or indeed any other locality principle). I will briefly come back to this issue in section 12 of chapter 6, though.

14. The status of the data in (31) is not entirely uncontroversial. Sometimes it is argued that complementizer-trace effects are absent only in Southern dialects of German, such as Bavarian (cf. Fanselow (1987) or Grewendorf (1988)). However, in Müller (1989; 1991: 157f) it is noted that Northern varieties of German also lack complementizer-trace effects. Furthermore, for some rigid speakers of Standard German, extraction from *daß*-clauses into V/2 clauses, as in the examples in (31), is in general somewhat deviant, perhaps with the exception of adjunct movement, as in (31-b) (cf. Andersson & Kvam (1984)). See Müller (1989: 12-76) for a more detailed investigation of the status of long-distance extraction from *daß*-clauses in German, and for extensive discussion of the literature on (the lack of) complementizer-trace effects in German.

15. I.e., colloquial German, unlike (most varieties of) English, does not employ a Doubly Filled COMP Filter (cf. Chomsky & Lasnik (1977)), and thus permits a combination of a *wh*-phrase in SpecC and a complementizer in C (cf. Bayer (1983/84; 1984)). The Doubly Filled COMP Filter applies in more rigid varieties of German (Standard German), but I do not consider this to be of any theoretical interest, and will ignore this fact in what follows. Cf. chapter 6, and again Müller (1989), for further discussion of this issue.

16. Complementizer-agreement is also attested in several Dutch dialects (cf. Bennis & Haegemann (1984) and Zwart (1993), among others). Accordingly, it seems to be relatively uncontroversial in the more recent literature that Dutch does not exhibit complementizer-trace effects (cf. in particular Koster (1987: 204ff)).

17. Actually, the case is somewhat more complicated. As noted by Comrie (1973)

and Pesetsky (1981/1982; 1982), successive-cyclic *wh*-movement of both subjects and objects is fairly deviant if the embedded complementizer is not *čtoby*, as in (34), but *čto*, as in (i-ab) (although object movement still reportedly is somewhat better).

- (i) a. ?\*[NP Kakuju knigu ]<sub>i</sub> ty думаєš' [CP t'<sub>i</sub> čto [IP Petr pročital t<sub>i</sub> ]]  
       which book you believe that Peter read  
       b. \*[NP Kakaja kniga ]<sub>i</sub> ty думаєš' [CP t'<sub>i</sub> čto [IP t<sub>i</sub> nravilas' Petru ] ] ?  
       which book you believe that pleased Peter

The complementizer *čtoby* differs from the complementizer *čto* in being subjunctive (*by* is the subjunctive marker in Russian). At this point, I will ignore the apparent fact that only subjunctive complementizers permit long-distance extraction at all in Russian. It should be kept in mind, though, that subjunctive complement clauses are in many ways more “transparent” than indicative complement clauses (cf., for instance, the case of long-distance reflexives in Icelandic). See section 4.2.3 of chapter 3 for an analysis of the phenomenon at hand.

18. Note incidentally that this shows that the availability of *pro*-drop in a language does not yet guarantee that complementizer-trace effects do not show up, as is often maintained (cf. in particular Perlmutter (1971)).

19. The tense effect is also responsible for the fact that I have not given examples involving *wh*-movement from *wh*-islands in German. Note that on the one hand, non-finite *wh*-clauses are not licensed in German, so that extraction from *wh*-infinitives cannot be tested, for independent reasons. On the other hand, *wh*-movement from finite *wh*-clauses in German typically produces fairly bad results. As remarked in the text, I will address this issue in some detail in chapter 6.

20. In the literature, it is often argued that extraction from NP is in principle impossible in languages like English or German; examples like (42-c), under this view, are due to a lexically governed restructuring (or reanalysis) process, which breaks up the NP and guarantees that the PP may occur outside the NP at D-structure already. Then, (42-c) simply instantiates PP movement from a VP-internal position, but crucially not extraction from NP. In (42-d), under this view, the restructuring rule is not applicable, due to lexical factors. (Furthermore, as concerns the ungrammaticality of examples like (42-ab), it is generally assumed that restructuring may only apply VP-internally under strict adjacency.) There are a number of conceptual and empirical problems with this approach, though. To name just one, it is obvious that a trace of the *wh*-moved PP must occur *within* the NP in (42-c) in order to correctly determine the semantic interpretation of the sentence. Cf. Weibelhuth (1987; 1988) and Müller (1989: 152ff; 1991: 174f) for arguments against a restructuring account of extraction from NP.

21. As concerns NPs like (i), I will tentatively assume that the pronominal specifier *Antjes* is a DP, headed by an affixal D category.

- (i) [NP [DP Antjes ] [N' Buch [PP über die Liebe ]]]  
       Antje<sub>gen</sub> book about the love

22. For present purposes, it is immaterial whether subjects of transitive and unergative intransitive verbs are base-generated in SpecI, or are obligatorily moved (for reasons of Case-assignment) to SpecI from a VP-internal or VP-adjoined position (as argued by Kitagawa (1986) and Koopman & Sportiche (1991), among many others). The approach to IP-internal binding and crossover facts to be developed in chapter 4, though, basically presupposes a base-generation of these subjects in SpecI, and is compatible with a base-generation of all subjects within (or adjoined to) VP only if certain otherwise unmotivated stipulations are made.

23. If we were to assume that N  $\Theta$ -governs an NP-internal *wh*-trace, only a Subjacency violation could be derived in (42-ab); however, since extraction from a subject NP typically is strongly ungrammatical in German, the Subjacency condition does not appear to be an appropriate means to rule out the relevant constructions.

24. Two remarks on the notion of m-selection are in order. First, whether or not m-selection of N by V occurs should eventually be derivable from the semantic properties of the verbs (and nouns) involved. However, I will not address this issue here, and simply presuppose that an articulated theory of lexical semantics is eventually likely to predict what I have called m-selection properties of verbs.

Second, it is obvious that lexical variation does not play a role in the case of functional categories (cf. the above discussion of (abstract) incorporation of V into I, and of I into C). A functional category, such as I, m-selects the head of its c-selected complement (i.e., in this case, V) as a grammatical, not as a lexical property.

25. Similarly, Baker (1988) observes that *overt* incorporation may not take place from indirect objects in polysynthetic languages.

26. Given that subject NPs are invariably barriers, and direct object NPs are not, an interesting consequence arises for the analysis of constructions where the subject of an embedded infinitive receives structural Case from a governing matrix verb, as in (i).

- (i) daß ich [NP ein Buch über die Liebe ] die Welt erobern sehe  
 that I a book<sub>acc</sub> about the love the world conquer see

Under the approach taken in Chomsky (1981), the embedded subject *ein Buch über die Liebe* occupies a SpecI position, and receives accusative Case via “Exceptional Case Marking” (ECM) by the matrix verb. On the other hand, it has often been argued (cf. Postal (1974), Fanselow (1991), and Johnson (1991), among many others) that the subject *ein Buch über die Liebe* in (i) has undergone “raising to object,” and thus occupies the same position as a genuine direct object (note that in the present context, it is immaterial whether raising to object is movement to the complement position of V, or to a specifier of an abstract object agreement node – what is important, though, is the prediction that “ECM” subjects and direct objects occupy the same type of position). Now, Pesetsky (1982) and Kayne (1984) have observed that subjects which are Case-marked by a verb of the higher clause are islands for *wh*-extraction in English. As shown in (ii), the same goes for German.

- (ii) a. \*Worüber<sub>i</sub> hast du [<sub>NP</sub> ein Buch t<sub>i</sub>] die Welt erobern sehen ?  
 about-what have you a book<sub>acc</sub> the world conquer seen
- b. Worüber<sub>i</sub> hast du [<sub>NP</sub> ein Buch t<sub>i</sub>] gesehen ?  
 about-what have you a book<sub>acc</sub> seen

In (ii-a) *wh*-extraction from an embedded subject that is Case-governed by the matrix verb has applied, and the result is ungrammatical. This deviance cannot be due to lexical variation, i.e., to a failure of the matrix verb to m-select N, because, as is shown in (ii-b), the verb *sehen* ('see') permits *wh*-extraction from a genuine direct object. Thus, the contrast in (ii) clearly suggests that constructions such as (i) in German are to be analysed as true instances of Exceptional Case Marking, and not of raising to object – an embedded subject that bears accusative Case assigned by the matrix verb behaves like a nominative subject, and not like a direct object, with respect to barrierhood.

27. Note in passing that whereas (51-b) is syntactically well formed, and (51-a) syntactically ill formed, the reverse situation occurs at LF – (51-a) is semantically well formed, and (51-b) is semantically ill formed (cf. Heim (1992) and Stechow (1993; 1994), among others); thus, LF reconstruction is required in (51-b).

28. Chomsky's main reason for not assuming prenominal genitive Case to be controlled by a governing N has to do with Case-assignment to what at first sight appears to be an ungoverned leftmost position in gerunds, as in (i). (This position must be ungoverned since PRO may occur here.)

- (i) [<sub>NP</sub> {John's/PRO} [ reading the book ]]

It seems to me, though, that this problem disappears as soon as a more articulated approach to gerunds is adopted (cf., for instance, Stechow (1992), among many others).

29. At this point, certain questions about the level of representation at which Case-assignment takes place, and about the relationship between head chains and head co-indexing arise. The basic problem is that Case-assignment is usually considered to be an S-structural phenomenon, whereas non-trivial (i.e., two-membered) head chains of the type relevant for (55) arise only at LF in the case of abstract incorporation. See Baker (1988: 200ff and 462f) for discussion.

30. Kuno (1987: 13) and Pollock (1989a: 83ff) argue that SSC effects as in (58) fail to show up under certain circumstances in English. Cf. Müller (1991: 182) for some pertinent remarks.

31. Thus, in the approach to LBC- and SSC-like effects with extraction from NP developed so far, it is the formal property of Case, rather than the semantic notion of "subjecthood" which regulates extraction options; indeed, as shown in Müller (1989; 1991), semantic roles of NP-internal arguments do not affect extraction options in any systematic way in German. However, things are different in the Romance languages and in Modern Hebrew. Simplifying somewhat, extraction of an XP out of an NP seems to be possible here only if that XP is a "potential

subject," and qualifies as the highest argument available on a thematic hierarchy "POSS>AGENT>THEME." I have nothing to say about this issue here; cf. Cinque (1980), Rizzi (1982: ch. 2.5; 1990: 106ff), Aoun (1985), Chomsky (1986: 44ff), Giorgi & Longobardi (1989: ch. 2), Shlonsky (1988), and Mallén (1992) for discussion.

32. One open problem is why *wh*-extraction from an NP is susceptible to specificity effects, as shown in (i-a) vs. (i-b) (cf. Ross (1967/1986)).

- (i) a. Worüber<sub>i</sub> hat Wolfgang [<sub>NP</sub> ein Buch t<sub>i</sub>] geschrieben ?  
 about-what has Wolfgang a book written
- b.??Worüber<sub>i</sub> hat Wolfgang [<sub>NP</sub> das letzte Buch t<sub>i</sub>] geschrieben ?  
 about-what has Wolfgang the last book written

In both (i-a) and (i-b), *m*-selection of the head of NP by the governing verb occurs; furthermore, the extraction site NP is a direct object in both cases. Still, extraction from a specific NP, as in (i-b), is distinctly worse than extraction from a non-specific NP, as in (i-a). Mahajan (1992) argues that specific NPs occupy a specifier position of an AGR node at S-structure, whereas non-specific NPs may stay in situ within the VP. Under this view, extraction from a specific NP, as in (i-b), is impossible for the very same reason that extraction from a subject in SpecI is. In the framework adopted here, this would imply that t<sub>i</sub> in (i-b) violates the ECP, due to the non-availability of abstract incorporation from specifier positions. However, whereas (i-b) is clearly worse than (i-a), it still strikes me as better than extraction from a subject NP (cf. (42-ab)). This asymmetry between extraction from subjects and extraction from non-specific direct objects, to my mind, suggests that the ECP is not involved in (i-b). Therefore, I tentatively assume that the marginal status of (i-b) is actually due to a Specificity Condition on extraction; cf. Chomsky (1973; 1981: 235; 1986: 81), and Webelhuth (1992: 170), among others. (Note incidentally that Mahajan himself devises his approach to specificity effects in the case of extraction from NP only for languages like English; as concerns German, he assumes, in contrast to what I have done, that extraction from both subject NPs and specific object NPs is fine.)

33. Here and henceforth, I ignore the effects of extraposition of finite clauses in German, and pretend that extraposed clauses occupy their respective D-structural positions (which I assume to be to the left of V, as with all other kinds of arguments in German). However, it is shown in Müller & Sternefeld (1990: 14ff) that (a version of) the theory of barriers adopted here covers clausal extraposition in a fairly straightforward way.

34. As with extraction from NP, I will not dwell on the issue of why exactly it is that bridge predicates may incorporate empty nominal heads of their complements. Again, it seems likely that an adequate solution to this problem should be tied to the lexical meaning of these predicates. Cf. Kiparsky & Kiparsky (1970), Erteschik-Shir (1973), and Reis (1977), among others, for related discussion.

35. In fact, it has sometimes been assumed in the literature that a structural difference between complements of bridge and non-bridge verbs exists; cf. Kayne (1984: 81), Fukui (1986: 11), Cinque (1990: 30), and Frampton (1990: 54). The main idea

is to locate complements of non-bridge verbs in a position more remote from the verb, in order to make them non-L-marked (and thus, in Chomsky's (1986) theory, barriers) (cf. Fukui, Cinque, Frampton), or even directly assimilate them to adjuncts (cf. Kayne). However, from a conceptual point of view, the most natural assumption surely is that sentential complements that bear identical  $\Theta$ -roles (e.g., the  $\Theta$ -role THEME) should accordingly occupy identical positions at D-structure, irrespective of whether a bridge verb or a non-bridge verb is involved. Moreover, complements of bridge and of non-bridge verbs behave uniformly in German with respect to extraposition, topicalization, and so forth.

36. For instance, if finite clauses are NPs, we expect them to be subject to the Case Filter, given Chomsky's (1981: 49) formulation of the Case Filter which explicitly covers NPs without a lexical head (in addition to NPs with a lexical head), as long as they have phonetic content. In Müller & Sternefeld (1995: sec. 4.2), it is argued that finite clauses do indeed have to be assigned structural Case, in contrast to what is assumed by Stowell (1981: 159ff). If finite clauses need structural Case, this clearly can be taken as an independent argument in support of the idea that finite clauses are NPs.

37. See Haider (1983: sec. 2), Sternefeld (1985a: sec. 3.3), and Grewendorf (1989: ch. 2.9) for detailed discussion of this issue. Note in passing that there appears to exist a peculiar constraint on *wh*-extraction from subject infinitives. As observed by Grewendorf (1989: 59), movement of a *wh*-phrase to SpecC from a subject infinitive is possible only if C is either empty, or filled by an auxiliary, but not if C is filled by a main verb, as in (i).

- (i) ?\*[CP Was<sub>i</sub> [C' gehörte [IP [CP t'<sub>i</sub> PRO [VP t<sub>i</sub> zu beanstanden ] ] sich  
           what<sub>acc</sub> befitted to complain of REFL  
           nicht ]]] ?  
           not

I have nothing to say about the nature of this restriction.

38. *Wh*-movement from a subject infinitive in English appears to be worse than *wh*-movement from a subject infinitive in German; cf. Ross (1967/1986: 147ff) and Chomsky (1986: 31ff). On the approach pursued here, this would imply that (subject) infinitives do in general have NP-shells in English after all; these NP-shells would then give rise to Subjacency effects in the case of argument extraction, and ECP effects with adjunct movement.

39. The exact nature of the tests for argumenthood developed by Fabricius-Hansen & Stechow (1989) does not concern me here. Basically, whether an N head takes a non-relative NP-internal clause as an argument or as an apposition is indicated by the availability or non-availability of constructions as in (i).

- (i) a. ?\*[ Daß Wolfgang das Papier gelesen hat ] ist ein Gerücht, das mich  
           that Wolfgang the paper read has is a rumour that me<sub>acc</sub>  
           beunruhigt  
           troubles

- b. [ Daß ich den Fritz beleidigt habe ] ist eine Eingebung, die mir erst  
 that I ART Fritz offended have is an inspiration that me<sub>dat</sub> just  
 kürzlich gekommen ist  
 recently occurred-to is

40. Such an additional assumption is evidently necessary in the case of examples like (76) in German, because the matrix verb *hören* ('hear') is in principle able to abstractly incorporate the lexical noun *Gerücht* ('rumour'). This is shown by the well-formedness of an example like (i), where *wh*-extraction of a PP *worüber* ('about what') from a direct object NP occurs.

- (i) Worüber<sub>i</sub> hast du [NP ein Gerücht t<sub>i</sub>] gehört?  
 about-what have you a rumour<sub>acc</sub> heard

41. The ban against incorporation of a noun that takes a clausal complement might eventually turn out to be less stipulative than it seems at first sight. As noted by Mark Baker (p.c.), this prohibition does indeed appear to be operative with *overt* incorporation in polysynthetic languages. Note incidentally that the prohibition against N incorporation in this case would follow from the assumption that NP-shells, just like other NPs, are subject to the Case Filter, in analogy to what was said about SSC effects in section 3.4.2.

42. I have given an example involving topicalization (rather than *wh*-movement) in (84-a). However, this need not concern us in the present context, because topicalization and overt *wh*-movement basically behave alike with respect to extraction from PP in a language like German. (See, however, Trissler (1993) for some putative minor asymmetries between P-stranding of [+wh] and [-wh] R-pronouns in German.)

43. For arguments against a directionality approach to extraction from PP based on German data, see Geilfuß (1988; 1992: 7) and Müller (1991: 190ff).

44. Note that under this view, it is actually immaterial whether R-pronouns are base-generated to the left or to the right of P; in other words, it is immaterial whether or not we assume that languages like German and Dutch do indeed have *postpositions* for R-pronouns. To see this, suppose that R-pronouns are base-generated to the right of P, as schematically depicted in (i).

- (i) [PP P [NP da<sub>i</sub> ]]

Now, if *da* is adjacent to P in the syntax, it has to cliticize onto P; alternatively, *da* may be separated from P by movement, thereby creating a P-stranding configuration. These two options are shown in (ii-a) (cliticization) and (ii-b) (*da*-movement); they resemble the options found with separable prefixes in a number of languages.

- (ii) a. [PP da<sub>i</sub>-P [NP t<sub>i</sub> ]]  
 b. ... da<sub>i</sub> ... [PP P t<sub>i</sub> ]

(ii-a) instantiates a case of N incorporation into the governing P; in (ii-b), on the other hand, the whole NP projected by *da* has undergone movement. What is important is that P in (ii-a) is still not a *postposition* in any interesting sense of the notion – the complement of P (i.e., NP) is still to the right. The reason for *da* in (ii-a) occurring to the left of P after incorporation, in this approach, is merely that languages like German employ a fairly general morphological principle according to which the head of a complex word is (almost) always right-peripheral (cf. Toman (1980) and Williams (1981), among many others). If this reasoning is correct, it is not necessary to assume that R-pronouns are embedded by *postpositions*. Moreover, it turns out upon closer scrutiny that the class of Ps that tolerate R-pronouns in German, and the class of Ps that tolerate full lexical NPs to their left in this language (i.e., genuine postpositions) do not only fail to be identical; abstracting away from very few doubtful exceptions, these classes do not even intersect; compare, for instance, *da-von* ('there-from') vs. \**diesem Teller von* ('this plate from'), and \**da-zuliebe* ('that-for-the-sake-of') vs. *dieser Frau zuliebe* ('this woman for-the-sake-of'). This strongly suggests that it is indeed highly unlikely that R-pronouns are embedded by postpositions in languages like German. However, since nothing hinges on it, here and henceforth I will generally ignore this qualification and pretend that R-pronouns in P-stranding constructions leave a trace that is to the left of P.

45. A slight complication for this analysis arises in the guise of data such as (i-a) and (i-b) in German.

- (i) a.  $Wo_i$  hat der Fritz nichts  $[_{PP} t_i \text{ von } ]$  gewußt ?  
 what has ART Fritz nothing<sub>acc</sub> of known
- b.  $Wo_i$  ist er  $[_{PP} t_i \text{ mit } ]$   $[_{PP} \text{ zum Doktor } ]$  gegangen ?  
 what is he with to-the doctor gone

In both examples, it looks as though the p-command requirement for abstract incorporation cannot be met by P-to-V movement at LF. Thus, in (i-a), the PP, although it is adjacent to the verb at S-structure, cannot occupy the complement position of V, by assumption – note that here, a direct object is present, and given that direct objects are base-generated in the complement position of V, (i-a) seems to require a structure where the direct object *nichts* is scrambled, and a trace of *nichts* intervenes between PP and V, thereby blocking abstract P incorporation via a lack of p-command. Similarly, in (i-b), the PP from which *wh*-extraction has taken place is not adjacent to V due to the intervention of another PP, viz., *zum Doktor* ('to-the doctor') – hence, p-command should not be available after LF incorporation in this case either. For the time being, I will ignore these examples. In chapter 4, however, I come back to these cases, and argue that the p-command requirement for antecedent-government is too strict, and should be replaced by a somewhat weaker requirement. This weaker requirement will then turn out to be fulfilled in examples like (i-a) and (i-b). It should be kept in mind, though, that all the examples that are ruled out via a lack of p-command in this chapter are still ruled out by the weaker condition introduced in chapter 4, so that the conclusions drawn here will not be affected.

46. As noted by den Besten (1985) and Grewendorf (1989), subjects of unaccusative verbs which remain in situ within the VP, i.e., which occupy a direct object position, permit subextraction; see below. Furthermore, Diesing (1992: 372ff) claims that only certain kinds of subjects strictly block subextraction, viz., those which occur with individual-level predicates, but not those which occur with stage-level predicates. These qualifications do not concern me in the present context, though.

47. Technically, the fact that the barrierhood of XPs in derived positions creates a Freezing effect (i.e., blocks extraction from XP) follows directly under the assumption that  $\gamma$ -marking must apply at a level of representation (in this case, S-structure), and may not apply in the course of the derivation. As noted before, this assumption is made by Lasnik & Saito (1984; 1992), and adopted here. See Browning (1989; 1991) and Collins (1994) for a discussion of this issue.

48. Note that scrambling of full NPs (i.e., NPs from which *wh*-extraction has not taken place) is permitted in configurations such as those in (109-ab), cf.:

- (i) a. Wolfgang hat [<sub>NP</sub> ein Buch über die Liebe ]<sub>j</sub> letztes Jahr t<sub>j</sub>  
 Wolfgang has a book about the love<sub>acc</sub> last year  
 geschrieben  
 written
- b. daß [<sub>NP</sub> ein Buch über die Liebe ]<sub>j</sub> keiner einer Frau t<sub>j</sub> geben  
 that a book about the love<sub>acc</sub> no-one a woman<sub>dat</sub> give  
 wollte  
 wanted-to

49. Lasnik & Saito (1992: 101ff) present examples like (i) in English, which involve *wh*-extraction from a topicalized NP.

- (i) ??Who<sub>i</sub> do you think that [<sub>NP</sub> pictures of t<sub>i</sub> ]<sub>j</sub> John wanted t<sub>j</sub> ?

They claim that examples such as (i) do not involve a violation of either the ECP or the Subjacency condition (but rather a violation of Kuno's (1973) condition barring extraction from internal constituents, which is supposed to induce only comparatively weak deviance). In order to derive the non-barrierhood of the topicalized NP in (i), Lasnik & Saito (1992: 102) explicitly assume that XPs in derived A-bar positions are *never* barriers. This assumption is clearly not compatible with the theory of barriers developed here, and with the empirical evidence in support of it given so far. The contradiction is all the more apparent if we take into account that embedded topicalization is analysed as adjunction to IP by Lasnik & Saito. Under this assumption, the purported relative acceptability of (i) in English sharply conflicts with the strong deviance of (109-b) in German. Now, as remarked before, in chapter 6 I will indeed argue (following Müller & Sternefeld (1990; 1993)) that embedded topicalization in English is not to be analysed as adjunction to IP, but rather as substitution in the specifier of T (where T is a clausal functional head that intervenes between C and I in the Germanic languages, and that also qualifies as the landing site for V/2 movement); then, the direct conflict between (i) and (109-b) disappears.

However, we will see in the following section that topicalized NPs in German are also strict islands for *wh*-extraction, just like scrambled NPs are. Thus, if it is to be maintained that the topicalized NP is not a barrier in (i) in English, this does not follow from the approach to locality adopted here without further stipulations. Note, however, that examples like (i) in English are considered strongly deviant by Browning (1989: 481; 1991: 553).

50. Upon closer inspection, a technical problem arises with respect to examples such as (118-b). Assuming that PP topicalization lands in SpecC, we can derive that (abstract or overt) incorporation of P into C is impossible. However, as it stands, we cannot yet derive that *empty identification* of P and C is impossible, because in English, V/2 movement does not apply with topicalization (of non-negative items). Thus, it appears that either there is an additional barrier present, or more must be said about the conditions under which empty identification may take place (or both). I return to this issue below.

51. In Chomsky (1986: 26) and Chomsky & Lasnik (1993: 544), it is claimed, on the basis of the Spanish data in (i) (from Torrego (1985)), that extraction from *wh*-moved XPs does not cross a barrier.

- (i) a. [PP De que autora ]<sub>i</sub> no sabes [CP [NP qué traducciones t<sub>j</sub> ]  
           by what author not you-know what translations  
       han ganado [IP t<sub>j</sub> premios internacionales ] ] ?  
       have won awards international
- b. \*Esta es la autora [CP [PP de la que ]<sub>i</sub> [IP [NP varias traducciones t<sub>i</sub> ]  
       this is the author by whom several translations  
       han ganado premios internacionales ] ]  
       have won awards international

In (i-a), a subject NP has undergone *wh*-fronting to the SpecC position of the embedded clause. Extraction of a PP from the *wh*-moved subject NP appears to be possible in this case. In contrast to that, (i-b) is taken to show that PP extraction (relativization, in this case) from a subject NP in situ is not possible. This generalization follows directly from Chomsky's (1986) theory of barriers – given that L-marking of an XP percolates down to the specifier of XP, SpecC is L-marked as soon as CP is L-marked; this accounts for the well-formedness of (i-a), in Chomsky's framework. IP in (i-b), on the other hand, is not L-marked, and hence, SpecI also fails to be L-marked, so that the subject NP is a barrier in (i-b).

However, I think there is evidence that this analysis of the data is not correct, and that the hypothesis that extraction from *wh*-moved XPs is possible cannot be maintained, in line with what is assumed in the text. Note first that a direct analogue of (i-a) in German also is acceptable for most speakers (cf. Grewendorf (1988: 257)), in contrast to an example like (124-b) in the text; this is shown in (ii-a). Similarly, the analogue of (i-b) is not possible in German, just as we would expect; cf. (ii-b). (Note that I have inserted an IP-adjunct *letztes Jahr* ('last year') in (ii-b), so as to ensure that an analysis with pied piping of the whole subject NP, along with NP-internal PP preposing, is excluded. NP-internal PP preposing is in principle an

option in German (cf. section 3.2.2 of chapter 3), and in that case, a well-formed sentence would result.)

- (ii) a. [PP Von welcher Autorin ]<sub>i</sub> weißt du nicht [CP [NP welche Bücher t<sub>i</sub> ]<sub>j</sub>  
 by which author know you not which books<sub>nom</sub>  
 [IP t<sub>j</sub> einen Preis gewonnen haben ] ] ?  
 an award<sub>acc</sub> won have
- b. \*Ich weiß nicht [CP [PP von wem ]<sub>i</sub> [IP letztes Jahr [IP [NP  
 I know not by whom last year  
 verschiedene Bücher t<sub>i</sub> ] einen Preis gewonnen haben ]]]  
 several books<sub>nom</sub> an award<sub>acc</sub> won have

Taken at face value, the contrast between an ungrammatical example like (124-b), and a grammatical example like (ii-a) seems to suggest that *wh*-extraction from a *wh*-moved NP is possible if the extracted item is a *von*-PP, as in (ii-a), and impossible if it is another kind of PP, as in (124-b). However, it is argued in some detail in Koster (1987: 196f), Müller (1989: 190ff and 321f), Cinque (1990: 47ff), and Sternefeld (1991: 121ff), that *de*-phrases in the Romance languages, and *von*-phrases in German must often be analysed as being base-generated in the matrix clause as an optional argument of the matrix verb, where they at first sight give the impression of having undergone long-distance movement out of an embedded clause. I will now present some pieces of evidence which suggest that the PPs in (i-a) and (ii-a) have indeed not undergone long-distance movement out of the *wh*-fronted NP in the embedded clause, but rather short movement in the matrix clause. First, note that examples such as (ii-a) in German become completely ungrammatical as soon as the matrix verb is changed, cf.:

- (iii) \*[PP Von welcher Autorin ]<sub>i</sub> fragst du [CP [NP welche Bücher t<sub>i</sub> ]<sub>j</sub> [IP t<sub>j</sub>  
 by which author ask you which books<sub>nom</sub>  
 einen Preis gewonnen haben ] ] ?  
 an award<sub>acc</sub> won have

Obviously, *fragen* ('ask') in (iii) differs from *wissen* ('know') in (ii-a) in that it does not permit a *von*-phrase as an optional argument receiving an "aboutness interpretation" (Cinque (1990: 47)):

- (iv) a. Ich wußte das [PP von ihr ]  
 I knew that of her
- b. \*Ich fragte das [PP von ihr ]  
 I asked that of her

I would like to contend that the incapability of the embedded verbs in (i-b) and (ii-b) to take such an optional *von*-argument is also responsible for the deviance of these examples (in interaction with the general ban against extraction from an NP, of course).

Second, note that *von*-phrases in German do not only evoke the impression of having undergone long-distance movement from *wh*-moved XPs, as in (ii-a) – what is more, *von*-phrases also participate in constructions that at first sight look like instances of long-distance scrambling from a finite clause. This is shown in (v-a). However, for reasons to be discussed in some detail in the following chapter (in section 4.2), long-distance scrambling from a finite clause is strictly prohibited in German, cf. (v-b).

- (v) a. daß ich [PP von dieser Autorin ] glaube [CP daß [NP ein Buch ]  
 that I of this author believe that a book  
 erschienen ist ]  
 appeared is
- b. \*daß ich [NP dieses Buch ]<sub>i</sub> glaube [CP daß t<sub>i</sub> letztes Jahr erschienen ist ]  
 that I this book believe that last year appeared is

Again, it is fairly obvious that the acceptability of (v-a) is due not to long-distance movement (which would invariably result in ill-formedness, cf. (v-b)), but rather to the option of base-generating the *von*-phrase in the matrix clause as an optional argument of *glauben*. (Note incidentally that an analysis of (v-a) in terms of long-distance movement would also imply that a subject NP can be left in the course of *wh*-movement, in contrast to what is assumed by Chomsky in the light of examples such as (i-b).)

In conclusion, it seems to me that what the data in (i-a) and (ii-b) show is not that extraction from a *wh*-moved XP is possible, but rather that *de*-phrases and *von*-phrases are characterized by the peculiar property that they may show up as optional arguments of certain verbs, receiving an “aboutness interpretation.”

52. For discussion of pied piping in APs in Germanic, cf. Webelhuth (1992: 116ff). The hypothesis that (125-b) really involves pied piping, and not a combination of AP scrambling and *wh*-movement of *wie* (‘how’) to SpecC, is supported by the fact that a complementizer *daß* may optionally intervene between adjective and subject (in German dialects where the Doubly Filled COMP Filter does not hold); crucially, a complementizer *daß* may not intervene between *wh*-word and adjective, as in (i-a). This follows from the assumption that APs do not have an escape hatch (cf. section 3.9). Hence, *wh*-extraction from a scrambled AP results in ungrammaticality, just as *wh*-extraction from a scrambled NP, PP, or VP does (cf. section 4.2). Thus, (i-a) is excluded by the same principle that excludes (i-b) (viz., the ECP).

- (i) a. \*Sie sagte ihm [CP wie<sub>i</sub> daß [AP t<sub>i</sub> zufrieden ]<sub>j</sub> sie t<sub>j</sub> wäre ]  
 she said him<sub>dat</sub> how that content she would-be
- b. \*Wie<sub>i</sub> ist [AP t<sub>i</sub> zufrieden ]<sub>j</sub> sie t<sub>j</sub> gewesen ?  
 how is content she been

53. The strict prohibition against a co-occurrence of *wh*-movement and V/2 in embedded clauses in languages like German or English will be discussed in some detail in chapter 6.

54. Parts of this section are based on Müller & Sternefeld (1994: sec. 4.3).

55. See Lutz (1993) for more detailed discussion of the islandhood of clausal adjuncts in German.

## Notes to Chapter 3

1. Note, however, that this view of course still allows that, in the case of *wh*-movement of a *wh*-operator, S-structural movement may already satisfy the LF-requirements of the *wh*-phrase (viz., that it occupies an operator position and binds an IP-internal variable) – the SpecC position can be identified as an operator position at LF in these cases.

2. As pointed out before, A-movement in German is optional, due to the possibility of assigning nominative Case to a VP-internal object. Hence, one might assume that A-movement in German is not Case-driven. However, if we follow Grewendorf's (1989) theory of indirect assignment of nominative Case into the VP by means of Case-transmission from an empty expletive *pro* in SpecI, A-movement in German is Case-driven after all – an object in passive constructions can receive nominative Case only via being co-indexed with an element in SpecI, and if *pro* is not present and movement to SpecI thus possible, movement also becomes obligatory for Case reasons.

3. Cf. chapter 4 for arguments that the PP in (15-b) is in fact base-generated closer to the verb than the DO, i.e., that (15-b) must involve scrambling.

4. For the time being, I assume, following basically Lenerz (1977), that indirect objects (henceforth: IOs) asymmetrically c-command DOs at D-structure in German. This view will be revised in chapter 4. Note, however, that the approach to double object constructions developed there does not have any bearing on the present discussion. Still, the order “DO > IO” in examples like (16-b) must be derived via scrambling of the DO.

5. The basic differences between scrambling to IP in German, Korean, Japanese or Russian, and embedded topicalization in English are, in a nutshell, the following: (i) scrambling may be iterated, whereas topicalization can take place only once in a clause; (ii) topicalization creates islands, whereas scrambling does not; (iii) topicalization can induce verb raising, in contrast to scrambling; (iv) topicalization is not clause-bound, whereas scrambling is; (v) topicalization blocks clause-bound *wh*-movement, whereas scrambling does not block clause-internal *wh*-movement; and (vi) embedded topicalization as in (23) is confined to bridge contexts, which scrambling is not. I will address these differences in some detail in chapter 6.

6. Note in passing that there appears to be some disagreement in the literature just cited as concerns the nature of the “linking position” occupied by a scrambled NP in German. Haider (1991a; 1991b) and Frey & Tappe (1991) assume that scrambling involves an “optional dissociation of  $\Theta$ - and Case-assignment” (Frey & Tappe (1991: 34)) in the sense that the scrambled element occupies a Case position, and its trace a  $\Theta$ -position. Under this assumption, however, Case-assignment by V must apply

optionally, either to the base position, or to the derived scrambling position. This consequence is circumvented by Fanselow's (1992: 4) more conservative assumption that a scrambling position only has to be a *potential* Case position, not an actual one. As far as I can see, however, nothing hinges on this issue.

7. Fanselow simply states that "things are more liberal with PPs," and Frey & Tappe suggest: "Das Kasussystem muß hinreichend abstrakt verstanden werden, so daß auch die Zuordnung von Präpositionalobjekten ... darunter subsumiert werden kann."

8. Ultimately, this follows from a revision of Koster's (1978; 1987) Bounding Condition, but this need not concern us in the present context.

9. Notice that the same situation as in Icelandic occurs in the very few cases where English does in fact have overt Case morphology. Pronouns like *him*, e.g., can never undergo scrambling despite their being equipped with overt Case morphology:

- (i) \*Mary will [<sub>VP</sub> him<sub>i</sub> [<sub>VP</sub> give t<sub>i</sub> a book ]]
- (ii) \*Why did [<sub>IP</sub> him<sub>i</sub> [<sub>IP</sub> Mary give t<sub>i</sub> a book ]] ?

10. From both assumptions, it follows that languages like Japanese do not have *obligatory wh*-movement in the syntax. The fact that they do not even appear to have *optional* overt *wh*-movement then might be traced back to something like the *Procrastinate Principle* of Chomsky (1993), according to which movement applies as late as possible, i.e., ideally at LF.

11. On some putative exceptions in Southern German dialects, cf. Grewendorf (1988: 254ff).

12. Notice that (32-b) can be understood as a genuine question in colloquial Russian; no echo interpretation is necessary. Moreover, the generalization that in Russian, the specifier of a C node bearing the feature [+wh] must be occupied by a *wh*-phrase at S-structure, in matrix as well as embedded questions, is well established; hence it does not appear to be possible to analyse the examples in (32) differently. (Cf. Wachowicz (1974), Pesetsky (1982; 1987; 1989), and Rudin (1988), among others – an indirect piece of evidence for the claim that one *wh*-phrase obligatorily moves overtly to SpecC in Russian questions will emerge from the discussion in section 4, where it is shown that *wh*-movement behaves differently from scrambling in Russian; this can be explained by the PUB only if there is overt *wh*-movement in Russian.)

13. Note in passing that examples like (39-d) and (40-b) also show that PP-preposing cannot be adjunction to DP, which I have assumed to be dominated by NP. Of course, (39) and (40) would also show that adjunction to DP and NP is impossible under the "DP-hypothesis," i.e., the hypothesis that DP dominates NP.

14. Bayer (1990a: 69-76), while also assuming that (37), (38), and (42) involve movement to SpecD rather than scrambling, suggests that the existence of this type of construction is the reason why extraction from NP (DP, in his analysis) can take place – SpecD is an escape hatch in his theory. But it seems to me that examples

like those in (43) (cf. also section 4 below) clearly show that this approach is too liberal, since it cannot handle lexical variation in extraction from NP.

15. Much more would have to be said about this construction, though. In particular, a derivation of examples like (34-a) via movement of the NP to SpecD must also (i.e., in addition to the derivation via scrambling) be excluded, cf. (i):

- (i) \* $[_{NP} [_{DP} [ \text{meines Vaters} ]_i \text{ das} ] [_{N'} \text{blaue Schrottauto } t_i ]]$   
           my       father<sub>gen</sub>   the       blue junk-car

Since the R-pronoun *da* can undergo movement to SpecD (cf. (38)), the relevant factor cannot be the categorial status (PP vs. NP) of the moved item (unless one assumes that *da* is a PP, cf. Bennis (1986) for discussion). Rather, what might be relevant is whether a category has Case or not (recall from chapter 2 that there is good evidence that R-pronouns like *da* do not have to receive Case).

Another problem which shows up in the analysis given is this: If examples like those in (37) involve movement to SpecD, and DP is dominated by NP, then how can the moved item c-command its trace? Similarly, how can anaphoric binding in (ii) be accomplished?

- (ii)  $[_{NP} [_{DP} [ \text{von meinem Vater} ]_i \text{ das} ] [_{N'} \text{Buch über sich}_i ]]$   
           of my       father   the       book about REFL

Here, I will tentatively assume that there is an option of index percolation from SpecD to DP, which then may guarantee binding of NP-internal traces and anaphoric expressions. To rule out (i), it must be assumed that this percolation can apply only if the element in SpecD does not bear Case – an assumption which is not independently motivated, as far as I can tell.

16. However, it is well known that Dutch differs from German with respect to VP-internal scrambling in double object constructions (cf. den Besten (1985), Webelhuth (1989), den Dikken & Mulder (1991), den Dikken (1992), and Vikner (1994), among others). Here, in the case of full (i.e., non-pronominal) NPs, the accusative object generally may not scramble in front of the dative object (but cf. den Besten (1985) for a few apparent counter-examples). I have no explanation to offer for this. But cf. also appendix 3 of chapter 4 below.

17. Infinitives, though, are sometimes transparent for scrambling in German. I have nothing to say about these “coherent” infinitives in this book; cf., however, Sternefeld (1990) and Müller & Sternefeld (1995) for analyses of this phenomenon in the present framework.

18. E.g., he analyses topicalization in English as A-bar scrambling, mainly because of the fact that it may apply long-distance. As noted before, the view that topicalization in English is scrambling (i.e., adjunction to IP) will be discussed, and refuted, in chapter 6.

19. Another construction which at first sight seems to be similar to long-distance scrambling in Russian is clitic left dislocation in Italian (henceforth CLLD), as

discussed by Cinque (1990: ch. 2); most notably, CLLD may apply iteratively (cf. Cinque (1990: 58)). But, upon closer inspection, long-distance scrambling in Russian also differs from CLLD in Italian. For one thing, CLLD obeys the subject condition (cf. Cinque (1990: 59ff)). Moreover, elements which depend on antecedent-government (and thus have to undergo successive-cyclic movement) may not participate in CLLD in Italian (cf. Cinque (1990: 64)); but in Russian, it looks as though even a finite VP can be scrambled long-distance, cf. (i) (from Zemskaja (1973), Comrie (1973)):

- (i) No ja [VP ix postavila ]<sub>j</sub> pomnju [CP čto [IP *pro* [PP v škaf ] t<sub>j</sub> ]]  
 but I them put<sub>fem</sub> remember that in the cupboard  
 "But I remember that I put them into the cupboard."

Third, Cinque (1990: 71ff) shows that clitics are obligatorily present if an NP undergoes CLLD (and optional otherwise); no such constraint exists for long-distance scrambling in Russian. Finally, it seems that Russian actually has a phenomenon akin to Italian CLLD, which behaves differently from (long-distance) scrambling (e.g., clauses introduced by *čto* are islands for this construction); cf. Comrie (1973: sec. 3) for some discussion.

20. Scrambling out of a finite clause to the right of the matrix subject as in (91-c) is assumed to be rather marginal by Saito; however, according to Mitsunobu Yoshida (p.c.), there is no strong contrast to the examples in (91-ab).

21. I assume, in line with Lasnik & Saito (1992: 56), that SpecC is always left-peripheral, even in languages like Korean or Japanese, where C is right-peripheral.

22. Note incidentally that the observed asymmetry in adjunct movement cannot be reduced to an S-structure/LF distinction of movement types. As noted by Shin-Sook Kim (p.c.), long relativization of adjuncts in Korean (which we may assume to be an instance of *wh*-movement for present purposes) may escape from contexts that block scrambling; thus compare the ungrammatical (94-b) with (i), which is grammatical:

- (i) [NP [CP Op<sub>i</sub> Yǒngghi-ka [CP nae-ka t<sub>i</sub> sikan-ül ponae-öss-ta-ko ]]  
           Yǒngghi<sub>nom</sub> I<sub>nom</sub> time<sub>acc</sub> spend-PAST-DECL-C  
 mit-nūn ] sulchip ]  
 believe-REL pub  
 ("the pub in which Yǒngghi believes that I spent time")

23. In accordance with that, Imai (1987) argues, on the basis of evidence from long relativization, that the Subjacency condition does not hold in Japanese.

24. Something similar appears to be the case in Japanese. However, according to Saito (1985: 271f) and Lasnik & Saito (1992: 42f), there are no special Subject Condition effects with scrambling out of complex NPs. Extraction from complex NPs throughout is fairly marginal, but not entirely impossible, irrespective of whether the complex NP is an object or a subject. More or less the same applies in Korean (Shin-Sook Kim & Jung-Goo Kang (p.c.)) – here, extraction from complex (subject or

object) NPs is marginal, but uniformly better than extraction from subject clauses. I have no explanation for the relative acceptability of scrambling from complex (subject or object) NPs in Korean and Japanese. Nevertheless, I will assume that genuine subject clauses, as in (102), are relevant for determining whether or not the Subject Condition holds, and take it that something different is involved in CNPC configurations, with the effect of improving extraction from complex subject NPs in Korean and Japanese. Cf. also the remarks on the CNPC in chapter 2.

25. Well, not exactly; it seems that long-distance scrambling of objects in Korean does not depend on bridge environments, i.e., the choice of matrix verb does not appear to play a role. At present, I have no explanation for this; one might speculate that in Korean, *all* verbs m-select the empty nominal head of their propositional complement, and thus can incorporate it, removing the NP-barrier.

26. I have not considered subject scrambling in the discussion of Korean and Japanese. As concerns long-distance scrambling, subjects seem to pattern with adjuncts, rather than with objects, cf. H.H. Lee (1992) for Korean, and Saito (1985) for Japanese (but cf. also Y.S. Lee (1991) and Frank, Lee & Rambow (1992) for a different view). The opposite holds for *wh*-movement at LF (cf. Lasnik & Saito (1984; 1992)); here, subjects pattern with objects, and not with adjuncts. This contrast does not follow from the assumptions I have made so far. But Saito (1985: 210ff) has argued that subjects in Japanese cannot undergo S-structural movement at all, for reasons of Case theory; if this is correct, their behaviour is compatible with the analysis given.

27. Notice that I have so far assumed, following Rudin (1988), that LF-movement of *wh*-phrases to a SpecC position which is already filled by a *wh*-phrase, as in the structures in (113), right-adjoins the *wh*-phrase to SpecC. I have also assumed that this position is unambiguously a landing site for *wh*-movement, and not for scrambling.

28. It even sometimes appears that operators can, under certain circumstances, undergo scrambling in German without a decrease in acceptability. On the one hand, there is a clear Connectedness effect in the sense of Kayne (1984); e.g., scrambling of a DO *wh*-phrase across an IO in a multiple question in German (cf. (109-b)) is much better if the IO itself is a *wh*-phrase:

- (i) ?Warum hat der Fritz [VP was<sub>i</sub> [VP wem t<sub>i</sub> geschenkt ] ] ?  
 why has ART Fritz<sub>nom</sub> what<sub>acc</sub> whom<sub>dat</sub> given

I have no explanation for this; however, it seems likely that whatever ultimately accounts for Connectedness effects with, say, parasitic gaps, also accounts for (i) vs. (109-b).

On the other hand, it has been observed (cf., e.g., Fanselow (1991a: 16)) that scrambling of *wh*-phrases improves if the *wh*-phrases are "D-linked," in the sense of Pesetsky (1987). But, according to Pesetsky, D-linked *wh*-phrases are not operators. If this is correct, they do not have to undergo LF-raising to an operator position, and can be scrambled in the syntax without inducing a PUB violation at LF.

29. Also see Takahashi (1993) for a different view concerning Japanese examples that are structurally analogous to (121-b). Takahashi's approach, however, does not seem to be compatible with the behaviour of *wh*-adjuncts; this will be discussed immediately in the main text.

30. Rudin (1988) does not actually consider Russian. However, Russian behaves in all relevant respects like Polish, and not like, say, Bulgarian. Cf. chapter 5.

31. The question arises as to why it is that certain *wh*-phrases obligatorily undergo movement to a non-operator position in Russian. I assume, following Rudin, that there is a parameter according to which right-adjunction to SpecC is either permitted (Bulgarian) or disallowed (Russian, Polish) at S-structure. Furthermore, I would like to suggest that in Russian (but not in German), a C node bearing the feature [+wh] "attracts" all *wh*-phrases of a clause, and requires them to be adjacent (in a somewhat looser sense) to it. Also see chapter 5 for discussion.

32. As noted by Steve Berman (p.c.), *Full Representation* bears a certain resemblance to the Shortest Move Condition (or Minimize Chain Links), developed by Chomsky & Lasnik (1993: 546) in order to derive the effects of Rizzi's (1990) theory of Relativized Minimality. The basic idea in both cases is that successive-cyclic movement must somehow be forced. Apart from that, however, the two principles differ substantially. First, *Full Representation* is a strictly representational constraint, whereas the Shortest Move Condition is derivational in nature. Second, *Full Representation* forces successive-cyclic movement only if this is possible – if an intermediate trace cannot be established (due to the PUB or the Adjunction Site Parameter), it does not have to be, and the result is, *ceteris paribus*, well formed. On the other hand, the Shortest Move Condition strictly forces successive-cyclic movement, with no qualification; thus, if an intermediate trace cannot be established, ungrammaticality results. Third, *Full Representation* crucially concerns adjunction sites only. If also SpecC, e.g., would have to be filled if possible in German, there would be no contrast between Subjacency effects and ECP effects in this language – *Full Representation*, which, as we have seen, must be taken to apply at LF in German, would prohibit LF-deletion of intermediate traces of arguments in SpecC, and thus lead to ECP violations in all these cases, contrary to fact (cf. chapter 2).

33. Assuming that a chain is subject to the PUB, as in (128), is not quite the same as assuming that the PUB applies at a certain level, as in (127). For the movement types discussed in this book, this does not play a role. But consider quantifier raising at LF (QR). According to (127), QR may apply in an ambiguous fashion, using, e.g., SpecC as an escape hatch, in the languages where the PUB does not apply at LF. However, QR seems to be a clause-bound process in general. In Müller & Sternefeld (1993) it is shown that the clause-boundedness of QR follows from the PUB if QR chains obey the PUB in all languages. However, this, on the one hand, requires a slight modification of the parameter "the PUB applies/does not apply at LF," and on the other hand necessitates a formulation of Full Representation as in (128), to the effect that certain kinds of *chains* are constrained by the PUB. For a detailed discussion of QR, Full Representation, and the PUB, cf. Müller & Sternefeld (1993: sec. 4.2). (Also see section 7 of chapter 5.)

34. Note incidentally that, under the present assumptions, there could in principle be a language which behaves more or less like Russian with respect to long-distance scrambling, but like German with respect to operator scrambling. In such a language, CP and NP would be possible adjunction sites, and the PUB would apply at both S-structure and LF.

35. As noted in section 4.2 of chapter 2, I assume, following Grewendorf (1986), that the very option of infinitive scrambling, as in (131-b), is the reason for the existence of apparent clausal pied piping in German, as in (i), and the lack of such a construction in non-scrambling languages like English.

- (i) das Problem [<sub>CP</sub> das<sub>i</sub> [<sub>C'</sub> (wo) [<sub>IP</sub> [<sub>CP</sub> t'<sub>i</sub> PRO t<sub>i</sub> zu lösen ]<sub>j</sub> [<sub>IP</sub> keiner t<sub>j</sub>  
 the problem that REL-C to solve no-one  
 versuchen wird ]]]]  
 try will

36. (134-a) makes this point only if it can be maintained that *wollen* ('want') in German is not a control verb which embeds a clause. Cf. Stechow & Sternefeld (1988) and Geilfuß (1992) for discussion.

37. To my mind, the intermediate status of the examples in (134) and (135) casts doubt on the explanations of the apparent categorial selectivity of scrambling offered by Frey & Tappe (1991: 15) and Fanselow (1992: 3). Frey & Tappe suggest that only those items can undergo scrambling which are already base-generated in an adjoined position in the first place; according to their assumptions, arguments of V are base-generated in VP-adjoined positions. But, apart from some theory-internal problems with their analysis, which do not concern me here, there does not appear to be a way to account for the intermediate and somewhat variable status of examples like those in (134) and (135). The same conclusion applies in the case of Fanselow (1992), where an ECP account is proposed. According to Fanselow, elements in adjoined positions cannot antecedent-govern their traces. Then, only those elements can undergo scrambling which are lexically (or  $\Theta$ -) governed (alternatively, which are "referential" in Cinque's (1990) sense), and do not depend on antecedent-government. This rules out predicate scrambling; but again, there is no obvious way to account for the intermediate status of the pertinent examples. Moreover, as we have seen, non-arguments, which are neither  $\Theta$ -governed, nor "referential," can in principle also undergo scrambling in German, which is entirely unexpected if antecedent-government is the crucial factor in determining categorial selectivity in scrambling options. Note finally that both Frey & Tappe's and Fanselow's proposals make wrong predictions under a cross-linguistic perspective. I will later address this issue in the main text.

38. There are two obvious exceptions to (137). First, another element may bear contrastive focus; then, a topicalized predicate does not have to bear focus. In what follows, I will ignore this case. Second, it appears that a topicalized predicate does not have to be focused if it participates in the so-called "I-topicalization" construction; this issue will be discussed shortly.

39. This point is also made by Brandt, Reis, Rosengren & Zimmermann (1992: 10f) and Reis (1991), where sentences such as (i) are discussed, and judged grammatical.

- (i) obwohl verlieren<sub>i</sub>/ er nur sehr schwer \ t<sub>i</sub> kann ...  
 although lose he only hardly is-able-to

Without I-topicalization being present, (i) is deviant, just like (134) and (135). Note however, that what I assume to be an exceptional instance of predicate scrambling is analysed as an exceptional case of topicalization (i.e., movement to a specific topic position) in the works just cited. I believe that such an analysis is not correct, though, since the construction in (i) (or in (134) and (135)) shares virtually none of the characteristics of topicalization in German (which I will discuss in chapter 6 below), but rather patterns exactly like scrambling in all relevant properties. First, this movement type does not depend on bridge properties of the matrix predicate, and may apply even in subject or adjunct clauses (as in (i)); cf.:

- (ii) a. Ich glaube [CP daß verlieren er nur sehr schwer kann ]  
 I believe that lose he only hardly is-able-to  
 b. Ich bedauere [CP daß verlieren er nur sehr schwer kann ]  
 I regret that lose he only hardly is-able-to  
 c. [CP Daß verlieren er nur sehr schwer kann ] hat mich nicht  
 that lose he only hardly is-able-to has me<sub>acc</sub> not  
 überrascht  
 surprised

Second, this movement does not block either clause-bound or long-distance *wh*-movement, or topicalization (i.e., it does not create topic islands), in contrast to topicalization:

- (iii) a. Ich weiß nicht [CP warum<sub>i</sub> verlieren er t<sub>i</sub> nur sehr schwer kann ]  
 I know not why lose he only hardly is-able-to  
 b. [Gegen wen ]<sub>i</sub> denkst du [CP t'<sub>i</sub> daß verlieren er nur sehr schwer t<sub>i</sub>  
 against whom think you that lose he only hardly  
 kann ] ?  
 is-able-to  
 c. [Gegen Boris Becker ]<sub>i</sub> hat verlieren er nur sehr schwer t<sub>i</sub> gekonnt  
 against Boris Becker has lose he only hardly been-able-to  
 d. [Gegen Boris Becker ]<sub>i</sub> denke ich [CP t'<sub>i</sub> daß verlieren er nur  
 against Boris Becker think I that lose he only  
 sehr schwer t<sub>i</sub> kann ]  
 hardly is-able-to

Third, if I-topicalization can be forced, predicate movement of the type shown in (i) may end in a position that *follows* the subject, which would imply that there is yet another topic position in German, cf.:

- (iv) obwohl er verlieren/ nur sehr schwer\ kann ...  
 although he lose only hardly is-able-to

Fourth, this kind of predicate movement does not induce V-raising, unlike topicalization in languages like German; and so forth. The one case where Brandt, Reis, Rosengren & Zimmermann (1992) and Reis (1991) argue that predicate movement behaves like topicalization, rather than like scrambling, concerns the purported option of this movement type to apply long-distance, as in (v-ab).

- (v) a. ??obwohl verlieren<sub>i</sub> er nie und nimmer glaubte jemals lernen zu  
 although lose he never believed ever to-learn to  
 müssen ...  
 have
- b. \*obwohl verlieren<sub>i</sub> er nie und nimmer glaubte daß er gegen Boris  
 although lose he never believed that he against Boris  
 Becker t<sub>i</sub> würde  
 Becker would

However, in contrast to Reis (1991), I find predicate movement from a finite clause, as in (v-b), completely ungrammatical, just as one would expect it to be if this movement type is an instance of scrambling. On the other hand, movement from an infinitive, as in (v-a), for me has an intermediate status, which may plausibly be traced back to a marginal option to analyse the infinitive as coherent, despite extraposition, so that long-distance scrambling is permitted.

40. Note in passing that this example once more instantiates a violation of the Left Branch Condition in Russian; recall the examples (63-a) and (63-b) from section 4.1.

41. E.g., one would like to know *why* it is that (137) seems to hold (i.e., that predicates in derived positions are usually focused); and *why* it is that I-topicalization exempts predicates from this requirement. At present, I am not able to advance answers that would be even vaguely satisfactory.

42. Note in passing that the constructions in (142-a) and (143-a), as well as some of the examples to be presented in what follows, should violate the  $\Theta$ -criterion, according to Rizzi's (1986) chain formation algorithm. For the time being, I will simply ignore this; however, I return to this issue briefly in section 10 below, and then, in more detail, in section 6 of the following chapter.

43. The following remarks are based on Müller & Sternefeld (1994: 351ff).

44. Y.S. Lee (1991: sec. 3.2) notes that a scrambled NP can license the anaphor *chaki(chasin)* in Korean, after clause-bound or long-distance scrambling; she concludes from this that scrambling is A-movement. However, it is well known that *chaki(chasin)* in Korean shares properties with both pronominals and anaphors, and in any case behaves rather differently from the anaphoric expressions in German, English, or Russian. I will tentatively assume that Korean *chaki(chasin)* only requires an S-structural binder, but not necessarily an A-binder. Then, the idea that

scrambling is uniformly A-bar movement can be maintained in light of the Korean evidence involving anaphoric binding. Cf. also Frank, Lee & Rambow (1992: 147ff) for a similar proposal.

45. But cf. Müller (1993), where it is argued that strong crossover effects can be derived from the PUB. This ultimately leads to a rejection of the idea that binding theory is relevant for the licensing of traces. Note also that, under the contextual definition of variables tentatively adopted in chapter 1, the traces in (153-ab) and in (154-ab) actually would not turn out as variables, because they are locally A-bound. For present purposes, however, it may suffice to assume that the traces in (153) and (154) can be classified as variables, under some appropriate classification of empty categories. – Also see Lasnik (1985: 487ff), Frampton (1990: 60), Fanselow (1991: 64), and Roberts (1991: 45ff) for different approaches to crossover that dispense with principle C.

46. With scrambling to VP, matters are somewhat more complicated, because a clear identification of VP-internal strong crossover effects requires an articulated theory of VP-structure. See chapter 4 below.

47. One might argue that examples like (155) are independently ruled out because, for reasons which are not clear, scrambling in front of a pronoun in SpecI generally reduces grammaticality. Note, however, that (155) improves a lot if the pronoun is not co-indexed with the moved item, as in (i):

- (i) ??daß [IP den Fritz<sub>i</sub> [IP er<sub>j</sub>/sie<sub>j</sub> [VP t<sub>i</sub> nicht leiden kann ]]]  
 that ART Fritz<sub>acc</sub> he<sub>nom</sub> /she<sub>nom</sub> not like can

48. Cf., for instance, Chomsky's (1976) *Leftness Condition*, or the *Bijection Principle* developed by Koopman & Sportiche (1982).

49. Note that this formulation automatically excludes cases of strong crossover as well. However, since strong crossover effects are generally judged more ungrammatical than weak crossover effects (and hence, it does not suffice to assign two question marks in these cases), it is necessary in any event to have an additional explanation of strong crossover effects, like principle C of the binding theory. Thus, there is no reason why strong crossover effects should not imply a violation of (158) in addition to principle C (or whatever accounts for strong, as opposed to weak, crossover).

50. I will assume that what is responsible for the variation with respect to weak crossover is indeed a dialectal split, and not something different (like theory-induced bias); the judgements of the two groups of speakers have proven remarkably robust.

51. More precisely: if the bound variable pronoun is neither bound at S-structure, nor at D-structure. Reconstruction or chain-binding (in Barss' (1984; 1986) sense) can license a bound variable pronoun, cf.:

- (i) daß [IP [NP seine<sub>i</sub> Schwester ]<sub>j</sub> [IP jeder<sub>i</sub> t<sub>j</sub> mag ]]  
 that his sister<sub>nom</sub> everyone likes

Also see section 11 below, and section 7 of chapter 4, for some discussion.

52. It has been argued, on the basis of its strict locality, that QR is an instance of A-movement. However, as noted before, in Müller & Sternefeld (1993) it is shown that the clause-boundedness of QR follows from the PUB, and is therefore perfectly compatible with the assumption that QR is A-bar movement.

53. Ultimately, it might be possible to relate the question of whether the licensing of bound variable pronouns may take place at S-structure in principle, or has to apply at LF throughout, to another difference. Fanselow (1990), for instance, notes that in his dialect of German, there is a strong tendency to anticipate QR, by means of scrambling at S-structure, in the sense that relative scope can generally be read off of S-structural representations. In contrast, in my dialect, relative scope is, by and large, independent of linear order. Possibly, one might say that in one dialect of German (the liberal one, as concerns weak crossover), *semantic variables* (i.e., traces as well as bound variable pronouns) can arise at S-structure already if there is a potential binder, so that, among other things, the licensing of bound variable pronouns may take place at S-structure, whereas semantic variables are identified in the more rigid dialect (as concerns weak crossover) at LF only. In the same way, one might try to correlate the lack of weak crossover effects with A-bar movement in Hungarian to the tendency of this language to anticipate QR at S-structure; cf. Kiss (1987) for discussion.

54. For instance, it is well known that, even in the more liberal dialect of German, a weak crossover effect shows up when the S-structural binder of a pronoun is not a D-structural clause-mate (cf. Frey (1989), Höhle (1991: 192), or Fanselow (1991a: 5)):

- (i) ?\*Wen<sub>i</sub> denkt [NP seine<sub>i</sub> Schwester ] daß jeder t<sub>i</sub> verabscheut ?  
 who<sub>acc</sub> thinks his sister that everyone loathes

Furthermore, it seems that a bound variable pronoun is generally exempt from an S-structural binding requirement if it does not have a potential binder within its minimal clause. Thus, as noted by Koster (1988: 10), S-structurally unbound pronouns can nevertheless be interpreted as bound variables at LF without problems if they occur in a subject clause which does not contain a potential binder:

- (ii) [CP That he<sub>i</sub> is supposed to work ] is regretted by [ every student ]<sub>i</sub>

Similarly, as observed by Stowell (1991: 24ff), bound variable pronouns in adjunct clauses do not have to be A-bound. In fact, they even can occur in positions where parasitic gaps may also show up, and here, A-binding is prohibited (Stowell calls this phenomenon "pg-gates"):

- (iii) [ Which papers ]<sub>i</sub> did you file t<sub>i</sub> [CP before reading them<sub>i</sub> ] ?

In order to capture these (and related, cf. Stowell (1991) and Stechow (1991)) facts, the conditions on  $\delta$ -assignment given in the text must be modified. However, since

this does not directly bear on the main issue, viz., that of distinguishing movement types, I will not attempt to do that here.

55. Note that (174) cannot be ruled out by a requirement that the real gap and the parasitic gap bear the same abstract Case – as Bayer (1988: 420) has shown, there is a Case-matching requirement in German parasitic gap constructions, but only with respect to *morphological* Case, and not with respect to *abstract* Case. This is shown in (i) (where  $e_i$  bears abstract dative Case,  $t_i$  bears abstract genitive Case, and *dieser Dame* is morphologically ambiguous between dative Case and genitive Case). The *morphological* Case-matching requirement is fulfilled in (174), because *dieses Buch* can be both, nominative and accusative.

- (i) [ Dieser Dame ]<sub>i</sub> hätte er sich [CP ohne  $e_i$  schon mal Geld  
 this woman would he have without already once money  
 angeboten zu haben ]  $t_i$  niemals entsinnen können  
 offered to have never remember been-able-to

56. Webelhuth (1989: 412) presents parasitic gap constructions with scrambling in German, which he takes to show that the scrambled item occupies both, an A-bar, as well as an A-position. Since Webelhuth's examples crucially involve double objects, I postpone the discussion of these data until section 7.2 of the following chapter.

57. Thus, Fanselow (1990: 119) claims that scrambling does not license parasitic gaps, which implies that examples like (175-ab) should be ungrammatical, and which is compatible with an A-movement analysis of scrambling; on the other hand, Fanselow (1992: 6) and Santorini (1990: 18f) state that parasitic gaps in German can be licensed without movement, which implies that, inter alia, both (175-ab) and (176) are grammatical, and which is compatible with an A-movement approach insofar as it necessitates a rethinking of the whole phenomenon. As noted in the text, though, the contrast between (175-ab) and (176) is real, and, moreover, very strong for most speakers.

58. The following remarks are based on section 4.2 of Müller & Sternefeld (1994).

## Notes to Chapter 4

1. Larson (1988) assumes that there is an IO-trace in dative shift constructions, but this is actually of very little importance for the analysis he proposes. Hence, one can for the most part adopt Larson's analysis without subscribing to the idea that dative shift is a syntactic phenomenon (i.e., that a "shifted" IO binds a trace), as it is in fact done by Speas (1990: ch. 2.3.2) and Vikner (1990: ch. 4.3).

2. A terminological remark: I call "double object constructions" all constructions involving a triadic verb assigning the  $\Theta$ -roles AGENT, THEME and GOAL, irrespective of the actual realization of the GOAL (i.e., as a bare NP or as a PP with a preposition like *to*). This is not in accordance with some of the literature on this topic (where it is postulated that "double object constructions" are only those where

the IO has undergone dative shift), but I think that it conforms better to the claim that both constructions are more or less identical from a semantic point of view. However, nothing depends on this terminological stipulation.

3. Throughout this chapter, I will generally disregard constructions with an IO and a DO which are not entirely predictable. Höhle (1982), Fanselow (1991), Haider (1992; 1993) and others have shown that some triadic verbs in German behave rather differently from the ones I am concerned with here. For example, certain verbs induce unmarked word orders different from those exhibited by the regular double object construction. Verbs like *unterziehen* ('subject to') or *aussetzen* ('expose'), for instance, have an unmarked ACC > DAT order. Interestingly, the IOs in these constructions are clearly not GOAL arguments. I conclude that they receive lexical Case from the verb, and will ignore them in what follows. In any event, one should keep in mind that by far the largest and, hence, arguably most interesting set of triadic verbs in German consists of the verbs "of giving and taking in a broader sense" (cf. Eisenberg (1986: 288)) – i.e., those verbs that take a THEME and a GOAL argument.

4. According to Speas' own theory, there are always exactly two verbal heads in double object constructions, and, more generally, in all clauses involving agentive subjects. This is due to her assumptions about lexical decomposition, according to which an agentive verb is always decomposed into two parts, one of which can be identified as a "CAUSE" predicate, while the other subsumes the "residual" meaning of the particular agentive verb.

5. Cf. appendix 1 on the question of how, and under which circumstances, the VP-shell is projected.

6. Note that this analysis bears obvious parallels to Chomsky's (1991; 1993) discussion of Case-assignment by moving into SpecAGR/O, the specifier of a functional category "object-agreement." It is likely that the VP-shell analysis can easily be rephrased in terms of a structure where VP is dominated by AGR/O-P, the main difference being that "O" would stand for "indirect object," and not for "direct object." More generally, it appears that for most purposes, one may also look at the head of the VP-shell as a functional category, rather than as an empty verb. Since nothing hinges on it in the present context, I will not pursue this matter here; but cf. Mahajan (1990), Johnson (1991) and appendix 1 below for some related discussion.

7. It appears that the German preposition *an* is more restricted in double object constructions than its English counterpart *to*. I contend that this is due to the lexical semantics of *an*, which differs from *to* in being compatible with fewer verbs. Note, however, that *an* seems to have undergone a semantic change in recent times. Goethe, for instance, uses *an* in a much broader sense. Thus, consider (i), which nowadays strikes speakers as odd (to say the least), and must be expressed as in (ii), i.e., by means of dative movement:

- (i) Ich hab an Arkas alles klar erzählt  
 I have to Arkas everything clearly told  
 (*Iphigenie auf Tauris*, fifth act, third scene)

- (ii) Ich hab Arkas alles klar erzählt  
I have Arkas<sub>dat</sub> everything clearly told

8. One should keep in mind, though, that the preposition *an/to* in double object constructions exhibits a hybrid status between Case-assigning element and Case-marker. Obviously, it is this apparent ambiguity which has provoked some authors (such as Kayne (1984)) to claim that a preposition attached to an IO in double object constructions is somehow necessary for “transmittance” of the Case assigned by the verb, although it is not in itself able to assign Case to the IO. Cf. appendix 3.

9. Incidentally, (24) corresponds more or less to what is proposed by Chomsky & Lasnik (1977) and Chomsky (1981) as the structure of double object constructions. Consider (i), from Chomsky (1981: 171):

- (i) John [VP [V<sub>v</sub> gave Bill ] a book ]

According to these analyses, the dative-bearing IO is closer to the verb, and hence asymmetrically *c*-commanded by the DO. This consequence is empirically unwanted, as seen above.

10. The reason why it is not entirely clear that the examples in (29) involve true IO clauses is that one has the intuition that there is an additional PP involved, which dominates the clausal complement. Thus, there are examples which differ from (29-ab) only minimally, in that an overt PP occurs. Possibly (29-ab) are to be treated on a par with (i) and (ii), the only difference being that a process of PF deletion has removed the correlative PP in (29):

- (i) \*Warum<sub>i</sub> hat der Fritz [VP dich darüber informiert [CP t'<sub>i</sub> daß [IP  
why has ART Fritz<sub>nom</sub> you<sub>acc</sub> about-that informed that  
er t<sub>i</sub> wieder arbeiten will ]]] ?  
he again work wants-to
- (ii) ?\*Wen<sub>i</sub> hat man [VP die Anna dazu gezwungen [CP t'<sub>i</sub> daß [IP sie  
who<sub>acc</sub> has one<sub>nom</sub> ART Anna<sub>acc</sub> to-that forced that she  
t<sub>i</sub> heiratet ]]] ?  
marries

On the other hand, (ii) is somewhat worse than (29-b) in the text, indicating that the two constructions might differ at S-structure after all.

11. Actually, the case is somewhat more complicated. There is yet another thematic paraphrase, with *die Blumen* as accusative object and *Wasser* becoming oblique (by being embedded in a PP): *daß wir die Blumen mit Wasser überschütteten* (lit. ‘that we the flowers<sub>acc</sub> with water poured-over’). This indicates that *Wasser* (‘water’) is in a derived position in (33-ab), too. These complications will be ignored here.

12. One might wonder why neither *sich* nor *einander* may occur in the subject

position of control infinitives, as in (i) or (ii), given that they do not have to receive Case:

- (i) \*Fritz<sub>i</sub> versuchte [CP [IP sich<sub>i</sub> zu arbeiten ]]  
 Fritz tried REFL to work
- (ii) \*[ Wolfgang und Arnim ]<sub>i</sub> glauben [CP [IP einander<sub>i</sub> einander<sub>i</sub> zu verstehen ]]  
 Wolfgang and Arnim believe RECIP RECIP to understand

Examples like these could possibly be excluded as principle A violations, given some adjustments of the binding theory, and in particular of the notion of governing category. Alternatively, one might postulate that all NPs with lexical content must be *governed*, even if they do not have to receive Case (like the anaphoric expressions *sich* and *einander*).

13. Here, I abstract away from putative instances of Case-assignment to SpecC, as argued for by Kayne (1984) with respect to French, and by Kiss (1991) with respect to Hungarian. In the Germanic languages under consideration, Case can never be assigned to that position.

14. Cf. also the notion of “L-related position” in Déprez (1989), Mahajan (1990), Chomsky & Lasnik (1993), and Chomsky (1993).

15. Note that these considerations strongly suggest that it is not sufficient to simply *replace* the A-/A-bar distinction by another dichotomy (such as the distinction between L-related and non-L-related positions; cf. the literature cited in the previous note, and Rizzi (1991a) for a related approach); rather, it turns out that the classic theory of landing sites in terms of an A-/A-bar distinction should persist, being enriched by an additional GF-/GF-bar distinction. Further evidence for the distinction between A-positions, GF-positions, A-bar positions and GF-bar positions will be presented in the following sections.

16. Cf. also Yang (1983) and Koster (1985) for additional empirical evidence in support of this claim.

17. More precisely, one has to distinguish between *deictic* and *coreferential* uses of referential pronouns, depending on whether the reference of a pronoun is determined by the extralinguistic context, or by a referential antecedent, such as a proper name. In addition, there appears to be an “E-type” use of pronouns, which is relevant, e.g., for the interpretation of donkey sentences; cf. Heim (1982). These further semantic distinctions, however, are of no importance in the present context. For a detailed discussion of the interaction of semantic and syntactic properties of anaphoric expressions, cf. Heim (1993) and Sternefeld (1993).

18. The crucial cases where anaphors and pronouns are not in complementary distribution in a language like English involve either i-over-i configurations, as in (i), where both NP-internal anaphors and pronouns can be bound by an antecedent in the matrix clause, or clause-bound co-indexing of NP-internal anaphors or pronouns with a c-commanding subject (as in (ii) and (iii)). Cf.:

- (i) a. They<sub>i</sub> thought that [NP pictures of each other<sub>i</sub> ]<sup>i</sup> AGR<sup>i</sup> are on sale  
 b. They<sub>i</sub> thought that [NP pictures of them<sub>i</sub> ]<sup>i</sup> AGR<sup>i</sup> are on sale  
 c. They<sub>i</sub> thought that [NP each other's<sub>i</sub> pictures]<sup>i</sup> AGR<sup>i</sup> are on sale  
 d. They<sub>i</sub> thought that [NP their<sub>i</sub> pictures]<sup>i</sup> AGR<sup>i</sup> are on sale
- (ii) a. The children<sub>i</sub> like [NP each other's<sub>i</sub> friends]  
 b. The children<sub>i</sub> like [NP their<sub>i</sub> friends]
- (iii) a. The children<sub>i</sub> heard [NP stories about each other<sub>i</sub> ]  
 b. The children<sub>i</sub> heard [NP stories about them<sub>i</sub> ]

Thus, it appears that anaphors and pronominals are always in complementary distribution if they are co-arguments of a predicate. For some discussion, see Chomsky (1981), Huang (1983), Chomsky (1986a), and Reinhart & Reuland (1991), among others.

19. Similarly, it does not seem possible to derive a strong crossover effect by invoking principle C in the case of the DO trace  $t_i$  in (82). The reason is that, since the IO occupies an A-bar position, illicit A-binding of  $t_i$  does not occur.

20. Both accounts make an interesting prediction, different from Rizzi's chain formation analysis. As noted by Lasnik (1985), there are constructions in Italian which differ from (85) only minimally, but are acceptable nonetheless. They look like this:

- (i) Gianni<sub>i</sub>  $si_i$  vuole PRO<sub>i</sub>  $t_i$  vedere nello specchio  
 Gianni REFL wants see in-the mirror

Here,  $si_i$  undergoes long clitic movement (so-called 'clitic climbing') out of a coherent infinitive. According to Rizzi's (1986) theory, (i) should be ruled out because PRO invariably enters the  $si$ -chain in the course of chain formation due to the local binding requirement. However, there is no crossing of co-indexed paths in (i), so the Crossing Constraint on binding makes the correct prediction. Similarly, the sentence turns out to be ungrammatical in the revised theory of chain formation – PRO does not enter the  $si$ -chain since it is not a trace.

21. This filter is not actually proposed by Czepluch. In its given form, it stems from Oehrle (1983: 175) and Baker (1988: 295), who elaborate on a remark of Czepluch's (1982: 19), according to which he "(presupposes) a general prohibition of layered empty nodes" in his account of data like those in (121).

22. As concerns structures like (125-a), Haegeman (1985/86) does not assume Czepluch's filter; rather, she suggests that constructions which display the configuration depicted in (124) should be excluded by whatever excludes preposition stranding. Now, West Flemish does not exhibit the phenomenon of preposition stranding, and so Haegeman succeeds in accounting for the ungrammaticality of (123) by invoking an ECP which incorporates directionality constraints (following the directionality-based theories of proper government developed by Bennis, Hoekstra, Koster, and others). However, English *does* exhibit preposition stranding, and

nevertheless one has to make sure that the empty preposition may not strand, as in (125-a). To my mind, this casts doubt on her analysis.

23. A PUB-related account has independently been proposed by Fanselow (1991: 102).

24. It is, however, not compatible with the main bulk of literature on the issue, where it is assumed that only one Case in dative shift constructions is structural, and is hence affected by passivization (*viz.*, the one of the IO). This holds, e.g., for Larson's (1988: 359ff) theory of passive, or for Vikner's (1990: sec. 4.3.2) analysis in terms of Rizzi's (1990) Relativized Minimality theory; see below.

25. Note in passing that the passive auxiliary may be homophonic to an ordinary auxiliary. This is the case in German, where *werden* can be used as either a passive auxiliary, or as indicating future tense. In the second case, neither subject demotion, nor Case absorption occurs. I assume that there are two different lexical entries in this case – *werden*<sub>1</sub> selects (at S-structure) a VP the head of which is a participle, and *werden*<sub>2</sub> selects a VP the head of which is an infinitive. Thus, constructions with, e.g., the passive auxiliary *werden*<sub>1</sub> and an infinitival VP are ruled out at S-structure as violations of selection requirements.

26. Cf. Höhle (1978), Fanselow (1987), Reis (1985), Czepluch (1988), Tappe (1985), Haider (1984a), Stechow (1990a), and the literature cited in these works for discussion. This construction has a number of intricate properties, but the picture which emerges on the whole is that the recipient passive is a true passive construction, to be treated on a par with the *werden*-passive construction.

27. The recipient passive construction is not yet fully grammaticalized – the passive auxiliaries *bekommen* and *kriegen* have homophonic counterparts which mean something like 'to receive.' However, in their passive auxiliary versions, *bekommen* and *kriegen* generally do not evoke the idea of receiving anymore. This becomes evident when one considers sentences like *daß der Frank sein Fahrrad geklaut kriegt* ('that ART Frank<sub>nom</sub> his bicycle<sub>acc</sub> stolen 'receives') – after all, Frank does not receive a bicycle in this example; rather, a bicycle is stolen from him. Also see section 10.

28. The status of (131-b) is not uncontroversial. Höhle (1978: 45) and Stechow (1990a: 187) consider examples like this one ungrammatical, whereas Wegener (1985) accepts recipient passives with intransitive verbs. I think that (131-b) is better than (131-a), but still a lot worse than recipient passives with transitive verbs. An explanation of the intermediate status of (131-b) is proposed by Fanselow (1987: 161ff). He points out that *helfen* ('to help') allows an infinitival complement, in addition to the IO, which may possibly be regarded as a DO. Then, the dative Case assigned by *helfen* might be considered structural, and it can be absorbed by the passive auxiliary *kriegen/bekommen*. This explanation is corroborated by the fact that grammaticality decreases rapidly if a verb is involved which is truly intransitive, e.g., *widersprechen* ('contradict'):

- (i) ?\*daß Antje widersprochen kriegt  
 that Antje<sub>nom</sub> contradicted PASS<sub>2</sub>

Wegener (1985), however, still finds examples like (i) grammatical.

29. Following a proposal of Rizzi's, Vikner (1990: ch. 4) suggests that in Norwegian (but not in Danish) the IO somehow does not count as an intervening A-element. The idea is that both the DO and the IO are governed in the same way. Although this solution may work, it is rather ad hoc, and there does not appear to exist independent empirical evidence in support of it. More generally, the data discussed in this section clearly indicate that passivization in double object constructions is a more heterogeneous phenomenon than is often assumed.

30. Upon closer inspection, however, passivization in English double object constructions is not as uniform as one might hope. It is well known that A-movement of the DO is better if the IO is a weak pronoun (cf. Oehrle (1976), Larson (1988)). The same seems to hold in the more restrictive variant of Norwegian which normally prohibits A-movement of the DO in dative movement constructions (cf. Hestvik (1986), Fanselow (1991)):

- (i) a. A letter<sub>i</sub> was given 'im/\*HIM by Mary  
 b. En gave<sub>i</sub> ble gitt ham/\*Jon  
    a gift<sub>nom</sub> PASS given him/Jon<sub>dat</sub>

This strongly reminds of the option of the German anaphor *sich* to stay in situ even as an IO which is not supported by a Case-assigning preposition. One might be tempted to assume that *weak* pronouns in English and Norwegian do not have to receive structural Case. Then, the highest structural Case assigned by the verb is the accusative Case, and this is the one which is absorbed after incorporation into the passive auxiliary, according to (134).

Another problem noted by Fanselow (1991: 103) (who cites McCawley (1988)) is that A-movement of the DO in double object constructions is much better in British English than in American English. In the present framework, one can account for this by assuming that the passive auxiliary in British English follows (136), rather than (134). That is, British English is like (the more liberal variant of) Norwegian in that the passive auxiliary just absorbs some structural Case, but not a particular one.

31. Here, a way out might consist in the stipulation that movement of a DO to SpecAGR/O may only apply at LF, and not at S-structure. See Chomsky (1993).

32. Chomsky (1993: 17ff) proposes a Shortest Move (or Minimize Chain Links) Condition (augmented by a notion of *Equidistance*) under which ambiguities of this kind do not arise. However, it is well known that the Shortest Move Condition faces serious counterevidence in double object constructions, where three structural Cases (i.e., three Case-driven movements of arguments, by Chomsky's assumption) are involved; see, e.g., Collins & Thráinsson (1993) and Zwart (1994).

33. As concerns the latter case, a potential problem arises. Assuming that there is no V-to-I movement at S-structure in English, we have to assume lowering of I *into* the complex verb. On the other hand, if one were to assume that V-to-I movement exists in the syntax of English, one would have to make sure that the problem can

be solved of how it can be that the V+P head “incorporates” into I, but actually clusters around the I morpheme, rather than adjoining to one side of it. After all, the resulting complex verb is *call-ed up*, and not *call up-ed*. I will have to leave these issues unaccounted for.

34. Recall from chapter 2 that this stipulation is at the heart of Kayne’s account of the diverging options of preposition stranding in English and French.

35. Incidentally, (186-a) provides one of the few arguments in support of the existence of NP-movement in German. If (186-a) were derived by scrambling, we would expect it to pattern together with (185-ab) with respect to focus projection. Also see Grewendorf (1989).

## Notes to Chapter 5

1. I will not have anything interesting to say about whether or not the Subjacency condition applies to LF movement, as is argued for by Nishigauchi (1990), Pesetsky (1987), Wahba (1992), and argued against by Huang (1982), Lasnik & Saito (1984; 1992), and Stechow (1994). Throughout, I will continue to assume that Subjacency does not constrain LF movement, at least in the languages under discussion. However, I believe that many of the data discussed in this chapter are compatible with either view; in particular, Subjacency does not play a role in the cases of clause-bound *wh*-movement to be considered in this chapter.

2. Here and in what follows, I assume the analysis of the clausal system in terms of IP and CP, and adapt previous analyses in terms of S and S’, without explicitly mentioning this. As noted by Lasnik & Saito (1992), whereas the standard ECP account of complementizer-trace effects (cf. Chomsky (1981)) does not carry over to the IP/CP system, no such problems arise for Superiority.

3. As before, I assume (following Rudin (1988)) that *wh*-movement to a filled SpecC position adjoins a *wh*-phrase to the right, and not to the left (as is often maintained). However, since this decision does not bear on the hierarchical order of *wh*-phrases in SpecC, it will not play a role until section 8, where I discuss *overt* adjunction to SpecC. Note incidentally that if *wh*-movement at LF *right*-adjoins to SpecC, landing sites for scrambling can be defined in purely structural terms, as *left*-adjunction sites.

4. Of course, SpecC is not really a category, but rather just a name for a position. As soon as something is substituted in this position, it contains a category, e.g., an NP or a PP. Thus, a more adequate LF representation of (2-a) would be (i), instead of (3-a).

(i) [CP [NP [NP *who*<sub>i</sub>] *what*<sub>j</sub>] [IP *t*<sub>i</sub> saw *t*<sub>j</sub>]]

Under this view, it is obvious that *who* in (i)/(3-a) can c-command its trace, and a special rule of “index percolation in SpecC” can be dispensed with – the NP *who* actually is “SpecC,” and *what* is adjoined to *who*. However, in order to remain

compatible with most of the literature on *wh*-movement at LF, I will ignore this qualification in what follows.

5. In contrast to many others (e.g., Haider (1983; 1986; 1993: 162-165), Grewendorf (1988), and Bayer (1990)), Fanselow (1991: 329ff) assumes that, upon closer inspection, German does indeed exhibit Superiority effects in constructions like (8-a); he suggests that *wh*-subjects in situ in this language are licensed only if they are D-linked, in Pesetsky's (1987) sense. However, most speakers agree that *wh*-subjects (and *wh*-adjuncts, see below) in situ do *not* have to be interpreted as D-linked. Furthermore, Fanselow still acknowledges that *wh*-in-situ is less restricted in German than it is in English. This would imply, according to his assumptions, that German permits a D-linking interpretation more often than English, which, if true, would clearly be a peculiar result, given that a notion like "D-linking" is semantic in nature, and semantics is not subject to parameterization. Finally, note that in any case it does not help to invoke the D-linking hypothesis in cases of *wh*-adjuncts like *weshalb* ('why') in examples like (11-a) below, which are usually considered to be "aggressively non-D-linked" (terminology adopted from Pesetsky (1987: 111)), and can be contrasted with *wh*-adjuncts like *aus welchem Grund* ('for which reason'), which are often classified as D-linked in the literature.

6. Cf. chapter 6 for detailed discussion of topicalization across a *wh*-island in German.

7. Cf. Koster (1987: ch. 4) for a similar idea, which, however, differs substantially with respect to formal execution and assumptions about the overall organization of the grammar (concerning the existence of LF (-movement), of the ECP, etc.). Koster assumes that IP may become an "opaque domain" for *wh*-elements in situ, thereby blocking scope assignment by an abstract question operator in COMP.

8. Throughout this chapter, I ignore some issues which are important for a comprehensive theory of *wh*-in-situ, but do not directly bear on the main plot, viz.: (a) the Connectedness effect, i.e., the observation that sentences with *wh*-phrases which are not per se licensed in situ can be saved by adding one or more *wh*-phrase(s) (cf. Kayne (1984) and Pesetsky (1982)); (b) the D-linking option already noted above, which has the effect of licensing certain kinds of *wh*-phrases (so-called "referential" *wh*-phrases) in situ which would violate the ECP after LF movement (cf. Pesetsky (1987) and Rizzi (1990)); also see note 28 of chapter 3 for these two issues. Finally, I have nothing to say about (c) echo-questions (cf. Reis (1991a) for recent discussion).

9. According to Chomsky's (1986: 48ff) Vacuous Movement Hypothesis, subject movement in (26-a) does not have to occur at S-structure. I do not follow Chomsky in assuming that vacuous movement need not apply in English. Indeed, the theory to be developed in what follows, if correct, strongly suggests that vacuous movement at S-structure in cases like (26-a) is obligatory (since IP will be shown to be an LF barrier here).

10. Thus, given a standard semantics of questions along the lines of Karttunen (1977), a sentence like *Who is smiling?* can be assumed to have a transparent LF interpretation as in (i) (cf. Stechow (1993: 74)).

- (i)  $[CP [NP \textit{who}] [C' C_{[+wh]} [IP NP VP ]]]$   
 $\lambda p \lambda Q \exists x [person(x) \ \& \ Q(x)] \lambda x \lambda q.p=q \lambda w x \textit{is-smiling}_w$

Here,  $C_{[+wh]}$  denotes a set of propositions (i.e.,  $\lambda q:p=q$ ); IP denotes a proposition (a set of possible worlds). After  $\lambda$ -conversion,  $C'$  denotes a truth value (i.e., “ $p = \lambda w[is-smiling_w(x)]$ ”). As a result of *wh*-movement (which is essentially identical to quantifier raising from a semantic point of view),  $C'$  is prefixed by  $\lambda x$ ; the resulting expression denotes a set of individuals ( $\lambda x[p = \lambda w[is-smiling_w(x)]]$ ). Since *wh*-phrases are basically interpreted as quantifiers, *who* (just like *someone*) denotes a set of properties, i.e., a set of *sets of individuals* ( $Q$ ). Again, after  $\lambda$ -conversion, CP denotes a truth value, viz., “ $\exists x (person(x) \ \& \ \lambda x[p = \lambda w[is-smiling_w(x)](x))$ .” In this formula, the variable  $p$  occurs unbound; hence, CP must be prefixed by  $\lambda p$ , so as to bind the variable  $p$ . Then, given one more application of  $\lambda$ -conversion, we end up with (ii), which indeed represents (a simplified version of) the semantic form Karttunen assigns to questions like *Who is smiling?*

- (ii)  $\lambda p [\exists x (person(x) \ \& \ p=\lambda w \textit{is-smiling}_w(x))]$

I will not enter a more detailed discussion of the semantics of *wh*-clauses; cf. Heim (1989) and Stechow (1993) for an elaboration of LF representations of questions. It may suffice here to point out that the  $C_{[+wh]}$  node plays a crucial role in determining the semantics of questions under this view – denoting a set of propositions,  $C_{[+wh]}$  introduces the variable  $p$  into the formula in (ii) (essentially being responsible for the “ $p=$ ” part); moreover, it triggers the prefixation of CP by  $\lambda p$ , so as to provide a binder for  $p$ . This  $\lambda p$ -prefixation is indeed *the* crucial property of questions which distinguishes them from declarative clauses – questions are viewed as *sets of propositions*, and not as propositions.

11. Srivastav Dayal (1994) argues against the necessity of LF movement of a *wh*-phrase in a partial *wh*-movement construction in German, and for a direct interpretation of the S-structure configuration. However, see Höhle (1990) and Müller & Sternefeld (1994a) for arguments against this view, and in support of the classic approach in terms of LF raising of partially moved *wh*-phrases.

12. Stechow (1992: 188ff) concedes that, from a purely technical point of view, head reconstruction at LF might ultimately be imitated by invoking the means of  $\lambda$ -abstraction, and thus be dispensed with. However, he emphasizes that real reconstruction is preferable if transparent and maximally simple LF representations are strived for.

13. In light of the well-known problems that arise with deriving the Head Movement Constraint from the ECP, it seems that the abandonment of the idea that abstract incorporation involves movement (hence, a trace) at some abstract level of representation, is not as unattractive as it might appear at first sight. Moreover, note that Baker (1988) identifies abstract incorporation as “incorporation without incorporation,” which more or less corresponds to what I am now assuming. Cf. also Stechow (1992) for an extensive discussion of this issue.

14. On the other hand, it has also been argued that examples like (36-ab) are

not completely ungrammatical: cf. Lasnik & Saito (1984; 1992), Tiedemann (1990), Kitahara (1993), and Grimshaw (1994). For the time being, I will ignore this view; however, I return to this issue in section 9.1.

15. Dutch, like German, is a language which permits empty expletive subject-*pros*. Hence, the prediction is that it does not show complementizer-trace effects, and does not generally disallow *wh*-subjects and *wh*-adjuncts in situ. Whereas it appears to be fairly uncontroversial (in the recent literature) that there are no complementizer-trace effects in Dutch (cf. chapter 2), it is unclear whether there are asymmetries between objects and non-objects (subjects and adjuncts) in multiple *wh*-questions. At least if there are such asymmetries, they are not as clearcut as in English, for example, which to me indicates that it is unlikely that the ECP is involved. Cf. Koster (1987: 201ff) for some pertinent discussion.

16. The question arises as to why cases of partial *wh*-movement as in (i) do not involve a PUB violation at LF under the present theory.

- (i) [CP <sup>i</sup>Was C<sub>[+wh]</sub> meinst du [CP <sup>i</sup>warum<sub>i</sub> C<sub>[-wh]</sub> Antje t<sub>i</sub> gekommen ist ]] ?  
           what                    think you            why                    Antje come is

The well-formedness of (i) follows immediately if we assume that the scope marker *was* does not qualify as a “legitimate LF object” (cf. Chomsky (1993)), and therefore has to be replaced at LF by the *wh*-phrase it attracts (i.e., *warum* in (i)). If this is so, *wh*-movement in partial *wh*-movement constructions involves only SpecC substitution positions, and not adjunction to SpecC in the last step. See Müller & Sternefeld (1994a) for further discussion of this issue.

17. Koster attributes the data in (61) (and the grammaticality judgements) to Haider (1986). However, I could not find anything like (61) or (62) in Haider’s article. Indeed, a contrast like that between (61-a)/(62-a) and (61-b)/(62-b) is unexpected under Haider’s assumptions – recall from section 3 that Haider postulates that arguments and adjuncts are all lexically governed by the verb in German.

18. Maybe (63-ab) are somewhat more acceptable than the analogous examples involving *wh*-adjuncts in complex NPs (compare (61-b) & (62-b)). This unexpected weak subject/adjunct asymmetry, then, would be similar to that observed by some speakers in English examples like (36-ab) (cf. note 14). I address this issue in section 9.

19. In order to fully exclude long-distance LF movement of the *wh*-adjunct in (68-a), an additional derivation must be excluded, viz., (i).

- (i) \* [ [SpecC wer ] warum<sub>i</sub> ] [IP ... [CP wen t<sub>i</sub> [IP ... t<sub>i</sub> ... ]]]

Here, the *wh*-phrase first adjoins to the embedded SpecC (i.e., to *wen*), and then raises to the matrix SpecC position, adjoining to *wer*. This derivation does not even involve a PUB violation according to present assumptions – t<sub>i</sub> is bound unambiguously from SpecC-adjoined positions only. However, recall from the definition of barrier adopted in chapter 2 (cf. also (20)) that CP is invariably a barrier for items

which do not occupy the escape hatch of CP, i.e., which are not located in the SpecC position. *Adjunction* to an XP located in the SpecC position (as in (i)), therefore, does not help to circumvent the CP barrier – in (i),  $t'_i$  is not antecedent-governed because it does not occupy the escape hatch of CP. Exactly the same thing happens in case of illicit scrambling from topicalized VPs; cf. (ii-a) vs. (ii-b):

- (ii) a. daß sie sagte [<sub>CP</sub> [<sub>VP</sub> dieses Buch gelesen ]<sub>j</sub> habe noch keiner  $t_j$  ]  
 that she said this book read has<sub>subj</sub> yet no-one
- b. \*daß sie [ dieses Buch ]<sub>i</sub> sagte [<sub>CP</sub> [<sub>VP</sub>  $t'_i$  [<sub>VP</sub>  $t_i$  gelesen ]]<sub>j</sub> habe noch  
 that she this book said read has<sub>subj</sub> yet  
 keiner  $t_j$  ]  
 no-one

Example (ii-a) is a standard case of VP-topicalization in embedded V/2 clauses; (ii-b) shows that successive-cyclic long-distance scrambling via a VP-adjoined position is illicit. The ungrammaticality of (ii-b) follows from the ECP, given that CP is a barrier for an element adjoined to SpecC – more precisely, adjoined to VP in (ii). (The intermediate trace  $t'_i$ , then, is not antecedent-governed, and is also not deletable on the way to LF, according to Full Representation; cf. chapter 3.)

20. For instance, the relative acceptability of (71) argues against the “COMP indexing filters” proposed by Lasnik & Saito (1984: 252; 1992: 10) and Epstein (1991: 76; 1992: 243). These filters are shown in (i) (Lasnik & Saito) and (ii) (Epstein). They have the effect of prohibiting LF substitution of an XP in COMP if another XP has already undergone movement to this COMP at S-structure.

- (i) \* [ ... Head<sub>j</sub> ... ]<sub>i</sub>, where  $i \neq j$ .
- (ii) \* [COMP-<sub>i</sub> ], where COMP has no head with index  $i$ .

In the LF representation (71),  $t'_j$ , the intermediate trace of the LF-moved *wh*-adjunct, is the “head of COMP” at LF, whereas at S-structure (cf. (69)),  $t'_i$ , the intermediate trace of the S-structural movement of the *wh*-object which is deleted on the way to LF, is the “head of COMP.” Hence, at LF, “COMP” in (71) should violate (i) and (ii), and (69) should not be well formed, contrary to fact.

The same conclusion applies in the case of filter (iii), developed by Lasnik & Saito (1992: 57) in order to carry over the gist of (i) into the CP analysis of clauses.

- (iii) A head and its SPEC cannot be conindexed.

If co-indexing of C and SpecC is obligatory at S-structure (as must be assumed if the effects of (i) are to be derived), then (71) invariably violates (iii) – at S-structure, C receives the index  $i$  (due to agreement with the object trace  $t'_i$  in SpecC); therefore, at LF, C and its specifier (which is now the adjunct trace  $t'_j$ ) are contra-indexed, in violation of (iii). Cf. Epstein (1992: 236-243) and Müller & Sternefeld (1994a) for additional discussion of this issue.

21. Note incidentally that under the present assumptions, (76) is not necessary in order to preclude a partial LF representation (ii) of an example like (i) in English.

- (i) Who<sub>i</sub> t<sub>i</sub> wonders [CP where<sub>j</sub> we bought what<sub>k</sub> t<sub>j</sub> ] ?  
 (ii) \*who<sub>i</sub> where<sub>j</sub> ... [CP (t'<sub>j</sub>) what<sub>k</sub> ... t<sub>k</sub> t<sub>j</sub> ]

Lasnik & Saito (1984; 1992) and Epstein (1991; 1992) account for the ill-formedness of (ii) by invoking the COMP indexing rules mentioned in the last note, which we have seen to be incompatible with the (relative) well-formedness of (71). In contrast, I have assumed that Move- $\alpha$  leaves traces obligatorily. In that case, t'<sub>j</sub> in (ii), as a trace of LF movement, must be present at LF, and invariably violates the ECP because the matrix IP barrier disallows antecedent-government of t'<sub>j</sub> by its antecedent *where* in the matrix SpecC-adjoined position. Hence, the assumption (76) is important only in languages where IP is not a barrier at LF in *wh*-clauses. (Apart from that, (ii) of course instantiates a weak PUB effect, with t<sub>j</sub> being bound from a SpecC position (by t'<sub>j</sub>), and from a SpecC-adjoined position (by *where*), assuming that the PUB applies at LF in English.)

22. Cf. Koster (1987) and Fanselow (1991) for discussion of the barrierhood of other kinds of XPs (PPs, NPs etc.) for movement at LF in general, and in particular for accounts of certain LF/S-structure asymmetries with respect to extraction.

23. Of course, if obligatory S-structural *wh*-fronting in multiple questions in Polish and Russian does not necessarily involve movement to an operator position, a potential problem arises – why should there be *wh*-fronting (i.e., IP-adjunction) if this process does not have the function of putting a *wh*-phrase in an operator position? I take this state of affairs to be yet another argument in support of the view that syntactic and semantic *wh*-features must be distinguished, as argued for in section 4.2 above. As noted before, a syntactic [+wh] feature “attracts” all *wh*-phrases at S-structure in Polish (Russian) (unlike in English and German), although this process is not yet semantically motivated. Since syntactic adjunction to SpecC is impossible in Polish, as it is in English or German, the *wh*-phrases must find another way to be “as close as possible” to the [+wh] C node at S-structure – i.e., they must adjoin to IP.

24. Note incidentally that it is not a general property of languages with multiple movement of *wh*-phrases to be immune to Superiority effects (and the like); cf. section 8.

25. I have explained the intermediate status of cases like (92-b) by assuming that a PUB violation arises at LF, after *wh*-movement of the scrambled *wh*-phrase. The PUB account, of course, works only in case LF movement of a *wh*-adjunct from a scrambling position creates an intermediate trace. But let us ignore this, for the sake of the argument, and pretend that (92-b) can somehow be explained without relying on the hypothesis that movement creates a trace.

26. In accordance with the pertinent remarks in chapter 3 (section 4.2.4), I assume in (93) that the empty relative operator OP<sub>i</sub> is moved to a left-peripheral, rather than right-peripheral SpecC position in the relative clause.

27. Nishigauchi (1990) and Pesetsky (1987) argue that *wh*-arguments may not undergo LF movement across an island in languages of the Japanese type; they assume that this movement is restricted by the Subjacency condition at LF (cf. note 1). As noted before, I abstract away from this issue, and continue to assume, for the purposes of this chapter, that LF movement of *wh*-arguments may cross barriers in Chinese, Korean, or Japanese.

28. Huang (1982) and Lasnik & Saito (1984) assume that I in languages like Japanese or Chinese is “lexical” or “strong,” in contrast to a “functional” or “weak” I in English, which is not able to properly govern the subject position. It has often been noted that this assumption is somewhat dubious, given the fact that I, conceived of as AGR, is at best a purely positional category in these languages, lacking inherent features (see below). Given that there is (almost) no subject/verb agreement in Japanese or Chinese, we would expect I (AGR) to be “weaker” than in, e.g., English or French, not “stronger.” Lasnik & Saito (1992: 43-46) recognize this problem; they speculate that the difference between Japanese I and English I might be traced back either to the direction of government (I in English (properly) governs to the right, and hence, fails to (properly) govern SpecI; I in Japanese (properly) governs to the left, including the SpecI position), or to the VP-internal subject hypothesis: Japanese subjects, unlike English subjects, may stay within the VP at S-structure, where they are properly governed by the verb (cf. Kitagawa (1986)).

Note in passing that Lasnik & Saito (1992: 116ff) eventually assume that SpecI is always properly governed by I at LF, for reasons having to do with the distribution of *wh*-subjects in situ that take wide scope in English, cf. note 14. I will come back to this in section 9.

29. As remarked in chapter 3, I assume (with Lasnik & Saito (1992: 56), but in contrast to Lasnik & Saito (1984)) that *wh*-movement at LF in languages with a right-peripheral C position (like Japanese) is leftward (i.e., that SpecC is to the left of IP); cf. also note 26. In the framework of Lasnik & Saito (1984), such an assumption was not possible, because *wh*-movement was analysed as adjunction to C, and C is clearly right-peripheral. Again, nothing hinges on this question.

30. Note incidentally that German also allows multiple questions with two *wh*-adjuncts (cf. (i) and (ii)) in accordance with the approach in terms of IP barriers advocated here, but in contradiction to the standard analysis.

(i) *Wie* hat [<sub>IP</sub> *sie warum* das Auto repariert ] ?  
 how has she why the car fixed

(ii) *Warum* hat [<sub>IP</sub> *sie wie* das Auto repariert ] ?  
 why has she how the car fixed

31. Or rather, I (=AGR) has a subcategorization feature [— TP], if we assume that T features (=Tense) project their own category TP, as argued by Pollock (1989) and Chomsky (1991), among others.

32. Cf., for instance, Chomsky (1975) and Enç (1988) for justification of the claim

that QR is always clause-bound, and Müller & Sternefeld (1993, sect 4.2) for a refutation of some claims to the contrary as advanced by May (1985), among others.

33. Of course, this analysis is compatible with the fact that a *wh*-adjunct in Korean *can* adjoin to IP in the syntax, whereby the barrierhood of IP would be voided, as in Polish. The point is that it does not *have* to adjoin to IP in order to move to SpecC without violating the ECP.

34. Further evidence for this view comes from Chinese. Chinese, unlike Korean, is a language where IP does not appear to qualify as a possible adjunction site for scrambling; i.e., word order is fairly rigid. Nevertheless, two *wh*-adjuncts may occur in situ in a single clause, as shown in (i) (Lan-Sun Chen (p.c.)):

- (i) [IP ta shenme shi hou zenme lai ] ?  
       he when                   how comes

Chinese, then, provides direct evidence against the hypothesis that *wh*-adjuncts in these languages may circumvent an IP barrier at LF via adjunction to IP – adjunction to IP is not an option in this language from the start, irrespective of whether or not the PUB applies at LF.

35. According to Rudin, this is so because Bulgarian permits S-structural adjunction to SpecC, whereas languages like Polish, English, German or French permit adjunction to SpecC only at LF; also see Adams (1984). In addition, of course, one has to ensure that S-structural adjunction to SpecC is obligatory if possible.

36. Recall that for the examples discussed so far in this chapter, it was more or less immaterial whether adjunction to SpecC is to the left or to the right, since this adjunction happens only at LF in languages like Polish, English, German, or Korean, and not at S-structure. In accordance with that, only the *hierachical*, and not the *linear* order of *wh*-phrases was relevant.

37. Note also that co-indexing of two heads as a result of specifier/head agreement must be kept distinct from co-indexing via “abstract incorporation.” In German, I is co-indexed with C because of abstract incorporation. Moreover, I is co-indexed with SpecI because of specifier/head agreement. Now, if heads can bear only one index, a serious problem arises if a non-subject occupies SpecC – in this case, I must bear the index both of the subject in SpecI (via specifier/head agreement), and of the non-subject in SpecC (via abstract incorporation with C, agreement between SpecC and C, and the transitivity of co-indexing). Therefore, I will distinguish between two types of indices on heads: on the one hand, agreement indices (which play a role only at S-structure, not at LF); on the other hand, indices that arise as a consequence of abstract incorporation (which indicate a “close relationship” of two heads, and play a role at both S-structure and LF).

38. Upon closer inspection, it emerges that just this unwanted consequence of specifier/head agreement arises in Chomsky’s (1986) analysis of complementizer-trace effects; cf. Müller (1991: 160ff) for discussion.

39. I have only considered *wh*-arguments in Bulgarian. Things become more complicated if *wh*-adjuncts are also taken into account. As observed by Rudin (1985:

96; 1988: 476), *wh*-adjuncts may never occur in multiple questions, even if they are the left-most *wh*-phrase in a clause (i.e., if they are substituted in SpecC, by assumption); but they may of course occupy SpecC in simple questions. These facts cannot be explained in the standard approach; for why should it be impossible for a *wh*-adjunct to co-occur with a *wh*-object in a clause if the *wh*-adjunct is the “head of SpecC?” But the behaviour of *wh*-adjuncts also poses problems for the analysis in terms of IP barriers; as it stands, this theory cannot explain the difference between *wh*-adjuncts in simple questions and those in multiple questions in Bulgarian (IP should in both cases block movement of a *wh*-adjunct to SpecC). Cf. Müller (1992: 339ff) for a proposal to explain the evidence from adjunct movement in Bulgarian, by modifying the approach outlined in this chapter.

40. Note, however, that if something like (111) holds in German, too, a qualification is necessary. In order to rule out long-distance scrambling of arguments by ECP, I have assumed in chapter 3 (following Müller & Sternefeld (1990; 1993)) that the principle of *Full Representation* forces the generation of intermediate traces in adjoined positions. Long-distance scrambling definitively does not involve a “weak” ECP effect, however – the result is strongly ungrammatical. Hence, (111) can only be a hypothesis about those intermediate traces of arguments which are not required by some independent principle.

41. Note incidentally that (117-b) should independently exhibit a weak PUB violation at LF, given the theory of dative movement in chapter 4.

## Notes to Chapter 6

1. Notice in passing that topicalization in Icelandic and German has induced V/2 movement, in contrast to what is the case in English. I will return to this matter immediately.

2. The formal execution of this idea is somewhat different in Lasnik & Saito (1989) and Lasnik & Saito (1992). In both theories, it is assumed that IP is a barrier. In Lasnik & Saito (1989), then, it is proposed that adjunction to a barrier has the effect of doubling the barrier. As a consequence, the long-distance-moved items in (5) through (7) have crossed two IP barriers. Then, given the approach to antecedent-government and Subjacency developed in Chomsky (1986), a Subjacency violation arises. In Lasnik & Saito (1992: 87ff), on the other hand, a revised (and unified) notion of antecedent-government and Subjacency is assumed:  $\alpha$  antecedent-governs  $\beta$  if  $\alpha$  binds  $\beta$ , and  $\beta$  and is subjacent to  $\alpha$ . Subjacency is defined as follows.

(i) *Subjacency*:

$\beta$  is subjacent to  $\alpha$  if for every  $\gamma$ ,  $\gamma$  a barrier for  $\beta$ , the maximal projection immediately dominating  $\gamma$  dominates  $\alpha$ .

Given these assumptions, a topicalized item  $\alpha$  (adjoined to IP, according to Lasnik & Saito) is able to antecedent-govern its IP-internal chain successor  $\beta$  (and  $\beta$  is subjacent to  $\alpha$  in this case) because  $\alpha$  is included in the minimal XP (viz., the upper

IP segment) which dominates a barrier for the trace  $\beta$  (viz., the lower IP segment). A category in SpecC, on the other hand (like an intermediate trace of long-distance extraction in (5) – (7)) does not antecedent-govern an IP-internal trace (nor, of course, is this trace subjacent to its chain antecedent in SpecC) – the lower IP segment is a barrier, and the minimal XP dominating this barrier is, by assumption, the upper IP segment; but this does not include the intermediate trace in SpecC. – For present purposes, however, it is not necessary to differentiate between these two proposals. The only thing that is relevant is that in both approaches, the topic island effect is derived by invoking the idea that adjunction to IP blocks successive-cyclic movement via SpecC in a very direct way – it is this idea that I find fault with.

3. Baltin (1982) gives examples like (i), where it seems that topicalization does not block clause-internal relativization (but cf. also Lasnik and Saito (1989; 1992: 85f) and Rochemont (1989) for critical discussion).

(i) a man to whom liberty we could never grant

However, even if (i) is fully well formed, I take this to be just one additional relativization/*wh*-movement asymmetry, which exists among many others. Thus, it seems to me that (i) does not show that *wh*-movement across a topicalized item is (marginally) possible in English; rather, it indicates that relativization is not an instance of *wh*-movement. Upon closer inspection, it becomes evident that relativization differs from *wh*-movement with respect to the nature of the landing site, locality constraints, and so forth. Moreover, relativization differs from *wh*-movement *semantically* – at LF, relativization is simply interpreted as  $\lambda$ -abstraction, whereas *wh*-phrases are interpreted as existential quantifiers; cf., for instance, Heim (1989) and Stechow (1993). Eventually, a thorough analysis of the asymmetries between relativization and *wh*-movement might well be rewarding, from the perspective of the PUB. Cf. Müller & Sternefeld (1990) for some pertinent remarks.

4. Probably the most straightforward account of the fact that English does not permit V/2 movement of main verbs consists in reducing this property to the fact that these verbs may not undergo S-structural V-to-I movement in the first place, as argued by Emonds (1978), Lightfoot & Weinberg (1988), Pollock (1989), and Chomsky (1991) (even if V moves to a VP-external position at S-structure, as suggested in chapter 4).

5. Constructions like (17-b) are actually grammatical in some Germanic languages, like Yiddish or the Scandinavian languages; cf. (13) and (14). I will return to this issue below, and argue that in these cases, the fronted XP has not undergone scrambling, but rather topicalization. However, the presence of a complementizer *daß* and V/2 movement are mutually exclusive in German (see below), so that (17-b) cannot be analysed as involving topicalization, for independent reasons. Then, an analysis via scrambling is the only a priori conceivable possibility, and the resulting structure is not well formed, because scrambling is adjunction, rather than movement to a specifier position.

6. Reis (1985a) and Haider (1989), among others, present a few putative counter-examples to this generalization. Cf. Müller (1989) for discussion of these examples.

In most cases, it turns out upon closer scrutiny that what looks like an instance of embedded topicalization at first sight is actually not to be analysed as a case of clausal subordination at all.

7. Two qualifications are in order. First, in Icelandic and Yiddish, embedded V/2 (for many speakers) does not appear to depend on lexical (bridge) properties of the matrix verb; cf. Thráinsson (1986), Santorini (1989), and Vikner (1990: ch. 2). I have not much to say about this; I will return to this peculiar fact in note 18, though.

Second, as noted by Vikner (1990: ch. 2) and others, the verbs which license embedded V/2 and the verbs which have bridge properties are not the same in the Mainland Scandinavian languages – all verbs appear to allow extraction here, whereas embedded V/2 is lexically determined in languages like Danish or Swedish. It should be noted, however, that long-distance extraction in these languages is in general less constrained; for instance, it also appears not to depend on the availability of intermediate SpecC positions, since *wh*-islands can be left rather freely, in contrast to topic islands (cf. Engdahl (1986)). Therefore, I will tentatively assume here that Scandinavian is equipped with an additional strategy for long-distance movement from *wh*-islands and object clauses embedded by non-bridge verbs; I abstract away from this issue in what follows.

8. More precisely, Chomsky (1977) suggests that topicalization is to be analysed as involving (a) the base-generation of a topic in its S-structural position, and (b) *wh*-movement of an empty operator to the COMP position adjacent to the topic. I neglect this more articulated theory in what follows, and rather discuss the simpler variant according to which topicalization does not only involve *wh*-movement (of an empty operator), but rather is an instance *wh*-movement itself.

9. (24-a) is somewhat marginal for many speakers of English, but it is not completely impossible, and at any rate much better than (24-b); cf. Rochemont (1989).

10. Co-occurrence of *wh*-phrase and complementizer is sometimes considered sub-standard in German; however, as noted in chapter 2, this phenomenon is fairly widespread among speakers of all kinds of German dialects, and occurs regularly.

11. Of course, given the CP/TP approach to clausal structure, something must be said about the fate of the theory of IP barriers developed in chapter 2 and chapter 5 above. For the time being, I pretend that the analyses in terms of IP barriers presented so far carry over essentially unchanged. I return to this issue in section 13, though, and point out some problems.

12. Incidentally, the same problem arises in Rizzi's (1991) account of the prohibition against *wh*-topicalization. Rizzi assumes that *wh*-scrambling in German and *wh*-topicalization in English are uniformly ruled out by his version of the *Wh*-Criterion. Under such an approach, the contrast between (37-b) and (39-b) on the one hand, and (40-ab) on the other hand, must remain a mystery.

13. In Haider's (1988) approach, matching of two XPs creates a single XP which bears the features of the two XPs that match. In contrast, in Müller & Sternefeld (1990; 1993), a structure-preserving notion of matching is assumed, in the sense

that the CP/TP/IP structure is maintained even if CP and TP match, and is not collapsed into a “C+T”P/IP structure.

14. Actually, it does not quite follow yet from the notion of barrier assumed so far that, after incorporation of the NP-shell, C can be governed by an element in the matrix clause, like SpecC can be governed from outside. Consider the definition of barrier adopted so far:

(i) *Barrier:*

For every  $\alpha$  included in XP, XP is a barrier iff (a) and (b) hold:

- a.  $\alpha$  does not occupy an escape hatch in XP.
- b. X is distinct from Y, where Y is the head of YP, and YP is the minimal maximal projection which does not exclude XP.

According to (i), CP is not a barrier for government of its escape hatch, but it is a barrier for government of C. However, in order to fulfill the status-government requirement of a designated T node, it must be guaranteed that, in general, X is governed by Y if XP is governed by Y, in a structure like (ii).

(ii) ... Y ... [XP ... X ... ] ...

In other words, a maximal projection does not erect a barrier for its own head. This result is obtained if we add the condition “ $\alpha \neq X$ ” in the definition of barrier in (i). There is indeed some independent empirical evidence for such a step; cf. Rizzi (1982), Kayne (1984), and Sportiche (1988; 1989). Moreover, this qualification does not appear to have any negative consequence for either incorporation theory, or the derivation of subject islands, adjunct islands, dative islands, and lexically determined object islands – in all these cases, incorporation (more precisely, antecedent-government of the trace of incorporation) is blocked either by a lack of proper command (p-command or m-command, cf. chapter 4, section 4 for discussion), or by a lack of m-selection, but not by the theory of barriers.

15. Cf., among others, den Besten (1983), Haider (1984), Reis (1985a), and Grewendorf (1988); however, cf. also Stechow & Sternefeld (1988: 402ff) for a critique of the use of the notion “complementary distribution” (which is taken from the tradition of structuralism) in the case at hand.

16. Note, however, that the constraint against movement of a verbal category to an embedded C node might be subject to parameterization after all. If, for some reason, C does *not* resist incorporation, constructions like (61-c) are predicted to be well formed, *ceteris paribus*. Given the observations of Torrego (1984), Spanish might be a case in point. Here, constructions like (61-c) are not only possible; verb raising to C is actually obligatory in certain contexts – simplifying somewhat, in contexts where an argumental *wh*-phrase (or a trace thereof) occupies SpecC.

17. More precisely, Haider (1984) and Rizzi (1991) assume that *wh*-features in C block verb movement to C. On the other hand, it is suggested in Müller (1991) (where the NP-shell hypothesis is adopted) that *wh*-features in embedded *wh*-clauses

are located not only in C, but also in N (due to the strict locality of selection by the matrix predicate); furthermore it is stipulated that abstract incorporation of an empty N node bearing the feature [+wh] into the matrix verb is impossible (ultimately, because elements bearing *wh*-features appear to resist incorporation in general), so that the NP-shell remains intact, and thereby blocks status-government of the embedded V/2 head. These differences do not concern me here, though – what is important is that the presence of *wh*-features is supposed to be the crucial factor in all these analyses.

18. As remarked in note 7, embedded V/2 in Icelandic and Yiddish (for many speakers) does not appear to depend on lexical (bridge) properties of the matrix verb (cf. Thráinsson (1986), Santorini (1989), and Vikner (1990: ch. 2)). Nevertheless, by and large, topic islands are strict in these languages, as was noted in section 2.2 (cf. Zaenen (1980) for Icelandic and den Besten et al. (1983), den Besten (1989) for Icelandic and Yiddish). Thus, the correlation between licensing of embedded V/2 and the topic island effect breaks down, and an analysis which closely ties the topic island phenomenon to a lack of V/2 (or designated T) licensing is called into question. However, this analysis does not have to be abandoned prematurely. Note that the government requirement for embedded V/2 involves both structural and lexical factors. Apparently, lexical factors do not play a role for government of an embedded verbal head T in Yiddish or Icelandic; in the present framework this implies that all matrix verbs may govern and thus identify the embedded designated T node. But let us continue to assume that government is necessary for a designated T, and that government is not possible if TP and CP do not match. Then, the topic island phenomenon can be derived even in languages where lexical factors do not determine the identification of a verbal functional head.

19. Note that it does not suffice to assume that a strong Subjacency violation (i.e., the crossing of more than one bounding node) is still somewhat better than a genuine ECP violation. Such an assumption would explain the contrast between (77) and (76). However, the slight contrast between the strong topic island effect evident in (71-ab) and (72-ab), and the peculiar status of (76), could still not be derived – a sentence is only as bad as its “least ill-formed” derivation, and, as we have seen, derivations of (71-ab) and (72-ab) which involve only strong Subjacency effects (with two bounding nodes being crossed) are possible.

20. Cf., however, Reis (1985a) and Brandt, Reis, Rosengren & Zimmermann (1992) for some qualifications with respect to German, which do not concern me here.

## Notes to Chapter 7

1. Note incidentally that if different adjunction sites counted as different positions, so that movement from one kind of adjunction site to another kind of adjunction site would be improper, this would almost immediately derive the prohibition against iterative adjunction that is put forward in Johnson (1985), Grewendorf & Sabel (1994), and Sabel (1994). The only kind of iterative adjunction that would not

be excluded by the PUB under this assumption would be from an adjunction site of a certain type  $\alpha$  to another adjunction site of the same type  $\alpha$ ; e.g., from a IP-adjoined position to another IP-adjoined position. In all relevant cases, however, such movement would violate a locality requirement (ECP or Subjacency). – However, although this might be an interesting result, I will not pursue this matter, essentially because of the substantial empirical evidence in support of the hypothesis that the PUB does not differentiate between types of (left-) adjunction sites, i.e., that iterative adjunction is possible.



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