

## Chapter 4

### Presupposition, Extraction, and Logical Form

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#### **4.1 Introduction**

We have seen that indefinites can be either existential or presuppositional. I begin this chapter by further refining this classification of indefinites. The revised taxonomy will then prove useful in looking at further instances where the syntax and semantics of NPs interact. The initial syntactic phenomenon I focus on here is that of extraction from “picture” NPs of various types. I examine the varying acceptability of this type of extraction with verbs of various types, as well as NPs of different types. I show that it is actually the interpretation of the NP that is crucial in determining extractability, and that the choice of verb can influence the likelihood of a particular interpretation (either presuppositional or cardinal) being preferred. That is, certain verbs seem to preferentially select one or the other of the two readings. This way of characterizing the differences among different verbs is supported by data involving a number of different constructions that distinguish between presuppositional and cardinal NPs. Finally, these conclusions are given additional support by some very interesting parallel phenomena in German involving the semantic and syntactic effects of scrambling.

#### **4.2 A Taxonomy of Indefinites**

In chapter 3 I examined a number of contrasts between what I called cardinal and presuppositional indefinites. (This division should not be confused with the split into weak and strong NPs—weak NPs can be either cardinal or presuppositional, whereas strong NPs are only presuppositional.) These differences can be summarized as shown in (1).

## (1) Two types of indefinites

Cardinal	Presuppositional
Do not undergo QR	Undergo QR
Form cardinality predicates	Form operator-variable structures

In the simplest cases, the possibility of showing either the cardinal or the presuppositional reading depends on the choice of determiner in the NP. The strong determiners (e.g., *the*, *every*, *each*, *most*, and *all*) permit only the presuppositional reading. This reading arises from the fact that they undergo QR, by which they adjoin to IP. Being at the IP level of the syntactic tree, the strong NPs are then mapped into a restrictive clause by the tree-splitting procedure. Strong determiners have quantificational force; they function as operators binding the variable(s) introduced in the restrictive clause.

The weak determiners (*some*, *many*, *several*, *few*, as well as the numerals) are ambiguous between the cardinal and the presuppositional readings. On their presuppositional reading they undergo QR just as the strong NPs do. On their cardinal reading they remain within VP at LF and are mapped into the nuclear scope by the tree-splitting process. On the cardinal reading the weak indefinites are bound by existential closure (hence, I also call them existential closure indefinites). Thus, on the existential closure reading a weak determiner has no quantificational force; it functions as a cardinality predicate. Thus, the possibility of an NP having one or the other interpretation is determined (in part) by its syntax.

As it stands, the chart in (1) does not cover all indefinite NP types. For example, there is still the question of where generic indefinite NPs fit into the classification of indefinites (recall the discussion of the generic interpretation of bare plurals in chapter 2). Generics do not have quantificational force of their own, since there is no determiner functioning as an operator. Nonetheless, generic bare plurals show some of the semantic and syntactic properties of the presuppositional indefinites. They are introduced in a restrictive clause in the logical representation. On the syntactic side, generics also license antecedent-contained deletion (ACD), which is an indicator of a QR interpretation of an NP (the generic interpretation in this case is brought out by the adverb of quantification *usually*):

- (2) a. Oscar usually reads books that Olga does.  
     b. \*?Oscar read books that Olga did.

The generic sentence in (2a) permits ACD, but the episodic sentence

in (2b) (which does not readily permit a generic interpretation for the indefinite owing to the absence of the adverb) does not. Thus, although generic indefinites do not have quantificational force of their own (they are bound by either the abstract generic operator *Gen* or an appropriate adverb of quantification), they do undergo QR and restrictive clause formation.

The classification of indefinites in (1) can be expanded to include the generics in a rather simple way. Given the range of interpretations discussed above, indefinites can be distinguished by two features representing their interpretive properties: [ $\pm$  quantificational force] (whether or not the NP has a determiner which functions as an operator) and [ $\pm$  QR] (whether or not the NP undergoes QR). Varying these two features yields three types of indefinites: generic, existential closure, and presuppositional (the fourth possible value, [+quantificational force, -QR], is of course contradictory). This yields the taxonomy shown in (3).

## (3) A taxonomy of indefinites

	Generic	$\exists$ Closure	Presuppositional
Q-force?	no	no	yes
QR?	yes	no	yes

Although the feature characterization of the existential closure and presuppositional indefinites clearly follows from the analysis developed in chapter 3, the QR (restrictive clause) characterization of the quantificational reading of indefinite objects in *generic* contexts is not yet clearly motivated. Since I claimed that there is a close connection between the presuppositionality of an NP and the obligatoriness of QR, it is not immediately obvious where the notion of presuppositionality fits in the interpretation of generics. Put in another way, if the quantificational reading involves a restrictive clause, which in turn is associated with QR and presupposition, how do we end up with generic indefinites (which at first blush appear to not presuppose existence) in the restrictive clause?

To answer this question, we need to take a closer look at the semantics of generic indefinites. In a recent discussion of indefinites, Kratzer considers the problem of generic quantifier phrases such as those I have been referring to as undergoing QR.<sup>1</sup> The problem here is that although these NPs are associated with QR and restrictive clause formation, they do not seem to give rise to existential presuppositions, as observed by Strawson (1952):

- (4) a. All trespassers on this land will be prosecuted.  
 b. All moving bodies not acted upon by external forces continue in a state of uniform motion in a straight line.

The sentences in (4) are taken to express truths (rather than being false or even undefined with respect to truth-value) even though there may not be any trespassers or moving bodies existing at a given time.<sup>2</sup>

In unraveling this apparent conflict between genericity and presuppositionality, Kratzer suggests that generic sentences are all implicitly modalized in the sense that an implicit modal (necessity) operator is prefixed to the whole sentence. As in other modal constructions, the exact nature of the necessity will differ according to the context. For example, (4a) involves a “legal necessity,” whereas (4b) involves necessity in view of the laws of nature. (For a more complete discussion of modality, see Kratzer 1981.)

Like other operators (apart from the existential closure operator), modal operators take some sort of a restrictor. Assuming that an NP such as *all trespassers* in (4a) does give rise to a presupposition that there are trespassers, presupposition accommodation (as discussed in chapter 3) applies to give the result that the presupposition induced by the quantifier phrase is interpreted as a restriction for the modal operator, following Kratzer (1981):

- (5) [□: There are trespassers] [All trespassers will be prosecuted]

Kratzer gives the interpretation of (5) as follows: (5) is true in a world if and only if in all those trespasser-containing worlds *w'* that come closest to what the law provides in *w*, all trespassers will be prosecuted. Since the presupposition is interpreted as a restriction for the modal operator, the generic sentence itself (represented in the right-hand clause in (5)) does not carry any existential commitment with respect to trespassers. As noted by Kratzer, this analysis carries over to generic bare plurals as well. There are in fact existence presuppositions in sentences with generic bare plurals, but these presuppositions are accommodated into the restrictor of the implicit modal.

Thus, the observations I made above concerning the three-way classification of indefinites are consistent with the approach to quantification I developed in chapter 3 in the sense that the [+QR] feature can indeed be associated with QR and restrictive clause formation to distinguish both generic and “presuppositional” indefinites from the existential closure indefinites (I continue to use the term *presuppositional* to distinguish NPs with a “strong” interpretation from generics). In the rest of this chapter I

will utilize the three-way distinction among indefinites given in (3) to examine a number of syntactic phenomena in which the interpretation of an NP plays a crucial role.

### 4.3 Extraction from NP: Some Initial Observations

The problem of extraction from “picture” NPs has been much discussed in the literature. In particular, it has long been noted that there is a contrast between definite and indefinite NPs with respect to extraction (Chomsky 1973, 1977, Erteschik-Shir 1973, Fiengo and Higginbotham 1981, Bowers 1988):

- (6) a. Who did you see a picture of?  
 b. \*Who did you see the picture of?

Fiengo and Higginbotham attribute the contrast in (6) to a Specificity Condition: Extraction from “specific” NPs is not possible, where specific NPs are those “having or purporting to have some definite reference” (1981:412). This is not a very precise characterization by any means, and although Fiengo and Higginbotham do remark that “quantifiers of some sorts produce specificity,” in general their discussion and examples deal mainly with definite (in the limited sense in which the determiner = *the*) versus indefinite NPs (determiner = *a*). An obvious question is whether this use of “specificity” can be assimilated to the presuppositional characterization of specificity developed in chapter 3. An examination of different NP types shows that there is in fact a distinction between strong and weak NPs with respect to extraction:

- (7) a. Who did you see pictures of?  
 b. Who did you see a picture of?  
 c. Who did you see many pictures of?  
 d. Who did you see several pictures of?  
 e. Who did you see some pictures of?  
  
 (8) a. \*Who did you see the picture of?  
 b. \*Who did you see every picture of?  
 c. \*Who did you see most pictures of?  
 d. \*Who did you see each picture of?  
 e. ?Who did you see the pictures of?

The examples in (7) show that extraction from NPs with weak determiners such as *a*, *many*, and *some* is quite acceptable. This contrasts with the

examples in (8), where extraction from NPs with strong determiners (*the*, *every*, *each*, ...) is shown to be bad.<sup>3</sup>

Looking more closely, we see that the contrast does not simply arise from the choice of determiner. If a presuppositional interpretation is induced by the determiner combination *a certain*, the acceptability of extraction is also reduced. Extraction from these NPs appears to be awkward in much the same way as extraction from clearly definite NPs, whereas extraction from a nonpresuppositional indefinite is fine:

- (9) a. \*Who did Mary say you saw a certain picture of?
- b. \*Who did Mary say you saw the picture of?
- c. Who did Mary say you saw a picture of?

Thus, the “specificity” effect is not due to a contrast between the definite and indefinite determiners, or even between strong and weak determiners. Although extraction from an NP with a strong determiner is generally bad, the acceptability of extraction from an NP with a weak determiner hinges on there being no presuppositional reading available (or required) in the given context.<sup>4</sup>

Thus, there clearly seems to be some kind of connection between the extraction facts I have presented in this section and the semantico-syntactic properties of NPs that I developed in the previous chapter. The issue that remains to be investigated is just what the nature of this connection is, and how it is to be represented in the grammar. How does the notion of presuppositionality interact with the purely syntactic operation of extraction to produce the contrasts noted above? There have been a number of attempts to explain the extraction-from-NP contrasts. Although none of them approaches the problem exactly on these terms, an examination of some of the various analyses is useful in that they each raise questions and problems (beyond those raised by Chomsky (1973) and Fiengo and Higginbotham (1981)) that must be considered in giving a more complete account. Therefore, in the following sections I will attempt to define the problem of extraction from NP more completely by bringing a fuller range of observations to bear on the issue.

#### 4.3.1 A Purely Syntactic Explanation: Subjacency

Bowers (1988) gives an explanation of the “specificity effects” that draws upon work on the structure of the NP in English and other languages. Bowers’s analysis is based on the idea that NPs with strong determiners and NPs with weak determiners differ in structural complexity, making use of the notion of a *determiner phrase* (DP).<sup>5</sup> In the *DP Hypothesis* the determiner (D) of an NP is taken to be a functional element analogous to

Infl at the sentence level, which thus heads the NP, rather than the noun itself functioning as the head (Abney 1987).

Bowers utilizes the DP/NP contrast to account for “specificity effects” by proposing that strong and weak NPs differ in structure. Following Jackendoff (1968, 1977), Bowers divides quantifiers into two groups: Class I (strong) and Class II (weak). He proposes that Class I quantifiers are of category D, whereas Class II quantifiers are adjectives and attach within NP:<sup>6</sup>

- (10) a. [<sub>DP</sub> each [<sub>NP</sub> picture of manatees]]
- b. [<sub>NP</sub> [<sub>AP</sub> many] [<sub>N'</sub> pictures of manatees]]

Thus, the strong NPs differ from the weak NPs in that they have an additional layer of structure on top of their NP structure, as shown in (10a), whereas weak NPs consist of only NP, as shown in (10b).

This structural distinction between strong and weak NPs leads to an explanation of the extraction contrasts in terms of Subjacency. Extraction from a weak NP crosses only an NP boundary, whereas in the case of a strong NP the extracted *wh*-phrase crosses an NP and a DP boundary. Bowers assumes that in the case of extraction out of a weak NP object the NP is L-marked by the verb and thus is not a blocking category. In the case of extraction from a DP (an NP with a strong determiner), the NP is not L-marked by the verb, owing to the presence of the intervening maximal projection DP. Therefore, the NP is a blocking category, and a barrier, and the DP “inherits” barrierhood from the NP. This results in the extraction crossing two barriers, creating a Subjacency violation (Chomsky 1986a):

- (11) a. who<sub>i</sub> did you see [<sub>NP</sub>[<sub>AP</sub> many] [<sub>N'</sub> pictures [<sub>PP</sub> of t<sub>i</sub>]]]]
- [ ]
- b. who<sub>i</sub> did you see [<sub>DP</sub> the [<sub>NP</sub>[<sub>N'</sub> picture [<sub>PP</sub> of t<sub>i</sub>]]]]]
- [ ]

Regardless of whether his assumptions about L-marking and its effects in NPs versus DPs can be maintained, Bowers’s account runs into problems because extraction-from-NP phenomena are a great deal more variable than would be expected under a pure subjacency approach. Since ill-formedness results from the structure of the NP, which is a reflection of the category of its determiner, an obvious problem for this account is the ambiguity of weak quantifiers. Weak quantifiers can have either a cardinal or a presuppositional reading. Within Bowers’s explanation, this would mean that weak quantifiers would have to be capable of acting as either

adjectives (the cardinal reading) or determiners that head DPs (the presuppositional reading).<sup>7</sup> Although this is not altogether implausible, there are still other difficulties resulting from the fact that the acceptability of extraction is dependent on the choice of determiner.<sup>8</sup> Although variability with weak NPs might be expressed in terms of a categorial ambiguity reflecting their semantic ambiguity, strong determiners should always prohibit extraction, since they are not ambiguous and will always induce a DP structure in an NP. This prediction is not borne out. As pointed out to me by Roger Higgins, there is an indefinite use of the (usually definite) determiner *this*. The fact that in this usage *this* functions like a weak determiner is shown by its ability to appear in *there*-sentences:

- (12) There's this cow that I see every morning.

The indefinite use of *this* also seems to be permitted in extraction contexts:

- (13) There's this cow that Egbert is painting this wonderful picture of.

Thus, the presence of a strong determiner in and of itself does not suffice to rule out extraction. The possibility of extraction from "picture" nouns seems to depend more on the actual interpretation of the NP than on the choice of determiner.

An even more serious problem is the fact that the acceptability of extraction also appears to depend to some extent on the choice of the verb (Erteschik-Shir 1973, Horn 1974):

- (14) a. Who did you see a picture of?  
 b. \*Who did you destroy a picture of?

- (15) a. Who did you read a book about?  
 b. \*Who did you tear up a book about?  
 c. ?Who did you copyedit a book about?

All of the examples in (14) and (15) involve extraction out of an indefinite NP, and they should all be equally good, since the extraction should not cross any barriers, analogous to (11a). Yet for many speakers extraction with the verbs *destroy*, *tear up*, and *copyedit* is noticeably less good than in the case of *see* or *read*. Thus, it is clear that an account of extraction from NP will also have to take into account NP-external factors such as the choice of verb.

#### 4.3.2 The Semantics of Verbs and Extraction from NP

Both Horn (1974) and Erteschik-Shir (1973) examine the role that the choice of verb plays in extraction from NP objects. Horn takes as his

starting point the position that extraction out of an NP is in general not allowed:

(16) *The NP Constraint*

No constituent which is dominated by NP can be moved from that NP by a transformational rule. (Horn 1974:20)

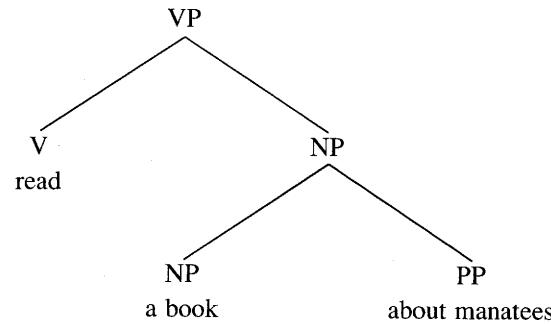
This is a rather strong constraint, and although it accounts for the ungrammaticality of the sentences in (8) and (9), it still leaves the obvious problem of accounting for those cases in which extraction is permitted, such as those in (7). To explain these cases, Horn argues that sentences with "picture" NP objects are potentially structurally ambiguous. Thus, in (17a) the PP *about manatees* can potentially attach in one of two places: either to the NP or to the VP.

- (17) a. Oscar read a book about manatees.

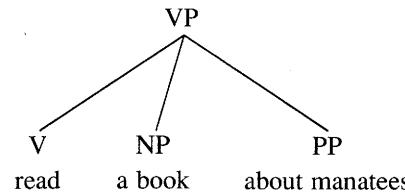
- b. [<sub>IP</sub> Oscar [<sub>VP</sub> read [<sub>NP</sub> a book [<sub>PP</sub> about manatees]]]].  
 c. [<sub>IP</sub> Oscar [<sub>VP</sub> read [<sub>NP</sub> a book] [<sub>PP</sub> about manatees]]].  
 d. What did Oscar read a book about?

The bracketing in (17b) shows the PP attached to the NP, and the bracketing in (17c) shows the PP attached to the VP. In (18) and (19) I give tree representations of the two VPs.

(18) *PP-attached-to-NP*



(19) *PP-attached-to-VP*



Most importantly, in (17c) the PP is *not* contained within the object NP. Thus, if the sentence in (17a) is indeed ambiguous between these two structures, the fact that extraction of the PP is possible (as shown in (17d)) does not constitute a counterexample to the NP Constraint; the extraction structure is simply derived from the structure in (19). Extraction of a PP attached to VP does not violate the NP Constraint.

Horn claims that verbs like *destroy* permit only one structure (presumably by the subcategorization frames): the structure in which the PP attaches to NP, shown in (18). Thus, *destroy* does not permit extraction from NP (as shown in (14)) because it does not subcategorize for the structure that makes the extraction possible.<sup>9</sup>

A major problem with Horn's analysis (beyond those discussed in note 9) is that it focuses entirely on the differences between verbs. As we have already seen, the constraints on extraction involve properties of the NP itself as well. Horn's account does not explain why even in the case of verbs like *read* and *write* the extraction is more acceptable with NPs with weak determiners than with NPs with strong determiners. Another question is the source of the differences between verbs—why should verbs like *destroy* permit only the structure in (18)? The fact that there are particular semantic classes of verbs and NPs involved in the extraction contrasts is still left unexplained.

Erteschik-Shir (1973) approaches this problem from the point of view that the presence or absence of what she calls “semantic dominance” in the extraction domain leads to contrasts in extractability. Thus, the extractability contrasts between strong and weak NPs (repeated in (20) and (21)) are explained by the fact that strong NPs in general must be semantically dominant, whereas weak NPs need not be.

- (20) a. \*Who did you see the picture of?  
 b. \*Who did you write every book about?  
 c. \*What did you paint most pictures of?  
 d. \*Who did you read all books by?
  
- (21) a. Who did you see a picture of?  
 b. Who did you write some books about?  
 c. What did you paint many pictures of?  
 d. Who did you read several books by?

Erteschik-Shir defines semantic dominance in terms of whether or not a contextual reference is present. Thus, these observations appear to be related (theoretically as well as empirically) to the observations made in chapter 3 concerning presuppositionality in NPs. As an initial attempt to

recast Erteschik-Shir's observations within the framework developed here, the contrasts between (20) and (21) can be described by the following constraint on extraction from presuppositional NPs:

(22) *Presuppositional NP Constraint*

Extraction cannot take place out of a presuppositional NP.

Erteschik-Shir also notes variation in extractability with different verbs, and it is interesting to see whether the presuppositionality approach can be extended to these cases as well (repeated from (14)–(15)): <sup>10</sup>

- (23) a. Who did you see a picture of?  
 b. \*Who did you destroy a picture of?
  
- (24) a. Who did you read a book about?  
 b. \*Who did you tear up a book about?  
 c. ?Who did you copyedit a book about?

The basic intuition here (to be discussed more thoroughly in a later section) is that “semantic dominance” arises in these cases because although destroying an object presupposes that the object exists (since the object is itself affected by the action), seeing and reading do not induce such a presupposition.

Erteschik-Shir relates a number of factors that influence the acceptability of extraction out of an NP to the notion of “semantic dominance.” In some cases (such as the contrasts between strong and weak NPs) the relationship between her proposals concerning “dominance” and the differences between presuppositional and cardinal NPs that I discussed in the previous chapter is quite clear. In other cases (particularly involving contrasts between different verbs) the connection is less obvious.

In the next section I will examine the various extraction-from-NP contrasts in light of the ambiguity of indefinites. Tests that pick out the quantifier-raising interpretation of an NP will be useful in pinning down how the choice of verb can affect the presuppositionality of its NP object. This in turn will bring us closer to the ultimate goal of going beyond a simple descriptive generalization concerning the effects of “semantic dominance” (or presupposition) and replacing it with a more explanatory account deriving the extraction constraint in (22) from more general principles in the grammar.

#### 4.4 Quantification and Extraction from NP

In examining several previous approaches to the problem of extractions from NP, I have adduced three additional “complicating factors” (beyond the initial observations) that affect the acceptability of such extractions. These are (1) the determiner of the NP (strong NPs are less amenable to extraction than weak NPs), (2) the type of verb governing the NP (verbs like *read* and *write* permit extraction, whereas with verbs like *destroy* extraction is less acceptable), and (3) the role of (some notion of) presupposition. This raises a number of questions. First, why should two such apparently unrelated factors as (1) and (2) both result in reduced grammaticality in extraction contexts? Ideally, there should be some common ground between the two that explains why the NP determiners and the verb types should have this effect. Second, where does presupposition fit in, and how can such a semantic notion be related to a syntactic phenomenon like an extraction contrast? And finally, the extraction contrasts are “fragile” in the sense of being vague and likely to vanish in certain contexts. An analysis of the extraction phenomena should also account for this vagueness.

As a starting point, I examine the varying acceptability of extraction from NP in light of the results in chapter 3 concerning the interpretation of NPs. I show that the particular semantic properties of the different predicate types can be characterized in terms of the interpretation(s) of object NPs that they favor. Pursuing Erteschik-Shir’s initial suggestions concerning the role of “semantic dominance” in extraction contexts, I try to explain the contrasts noted above by showing that certain transitive verbs require some sort of preexistence of their objects in the form of a presuppositional reading involving QRing of the object. This preexistence in turn results in a quantificational environment that rules out cardinal NPs, and therefore rules out extraction. Extraction is ruled out in these cases because extraction is only possible from an NP that is not required to undergo QR. This in turn leads to an account of the vagueness of the judgments involved. It is not surprising that the interpretation of an NP should vary with context, and to the extent that extractability is dependent on a particular interpretation the judgments concerning extraction should vary as well.

##### 4.4.1 An Ambiguity with Indefinite Objects

Adverbs of quantification like *always* can serve as a useful tool in highlighting the quantificational variability of indefinites. In the context of an

adverb of quantification an indefinite NP in object position can receive two possible readings, depending on whether or not it receives its quantificational force from the adverb. I will refer to the first of these readings as *quantificational* or *presuppositional*, by which I mean that it involves raising of the indefinite object by QR so that it forms a restrictive clause. The object behaves like a variable, and is bound by the adverb of quantification. The second type of reading is purely existential; again the object NP has no quantificational force of its own, but it is in this case bound by existential closure. Following the lines of the discussion in chapter 3, I will call this the *existential* or the *existential closure* reading of the indefinite.

These two readings are most readily brought out in generic, or habitual contexts (such as those containing adverbs of quantification like *usually* and *always* in conjunction with the present tense). The contrast between these two types of readings is shown in (25), where I have given contexts that highlight each of the two readings:

- (25) a. I always write up a witty story about Millard Fillmore.
- b. Quantificational reading: Whenever I hear a witty story about Millard Fillmore, I always write it up.
- c. Existential reading: First thing in the morning, I always write up a witty story about Millard Fillmore.

The quantificational reading involves the binding of a variable corresponding to *a witty story about Millard Fillmore* by the adverb of quantification *always*. Following Lewis (1975), I assume that the representation of the quantificational reading given in (25b) is as follows:

- (26)  $\text{Always}_x [x \text{ is a story about Millard Fillmore}] \text{ I write up } x$

As shown in (26), the indefinite object NP is introduced in the restrictive clause. Given the account of quantification I presented earlier, restrictive clause formation is associated with raising of an NP by QR to adjoin to IP; where the tree-splitting algorithm ensures that it will be mapped into a restrictive clause. Thus, the quantificational reading in (25b) is associated with the application of QR to the object NP.

The existential reading requires some (perhaps implicit) context variable for the adverb of quantification to bind. In (25c) I have given a context in which *always* quantifies over “morning situations,” resulting in the logical representation shown in (27).

- (27)  $\text{Always}_t [t \text{ is in the morning}] \exists_x x \text{ is a story about Millard Fillmore} \wedge \text{I write up } x \text{ at } t$

Thus, in (27) the variable introduced by the NP *a witty story about Millard Fillmore* is not bound by *always*; it is bound instead by existential closure. The NP is *not* raised by QR, since it is not incorporated into the restrictive clause.

The two readings of indefinite objects that I have presented here will prove to be important in answering the questions concerning extraction from NP that I posed earlier. Though the contrast is subtle, it can be highlighted by the choice of contexts, as I have shown. There are also a number of syntactic constructions that are sensitive to the distinction between the two readings of the indefinites. In the following subsections I will present these additional contexts that can serve as tests for clearly distinguishing the two readings.

#### 4.4.2 Antecedent-Contained Deletions and Ambiguity

One context in which the difference between the existential and the quantificational readings is brought out is that of ACD, which I discussed in the previous chapter. As I noted, ACD is possible only in those contexts where QR has taken place. Given the relationship between QR and the “quantificational,” or presuppositional reading of the indefinite posited above, it is expected that ACD should rule out the existential closure (non-QR) reading for an indefinite object in generic contexts. This does in fact seem to be the case:

- (28) a. I usually read books that you do.
- b. Quantificational reading: Whenever you read (some) books, I usually read them too.
- c. \*Existential reading: Usually (in the morning) I read books that you read too.

In (28) the ACD with an indefinite object is made possible by the presence of the adverb *usually*, which induces a habitual reading for the sentence. The context of ACD, however, permits only one of the two logically possible interpretations for the indefinite object, as shown by the contexts given in (28b) and (28c). The existential reading corresponding to (28c) is ruled out.

#### 4.4.3 *Any* and Ambiguity

Another context that distinguishes two readings for an object NP involves the use of the determiner *any*. The appearance of non-negative-polarity *any* as a determiner on an NP rules out the existential reading. An *any*-NP must have a quantificational reading, as shown in (29).

- (29) I usually write up any story about Millard Fillmore.

This sentence can only have the quantificational reading; the existential reading is not possible. Thus, *any* provides another diagnostic for the quantificational reading.

As expected, the use of *any* is quite grammatical in ACD constructions. This fact also supports the correlation of *any* with the quantificational reading of an NP:

- (30) I usually read any book you do.

These facts about *any* of course do not shed any light on the question of the nature of indefinites that I am considering here, but as a diagnostic for the availability of the quantificational reading they prove useful in investigating the distribution of the two readings with respect to various predicates.

#### 4.4.4 German Scrambling and Indefinite Objects

German provides what may be the most “graphic” diagnostic for the QR reading of indefinite objects in generic contexts. German has a scrambling rule that allows constituents to move out of VP and adjoin to IP.<sup>11</sup> The VP-external position of the scrambled constituent is indicated by its position relative to a sentential adverb, which marks the VP boundary. Constituents to the left of the adverb are VP-external, constituents to the right of the adverb are generally interpreted as VP-internal.<sup>12</sup> (The literature on German scrambling is quite extensive. See Lenerz 1977, Lötscher 1983, Fanselow 1986, 1988b, Kathol 1989, Webelhuth 1989, and Moltmann 1991 for additional discussion.)

In the case of indefinite objects in generic contexts parallel to the English cases discussed above, the scrambled and unscrambled orders are distinguished semantically. In the case of the VP-internal or unscrambled order, the most neutral interpretation of the indefinite object is the existential closure interpretation.

- (31) a. ... daß Otto immer Bücher über Wombats liest.  
    that Otto always books about wombats reads  
    ‘... that Otto always reads books about wombats.’
- b. [CP daß [IP Otto immer [VP Bücher über Wombats liest]]]
- c. Always, [t is a time]  $\exists_x$  x is a book  $\wedge$  Otto reads x at t

The sentence in (31) shows the indefinite object in its base, or unscrambled, position. The interpretation for the sentence is given in (31c). The object

NP appears as a variable introduced in the nuclear scope, and is bound by existential closure.

This contrasts with the scrambled order. When the indefinite object is scrambled, the existential closure reading is no longer available, and the QR reading of the indefinite surfaces. The scrambled order is shown in (32).

- (32) a. ... daß Otto Bücher über Wombats immer liest.  
           that Otto books about wombats always reads  
   b. [CP daß [IP Otto Bücher über Wombats immer [VP liest]]]  
   c. Always<sub>x</sub> [x is a book] Otto reads x

The interpretation for the indefinite object in the sentence in (32) is the QR reading shown in (32c). Here the indefinite object is introduced in the restrictive clause, and is bound by the adverb of quantification *immer* ‘always’.<sup>13</sup>

This contrast between scrambled and unscrambled orders with respect to the interpretation of the indefinite object can be explained by the Mapping Hypothesis if, as argued in Chapters 2 and 3, tree splitting can occur at S-structure in German. Thus, scrambling in German has the semantic effect of a sort of “S-structure QR” in sentences like (32).

Before leaping to the conclusion that S-structure scrambling in German is in fact *equivalent* to LF QR in English, a few observations are in order. First, it is not the case that scrambling acts as a total replacement for QR in German. If this were the case, we would expect that there would be no instances of scope ambiguity in German, and also that NPs that obligatorily undergo QR (namely, presuppositional NPs) would not be able to remain within VP at S-structure.<sup>14</sup> Neither of these predictions is borne out. Unscrambled sentences can show ambiguities of interpretation, and strong NPs may remain within VP at S-structure. In other words, S-structure scrambling need not occur, unlike QR, which presumably is required for quantificational NPs by some sort of condition on variable binding (see May 1977). Scrambling does have the effect of forcing the QR reading for a scrambled indefinite NP—scrambled NPs do not undergo LF lowering, and unscrambled indefinites usually do not receive the QR reading. In this sense, the effect of German S-structure scrambling is similar to the effect of the (morphological) accusative case marking in Turkish discussed in chapter 3.<sup>15</sup>

To summarize the preceding sections, an indefinite object NP has two potential readings in a generic context. The first is a quantificational reading that arises from the raising of the NP by QR to adjoin to IP, where

it subsequently forms a restrictive clause in the semantic representation. The second reading is existential. In this case the NP is not raised by QR, but remains within the VP, and in the semantic representation it receives its existential force from the operation of existential closure. ACD once again serves as a diagnostic for the quantificational reading, since ACD is permitted only in contexts where the object NP must undergo QR. German scrambling contexts also serve to highlight the syntactic nature of the contrast between the two interpretations.

The next step is to investigate the connection between these two possible readings of indefinite objects and the various types of verbs discussed by Erteschik-Shir (1973) and Horn (1974). In the sections that follow I show that the type of verb determines which reading(s) of indefinite objects will be readily available. Additionally, I present data showing that the acceptability of German scrambling is also determined (in part) by the choice of predicate. Thus, the choice of verb determines whether or not quantifier raising of an indefinite object will be obligatory.

#### 4.4.5. Verb Types and the Interpretation of Indefinites

Recall that both Erteschik-Shir (1973) and Horn (1974) observed that verbs differ in the extent to which they permit extraction from object NPs. In this section I examine three classes of verbs—the verbs of creation (such as *write* or *paint*), the verbs of “using” (such as *read* or *play*), and the “experiencer” verbs (such as *love* or *hate*)—in light of the discussion of indefinite interpretations above.

**4.4.5.1 Creation versus Using: *Write/Read*** The verbs of creation (*write*, *paint*, etc.) and the verbs of using (*read*, *play*, etc.) form two classes with respect to the behavior of “picture” noun objects. In particular, in this section I show that these two classes of verbs differ in the semantic interpretations they most readily permit for an indefinite object. The habitual contexts created by adverbs of quantification will serve as a diagnostic starting point for the discussion.

Considering first the verbs of using, the examples given in (33) (in generic contexts) all seem to permit both of the possible interpretations (quantificational and existential) for an indefinite “picture” noun object.

- (33) a. I usually read a book by Robertson Davies.  
   b. I usually play a sonata by Dittersdorf.  
   c. I usually buy a picture of the Chiricahuas.  
   d. I usually comment on an essay by George Will,  
   e. I usually publish a book on Gila monsters.

All of the sentences in (33) are ambiguous (although in some cases one reading may be preferred over the other).

The availability of the quantificational reading can be further verified through the use of the tests presented in the preceding sections. For example, these verbs also permit *any-NPs* (which are an indicator of the quantificational reading) as their objects:

- (34) a. I usually read any book by Robertson Davies.  
     b. I usually play any sonata by Dittersdorf.  
     c. I usually buy any picture of the Chiricahuas.  
     d. I usually comment on any essay by George Will.  
     e. I usually publish any book on Gila monsters.

Another indicator of a QR reading is ACD. In the generic context produced by the adverb *usually* ACD is also possible with the verbs of using:

- (35) a. I usually read books that you do.  
     b. Evelina usually buys pictures that Egbert does.

Of course, in the sentences in (35) the object NP receives only the quantificational (QR) reading.

The final correlation with the quantificational reading I gave above involved German scrambling. In the case of German verbs of using, scrambling is permitted (as indicated by the position of the object to the left of the adverb) and yields the quantificational reading for the indefinite object:

- (36) a. ... daß Otto Bücher über Wombats immer liest.  
           that Otto books about wombats always reads  
     b. [CP daß [IP Otto Bücher über Wombats immer [VP liest]]]  
     c. Always<sub>x</sub> [x is a book] Otto reads x

Before proceeding further, it is important to note that one property common to all the verbs in the examples given in (33) is that they all can carry a possible implication that there be some preexisting books, sonatas, pictures, and essays. This is a crucial property of the quantificational reading. This property can be seen in paraphrases such as 'Whenever I encounter a sonata by Dittersdorf, I play it'. The *whenever*-clause in the paraphrase makes the notion of preexistence explicit. This notion of preexistence (as an existence presupposition) is also explicitly represented in the logical representation by the restrictive clause.

I now turn to the verbs of creating. These verbs denote the bringing of their objects into existence and therefore are incompatible with the notion of preexistence. Not surprisingly, these verbs do not permit a quantificational reading of an indefinite object:

- (37) a. I usually write a book about slugs.  
     b. I usually paint a picture of Barbary apes.  
     c. I usually draw a map of Belchertown.

The sentences in (37) do not permit interpretations such as 'Whenever there is a book about slugs, I write it' or 'Whenever there is a map of Belchertown, I draw it'. Thus, one might say that things that are only just brought into existence cannot be mapped into a restrictive clause, and are limited to only the cardinal (existential) reading. *Any-NPs* are also quite strange in these contexts:

- (38) a. \*I usually write any book about slugs.  
     b. \*I usually paint any picture of Barbary apes.  
     c. \*I usually draw any map of Belchertown.

The absence of the quantificational reading also correlates with the inability of the verbs of creating to appear in ACD contexts. ACD requires the quantificational interpretation and is therefore expected to be unacceptable with verbs of creation like *write* and *paint*. This prediction also seems to be borne out:

- (39) a. \*I usually write answers that you do.  
     b. \*I usually draw animals that you do.  
     c. \*I usually paint designs that you do.

I have deliberately chosen sentences that do not pragmatically rule out ACD in that they permit repetition of the action involved.<sup>16</sup> Though it might be hard to imagine two people writing the same books, it is perfectly plausible that two people should write the same answers on a test. Thus, the sentences in (39) provide additional support for the idea that the quantificational reading is not readily available for some verbs.

Finally, in German the verbs of creation do not allow scrambling of an indefinite object in normal contexts (but see Kathol 1989 for discussion of some unusual uses of creation verbs). As shown in (40), the unscrambled order (with the object NP to the right of the sentential adverb *immer* 'always') is perfectly acceptable, but this ordering permits only the existential closure interpretation of the object.

- (40) a. ... daß Otto immer Bücher über Wombats schreibt.  
           that Otto always books about wombats writes  
           ‘... that Otto always writes books about wombats (e.g., in the  
           summer when he has finished all his term papers).’  
   b. Always, [t is a time]  $\exists_x$  x is a book  $\wedge$  Otto writes x at t

- (41) \*... daß Otto Bücher über Wombats immer schreibt.

In contrast to the unscrambled order, the scrambled order given in (41) is ungrammatical.

Thus, the interpretations of habitual sentences with adverbs of quantification show that the verbs of using and creation differ strikingly in the readings they permit for an indefinite object. The verbs of using allow both the quantificational reading and the existential closure reading, whereas the verbs of creation permit only the existential closure reading. This observation is supported by three tests that act as indicators for the QR reading of an NP: the acceptability of the determiner *any*, ACD, and scrambling of indefinites in German. In the next section I look at the experiencer predicates, which show yet another pattern of effects.

**4.4.5.2 The Quantificational Reading and Experiencer Verbs** In the previous section I showed that there is a class of verbs, those of creation, that do not permit a quantificational reading for an indefinite object. Just as there are verbs that seem to be limited to the existential reading of the object, there are also predicates that permit only a quantificational reading of an indefinite object NP in the context of an adverb of quantification. These cases are those in which there is no possibility of the adverb of quantification binding some sort of contextual variable as in (27). One particular case involves the experiencer verbs. Experiencer verbs constitute a special case of the so-called individual-level predicates discussed in chapter 2 (the predicates roughly corresponding to permanent states). Before discussing experiencer predicates in detail, I will briefly review some of the relevant properties of individual-level predicates.

As I discussed in chapter 2, Kratzer (1989) argues that stage-level (denoting temporary states) and individual-level (permanent state) predicates differ with respect to variable binding. Stage-level predicates have an abstract spatiotemporal argument that can act as a variable in quantificational contexts. Individual-level predicates, on the other hand, do not have this spatiotemporal argument (I follow Kratzer’s notation here):

- (42) a. When Betty speaks Hittite, she speaks it well.  
   b. Always, [speaks (Betty, Hittite, I)] speaks-well (Betty, Hittite, I)

- (43) a. \*When Betty knows Hittite, she knows it well.  
   b. \*Always [knows (Betty, Hittite)] knows-well (Betty, Hittite)

(42) and (43) illustrate the contrast between the two types of predicates. In the case of the stage-level predicate *speaks*, the adverb of quantification *always* (implicit in the *when*-clause, according to Lewis (1975) and Kratzer (1986)) binds the spatiotemporal variable *I*, and the resulting logical representation is well formed. In the case of the individual-level predicate *know*, this variable is not available, and the logical representation yields a vacuous quantification, since there are no other possible variables in (43a) for the quantificational adverb to bind. Assuming that there is a general prohibition on vacuous quantification in natural language (along the lines of that proposed by Milsark (1974), for example), the ungrammaticality of (43a) is thereby accounted for.

Returning to the question of the interpretation of indefinites, there is a clear prediction to be tested. If a situation existed in which there was an adverb of quantification and an indefinite object NP was the only potential variable for the operator (such as *always*) to bind, we would expect that only the quantificational reading of the indefinite would be possible. To show just how this sort of situation can come about, it is useful to exploit the variable-binding differences between stage- and individual-level predicates.

Since stage-level predicates can always bind an abstract spatiotemporal variable, we would not expect the quantificational interpretation of an indefinite object to be required in these cases. This is in fact what is seen in (33) and (37): the quantificational interpretation is certainly not required, and in some cases (such as (37)) it is not even possible. Individual-level predicates, on the other hand, do not have the option of binding a spatiotemporal variable. Thus, it should be possible to construct examples in which an indefinite object NP *must* receive a quantificational interpretation. In (44) I give some examples of sentences containing an experiencer predicate, which functions as an individual-level predicate, along with an adverb of quantification (*usually*, *generally*).<sup>17</sup> In addition, since the subject is the pronoun *I*, the only variable for the adverb to bind is the indefinite object NP.

- (44) a. I usually like a picture of manatees.  
   b. I usually love a sonata by Dittersdorf.  
   c. I usually appreciate a good joke about violists.  
   d. I generally hate an article about carpenter ants.  
   e. I generally detest an opera by Wagner.

- f. I usually dislike a movie about vampires.
- g. I generally abhor a book about Brussels sprouts.
- h. I usually despise a painting of Chester A. Arthur.
- i. I generally loathe a story about stockbrokers.

The sentences in (44) only permit the quantificational interpretation for the object NP. Thus, (44a) can only mean ‘Whenever I see a picture of manatees, I like it’. It cannot mean something like ‘Every morning I treat myself to liking a picture of manatees’, which would be an existential reading for the object NP. Likewise, (44e) can only mean ‘Whenever I hear an opera by Wagner, I detest it’. An existential reading such as ‘When I need to express anger, I detest an opera by Wagner’ is not possible. Casting this observation in terms of the discussion of the difference between the existential reading and the quantificational reading with respect to quantifier raising and logical representations, we have the result that the sentences in (44) all require that the object NP be raised by QR in the mapping to the logical representation.

If, as I have suggested, the quantificational reading is strongly preferred for indefinite objects of experiencer verbs in generic contexts, then it should also be the case that ACD should be possible in these environments:

- (45) a. I usually like pictures that you do.  
 b. I usually love animals that you do.  
 c. I generally appreciate jokes that you do.  
 d. ?I usually hate articles that you do.  
 e. I generally detest operas that you do.  
 f. I usually dislike movies that you do.  
 g. ?I generally abhor books that you do.  
 h. I generally despise paintings that you do.  
 i. ?I generally loathe stories that you do.

Although there is some variation in acceptability in the sentences in (45), they are all clearly more acceptable than those in (39), which involve verbs of creation for which the quantificational reading of the indefinite object is not permitted.

Another indicator that objects of experiencer verbs readily receive a quantificational interpretation is the fact that *any*-NPs are also quite acceptable as objects to these verbs:

- (46) a. I usually like *any* book about scorpions.  
 b. I usually love *any* opera by Mozart.

- c. I usually detest *any* meal with Brussels sprouts.
- d. I usually hate *any* movie about vampires.

Thus, the various tests for the QR reading in English show that it is quite clear that experiencer verbs permit the QR reading of an indefinite.

Finally, in German the experiencer verbs are remarkable in that they not only permit scrambling, but also seem to prefer it. This is significant, since the scrambled order permits only the quantificational reading of an indefinite object:

- (47) a. ... daß Otto Bücher über Wombats immer mag.  
           that Otto books about wombats always likes  
           ‘... that Otto always likes books about wombats.’  
 b. Always<sub>x</sub> [x is a book] Otto likes x

- (48) a. ... weil Olga Opern von Mozart immer schätzt.  
           since Olga operas by Mozart always appreciates  
           ‘... since Olga always appreciates operas by Mozart.’  
 b. Always<sub>x</sub> [x is an opera] Olga appreciates x

In summary, the experiencer verbs appear to have the property that they “select” the quantificational (QR) reading of an indefinite object in generic contexts. This peculiarity is explained within the analysis of stage- and individual-level predicates of Kratzer (1989) by the absence of a spatio-temporal argument in the case of experiencer predicates, which fall into the individual-level class. The observations about the available reading are corroborated by the ACD data in English and the scrambling facts in German. In the next section I return to the question of extraction from NP, showing how it interacts with the possible interpretations of indefinite NP objects and thereby also with the verb type involved in the sentence.

#### 4.4.6 English: Extraction and Ambiguity

Having presented the two possible readings for an indefinite object and also their distribution with respect to various verb types, I now investigate the interaction of extraction from “picture” NPs with the potential interpretations of the object NP in (25a). In particular, I show not only that extraction rules out the quantificational reading of an indefinite object, but also that extractability (i.e., the grammaticality of extraction) is correlated with the availability of the existential closure interpretation of the object NP. In other words, extraction is only possible when the existential reading is possible. The differences among the various verbs with respect to

extraction thus mirror the differences with respect to which interpretations are favored for indefinite objects with particular verbs.

The first step is to consider the effect extraction has on the available readings for an indefinite object in the case of verbs that allow both interpretations. Although indefinite object NPs with verbs of using like *read*, *play*, and *tell* are ambiguous (in generic contexts) between the existential (cardinal) and quantificational interpretations, when extraction out of a “picture” NP object occurs, it has the effect of eliminating the possibility of the quantificational reading:

- (49) a. What do you usually read books about?
- b. Who do you usually play sonatas by?
- c. What do you usually tell jokes about?

The extractions in (49) are grammatical, but only in a context that permits an existential interpretation. On the reading corresponding to the quantificational reading the extraction is considerably less felicitous.

Given the relationship between the “quantificational” reading and QR that I discussed above, the elimination of the quantificational reading by extraction suggests that extractability is related to nonpresuppositionality in the object NP. This, in turn, suggests that Erteschik-Shir’s (1973) approach to extraction from NP is on the right track. In other words, extraction seems to be prohibited from quantificational, or presuppositional, NPs. Before considering why this constraint might exist, I further pursue the parallel to Erteschik-Shir’s observations by examining the possible interpretations with various verb types.

First I consider the differences between verbs of using and verbs of creation. As I noted above, extraction is possible from objects of verbs of using. When extraction occurs, only the existential reading of the object is permitted, regardless of the preference shown by the verb:

- (50) a. Who do you usually read a book by?
- b. Who do you usually play a sonata by?
- c. What do you usually buy a picture of?
- d. Who do you usually comment on an essay by?
- e. What do you usually publish a book about?

Creation predicates allow only the existential reading for an indefinite object. As might be expected, extraction is possible from these predicates:

- (51) a. What do you usually write a book about?
- b. What do you usually paint a picture of?
- c. Which town do you usually draw a map of?

Thus, although the verbs *read* and *write* differ in whether or not they permit the presuppositional reading for an indefinite NP object, both verbs easily permit extraction from a “picture” NP object. This shows that the correlation between the availability of the existential interpretation and the possibility of extraction holds at least in one direction. When the existential reading is possible, extraction is also possible.

Turning again to the experiencer predicates, we can test this correlation in the other direction. If the hypothesis that extraction is possible only when the NP need *not* be raised by QR is correct, then extraction should be ruled out (even for indefinites) when a quantificational interpretation is obligatory. In other words, extraction should be ruled out where the existential reading is not available. This hypothesis can be tested by considering “picture” NP objects of experiencer verbs, since the experiencer verbs are a case where quantifier raising of an indefinite object appears to be required. Because of the absence of the spatiotemporal variable, it is easy to construct contexts where only the quantificational reading is possible using these verbs:

- (52) a. Egbert usually loves sonatas by Dittersdorf.
- b. Olga usually likes paintings of Brussels sprouts.
- c. Evelina usually despises books by Augustus F. Whipple.
- d. Oscar usually hates jokes about violists.

The following examples show that extraction from objects of experiencer verbs is in fact at best awkward:<sup>18</sup>

- (53) a. \*What do you usually like a picture of?
- b. \*Who do you usually love a sonata by?
- c. \*What do you usually appreciate a good joke about?
- d. \*What do you usually hate an article about?
- e. \*Who do you generally detest an opera by?
- f. \*What do you usually dislike a movie about?
- g. \*What do you generally abhor a book about?
- h. \*Who do you generally despise a painting of?
- i. \*Who/What do you generally loathe a story about?

In summary, the experiencer verb data show that when the existential reading of an indefinite object NP is ruled out (as it is with these verbs), extraction from the NP is ruled out as well. Thus, it appears that there is indeed a correlation between extractability and the availability of the existential reading. Extraction is possible if (and only if) the existential (non-QR) reading is available. This conclusion supports the informal

account of extraction in terms of presuppositionality that I proposed above. In the next section I look again at German and show that there is also a correlation between extraction from NPs and word order.

#### 4.4.7 German: Extraction and Scrambling

In the previous section I showed that there is a connection between extraction from NP and the existential closure reading in English. In this section I examine the parallel case in German. Although German does not allow extraction from “picture” nouns in the same way that English does, there are other cases of extraction out of an NP in German. One of these is the *was-für* split, which I discussed in chapter 2. In the *was-für* split the *was* portion of the NP specifier *was-für* ‘what kind of’ breaks off and is fronted to [Spec, CP], leaving the rest of the NP behind:

- (54) Was<sub>i</sub> hast du t<sub>i</sub> für Bücher gelesen?

what have you for books read  
‘What kind of books have you read?’

In this section I show that the *was-für* split in German is constrained in much the same way as the English extraction from “picture” noun objects. Extraction is only possible from indefinite objects that can have the existential closure interpretation. What makes the German case interesting is that the interpretation of the indefinite is to some extent determined by its *S-structure* position, as we saw in section 4.4.4. This makes the relationship between extraction and interpretation particularly salient, since scrambled indefinites (which have been moved out of VP) cannot have the existential closure interpretation.

If the correlation between extractability and the existential reading is in fact the correct generalization, there are certain predictions to be tested with respect to scrambling and extraction. In particular, extraction should only be possible from unscrambled indefinites. Scrambling of an indefinite object should rule out extraction. Looking first at verbs of using and creation, we see that this is in fact the case.<sup>19</sup>

- (55) a. ... daß Otto immer Bücher über Wombats schreibt.

that Otto always books about wombats writes

‘... that Otto is always writing books about wombats.’

- b. Was<sub>i</sub> hat Otto immer [NP t<sub>i</sub> für Bücher] geschrieben?

what has Otto always for books written

‘What kind of books has Otto always written?’

- (56) a. \*... daß Otto Bücher über Wombats immer schreibt.  
that Otto books about wombats always writes
- b. \*Was<sub>i</sub> hat Otto [NP t<sub>i</sub> für Bücher] immer geschrieben?  
what has Otto for books always written

With verbs of creation, only the unscrambled order (which gives the existential closure interpretation) is possible, and (not surprisingly) extraction from the NP is only possible in the unscrambled order as well. This can be seen in the contrast between the sentences in (55) and those in (56).

The fact that extraction is ruled out in the scrambled order in (56) is not unexpected regardless of whether or not there is a correlation between extraction and interpretation, since the scrambled “source” is also ungrammatical. To test whether or not there is a correlation between word order and extraction, we need to look at a case that allows both orders. Turning to the verbs of using, which do allow the scrambled order, we see that there is indeed a correlation between extraction and the unscrambled order.

- (57) a. ... daß Hilda immer Sonaten von Dittersdorf spielt.  
that Hilda always sonatas by Dittersdorf plays  
‘... that Hilda is always playing sonatas by Dittersdorf.’

- b. Was<sub>i</sub> hat Hilda immer [NP t<sub>i</sub> für Sonaten] gespielt?  
what has Hilda always for sonatas played  
‘What kind of sonatas did Hilda always play?’

- (58) a. ... daß Hilda Sonaten von Dittersdorf immer spielt.  
that Hilda sonatas by Dittersdorf always plays  
‘If it is a sonata by Dittersdorf, Hilda plays it.’

- b. \*Was<sub>i</sub> hat Hilda [NP t<sub>i</sub> für Sonaten] immer gespielt?  
what has Hilda for sonatas always played

In (57a) we see the unscrambled order, which yields the existential interpretation of the indefinite object. In (57b) we see that the *was-für* split is grammatical when the object is VP-internal (as indicated by its position to the right of the adverb). (58a) shows the scrambled order, in which the indefinite receives the quantificational interpretation, as indicated by the English translation,. In this case extraction is not possible, as shown by (58b). Thus, the verbs of using like *spielen* ‘play’ do permit extraction from NP, but only from an unscrambled (VP-internal) NP.<sup>20</sup>

Finally, I turn to the experiencer verbs. With the experiencer verbs, which require a quantificational interpretation, the unscrambled order is awkward, and the extraction from NP is correspondingly awkward, if not ungrammatical:<sup>21</sup>

- (59) a. ??... daß Olga immer Opern von Mozart schätzt.  
           that Olga always operas by Mozart appreciates  
   b. \*Was<sub>i</sub> hat Olga immer [NP t<sub>i</sub> für Opern] geschätzt?  
       what has Olga always     for operas appreciated

The examples in (60) show that the scrambled order is perfectly grammatical with the verb *schätzen* ‘appreciate’, and it is in fact preferred. But the *was-für* split is quite bad in this case, just as it was in the scrambled sentence in (58b).

- (60) a. ... daß Olga Opern von Mozart immer schätzt.  
           that Olga operas by Mozart always appreciates  
           ‘... that Olga always appreciates operas by Mozart.’  
   b. \*Was<sub>i</sub> hat Olga [NP t<sub>i</sub> für Opern] immer geschätzt?  
       what has Olga     for operas always appreciated

To summarize, the overall generalization seems to be that extraction is only possible from a nonscrambled (VP-internal) object NP. Since scrambling in German produces the QR reading of an indefinite object, this is parallel to the English observation: extraction from NP is not compatible with the QR (quantificational) reading of the NP. This generalization indicates that Erteschik-Shir’s observations concerning “semantic dominance” can in fact be recast in terms of the theory of NP interpretation I have been developing here. Of course, there is still the question of why extraction and interpretation should be related. But before considering why extraction is ruled out in quantificational contexts, I now consider one more class of verbs, the so-called verbs of destruction.

#### 4.4.8 Verbs of Destruction: *Destroy*, *Burn*, *Tear Up*, and *Ban*

The preceding discussion did not exhaustively cover the observations made by Horn (1974) and Erteschik-Shir (1973). In addition to discussing creation, using, and experiencer verbs, they claim that verbs of destruction like *destroy*, *burn*, *tear up*, and *ban* are also somewhat resistant to extraction from indefinite object NPs:

- (61) a. \*What did you destroy a painting of?  
   b. \*Who did you burn a picture of?  
   c. \*What did you tear up a paper about?  
   d. \*Who did the school board ban a book by?

Since these verbs, unlike the experiencer verbs, are not generally considered to be individual-level predicates (and consequently we cannot assume that they are lacking a spatiotemporal argument), it is perhaps not imme-

diate obvious why they should resist extraction, beyond the informal comments regarding an existence presupposition given in section 4.3.2. An important clue lies in the fact that the grammaticality of extraction with these verbs can vary greatly with the context.

The first thing to note here is that the sentences in (61) all involve episodic tense. In order to keep the discussion parallel to that in the previous sections, I will first discuss the generic (or habitual) contexts produced by adverbs of quantification such as *usually* and then return to the episodic cases.

As we have seen, habitual sentences are in principle ambiguous between quantificational and existential readings for indefinite objects, with the existential reading arising when the adverb of quantification binds some sort of situational variable. As we saw in the discussion of Kratzer’s (1989) variable-binding facts, it is the possibility of the adverb of quantification binding some situational variable that allows the existential reading. In the absence of such a variable the adverb of quantification must bind the indefinite, or else a situation of vacuous quantification will arise.

With this in mind, one possible reason for the awkwardness of the examples in (61) is that the “once-only” nature of verbs of destruction makes binding of a temporal variable unlikely and thereby rules out the extraction-permitting existential reading. In other words, it may be that the binding of the situational variable requires that the binding be over situations—a plurality of possible situations is required (see De Swart 1991 for a similar proposal). If this is the case, the extractions in (61) should be improved by choosing habitual contexts in which the activity can be repeated, allowing quantification over a number of situations. This should enable the adverb of quantification to bind a situational variable and permit the existential reading for the object NP to be easily isolated.

In (62)–(65) I give sentences in the present tense (associated with generic/habitual interpretations; see Carlson 1977b for more discussion of tense and genericity). In conjunction with the adverb *usually* this context makes the existential reading quite plausible. Not surprisingly, extraction is also possible in this context.

- (62) a. Elephants usually destroy pictures of ivory hunters.  
   b. What do elephants usually destroy pictures of?  
   (63) a. The school board usually bans books about linguists.  
   b. What does the school board usually ban books about?  
   (64) a. Egbert usually tears up articles about recycling.  
   b. What does Egbert usually tear up articles about?

- (65) a. Evelina usually burns books by Augustus F. Whipple.  
     b. Who does Evelina usually burn books by?

As expected, the (a) sentences in these examples are all ambiguous between a cardinal reading and a quantificational reading for the indefinite object NP. The quantificational reading disappears in the extraction sentences in the (b) examples.

The extractions in (62)–(65) all involve generic sentences with the adverb of quantification *usually*. This leaves the question of whether there is any way of biasing the *episodic* past tense toward an existential reading by creating a generic context (which can easily allow the existential interpretation) within the episodic tense. One such context would be one in which the destruction of paintings, the burning of pictures, and so on, are presented as habitual activities by means of time adverbials such as *every day*, *every week*, or *every year* (note that these adverbials explicitly bind temporal variables). Some examples of this sort are given in (66)–(69).

- (66) I'm cleaning out the old paintings stored in my attic, and I try to destroy a painting of one of my more obnoxious ancestors every day.  
     —Who did you destroy a painting of today?  
 (67) Oscar burns a picture of a linguist every day.  
     —Who did Oscar burn a picture of yesterday?  
 (68) To soothe my ragged nerves, I tear up a paper about a topic related to my dissertation each week.  
     —What did you tear up a paper about last week?  
 (69) Our school board bans a book by a famous linguist every year.  
     —Who did the school board ban a book by this year?

In (67)–(66) activities such as picture burning and book banning are clearly presented as habitual acts (just as in sentences with *usually*). These generic contexts strongly favor the existential reading for the indefinite object. Thus, the context sentence in (67) does not mean ‘Every day, if he sees a picture of a linguist, Oscar burns it’. Likewise, the context sentence in (69) does not mean that every year the school board has shown an inclination to ban *any* book by a famous linguist that came to its attention. The (simplified) logical representations for the relevant portions of the context sentences are given in (71)–(73).

- (70) Every<sub>d</sub> [*d* is a day]  $\exists_x x$  is a painting  $\wedge$  I destroy  $x$  at *d*  
 (71) Every<sub>d</sub> [*d* is a day]  $\exists_x x$  is a picture  $\wedge$  Oscar burns  $x$  at *d*

- (72) Every<sub>w</sub> [*w* is a week]  $\exists_x x$  is a paper  $\wedge$  I tear up  $x$  in *w*  
 (73) Every<sub>y</sub> [*y* is a year]  $\exists_x x$  is a book  $\wedge$  school board bans  $x$  in *y*

From the representations given it can be seen that QR has not applied to the indefinite objects, since they are not introduced in the restrictive clause, but appear in the nuclear scope. This being the case, it is not surprising that extraction is possible in these environments, since extraction should be possible when QR need not apply.

Thus, even in the episodic tense it is possible to bring out a context in which extraction is possible out of objects of verbs like *destroy*. Unlike the experiencer verbs, *destroy*, *burn*, *ban*, and *tear up* do not categorically rule out extraction (and existential readings for indefinite objects); they are merely predisposed toward a nonexistential reading in certain contexts in which the “once-only action” interpretation of these verbs is the default case. Thus, in the absence of other factors that might bring out an existential reading (such as the implication of repeated actions brought out by habitual contexts), these verbs simply “select” the quantificational reading of the indefinite object.

This account of the *destroy* extraction facts (which depends on a preference for the quantificational reading of an indefinite object) also predicts that ACD should be possible with indefinite objects with these verbs, since ACD is possible when QR takes place. With most of the verbs in this class ACD is actually bad for pragmatic reasons, as shown by the following example:

- (74) ?I usually destroy pictures that you do.

The sentence in (74) is odd, since it is difficult to destroy a picture in more than one situation. *Ban* does permit repetition of action and does permit ACD:

- (75) The school board usually bans books that we do.

In (75) the relevant reading is that in which the adverb *usually* binds *books* rather than times. In other words, it can be paraphrased as ‘The school board bans most of the books (i.e., titles) we do’. It may even be possible to devise plausible ACD contexts for *burn*:

- (76) The space shuttle burns fuels that Toyotas do.

Thus, there are cases where ACD is possible with indefinite objects of verbs of destruction. This observation, along with the other data presented in this subsection, indicates that the extraction characteristics of the verbs of destruction can be explained in the same manner as the verb classes

discussed above. The verbs of destruction appear to be resistant to extraction because in nonhabitual contexts they tend to prefer the quantificational reading for an indefinite object. Thus, the facts in (61) can be explained by the constraint against extracting out of an NP that must undergo QR, just as in the case of extraction out of strong NPs.

#### 4.4.9 Verb Types and Weak Crossover

Finally, the discussion of verb types and possible interpretations leads to an interesting approach to weak crossover phenomena. The verbs of destruction are interesting in their behavior with respect to weak crossover. That certain indefinites can appear in weak crossover contexts is well known. Fodor and Sag (1982) note that one property of “specific” indefinites is that they are permitted in the weak crossover configuration. In chapter 3 I argued that “specific” indefinites should in fact be analyzed as presuppositional, or quantificational, indefinites. Thus, it is not surprising that indefinite objects of verbs like *destroy* in episodic (nonhabitual) tense are like specific (i.e., quantificational) indefinites in being able to bind a pronoun on their left without inducing weak crossover effects. As might be expected, the verbs of destruction differ in this respect from verbs of creation (which strongly disfavor a specific or quantificational reading) and are similar to the verbs of using (which readily permit the quantificational interpretation):

- (77) a. Since I thought it<sub>i</sub> was offensive, I destroyed [a painting of distressed peasants]<sub>j</sub>.
  - b. Because I thought it<sub>i</sub> would heat the room nicely, I burned [a book about supply-side economics]<sub>j</sub>.
  - c. Since it<sub>i</sub> was considered to be too abstract, the school board banned [a book by Chomsky]<sub>j</sub>.
- (78) a. Since I thought it<sub>i</sub> was a sterling example of the Mannheim School, I played [a concerto by Karl Stamitz]<sub>j</sub>.
  - b. Because I was told it<sub>i</sub> was profound, I read [a book by Chomsky]<sub>j</sub>.
  - c. Since I thought it<sub>i</sub> was a work of art, I published [a book about dugongs]<sub>j</sub>.
- (79) a. \*Since I wanted to sell it<sub>i</sub>, I painted [a picture of tarantulas]<sub>j</sub>.
  - b. \*Since I needed it<sub>i</sub> for a class, I wrote [a paper on seaweed harvesting]<sub>j</sub>.
  - c. \*Because I wanted to hang it<sub>i</sub> on my wall, I painted [a picture of Scottish Highland cattle]<sub>j</sub>.

The sentences in (77) and (78) seem to be considerably more acceptable than those in (79). It appears that the availability of the quantificational interpretation for an indefinite licenses weak crossover.

This contrast can be explained if the indefinites in (79) (as well as (78)) are regarded as variables (as assumed by Heim (1982)). In this case the infelicitousness of the sentences in (79) is a result of a violation of the Leftness Condition of Chomsky (1976) (the Bijection Principle of Koopman and Sportiche (1982) cannot apply here, since the configuration of an operator binding two variables is not found). This is also seen in simpler examples:

- (80) a. \*Oscar gave their<sub>i</sub> homework papers to the students<sub>j</sub>.
- b. \*Olga bought his<sub>i</sub> Scottish Highland cow from a man<sub>j</sub>.

The pronouns in (80) cannot be coindexed with the indefinites on their right. The question that remains is what it is about the indefinites in (77) that makes their appearance in the weak crossover configuration acceptable. To answer this question, I will first consider the crossover behavior of indefinites in general.

Although the indefinites in (80) are subject to some kind of “leftness condition,” indefinites with added descriptive content are not subject to this restriction (Wasow 1979). Thus, coreference is possible in the following sentence:

- (81) The donkey he<sub>i</sub> loved most kicked [a farmer I know]<sub>j</sub>.

Recall that Fodor and Sag (1982) claim that “specific indefinites” such as *a farmer I know* are in fact distinct from other cases of indefinites in that they are directly referential (see section 3.4.3 for more discussion of Fodor and Sag’s arguments). This would account for the acceptability of (81), since the indefinite would not in this case be a variable and thus would not be subject to any “leftness condition.”

If Fodor and Sag’s analysis is correct, we would expect that only referential NPs should be permitted in the object position of sentences like (81). One case where the crossover effect seems clear is that of NPs that undergo QR. In these cases, the NP raises and leaves behind a trace that functions as a variable. As shown in (82), this variable cannot bind a pronoun to its left.

- (82) \*The donkey who loved him<sub>i</sub> kicked every farmer<sub>j</sub>.

This raises a potential problem for my explanation of the facts in (77)–(79), since my claim is that quantificational NPs are permitted in the weak

crossover configuration. Notice, however, that the crossover effect disappears with the plural form of the pronoun, indicating discourse anaphora with respect to the quantificational NP:

- (83) The donkey who loved them<sub>i</sub> kicked every farmer<sub>i</sub>.

What I would like to suggest (continuing the line of argumentation introduced in chapter 3, contra Fodor and Sag) is that “specific” indefinites and quantified NPs are not as different with respect to weak crossover as they may at first appear. In fact, the relevant property that permits the so-called specific indefinites in weak crossover contexts is not that they are referential and thus not subject to constraints on variables such as the Leftness Condition. Rather, the “specific” indefinites behave just as quantificational NPs do in that they can license discourse anaphora (the nonreferential approach to specific indefinites is also advocated by Kripke (1977)). And it is this property that licenses the “specific” indefinites in weak crossover contexts such as (81).<sup>22</sup>

Thus, the behavior of the verbs of destruction in the weak crossover configuration provides additional support for the quantificational characterization of specific indefinites in chapter 3, since much of the discussion in this section has been devoted to showing that the interpretation of these objects is essentially quantificational in nature. The indefinite objects of *destroy*-type verbs pattern with quantificational NPs in that they introduce discourse anaphora, an important factor in weak crossover cases. Explaining the weak crossover facts by resorting to a referential analysis would result in losing these generalizations. Instead, the weak crossover configuration can be licensed by another property of quantificational NPs: their ability to bind the pronouns as discourse anaphora.<sup>23</sup>

#### 4.4.10 Final Overview of Verb Types

I have examined a number of different classes of transitive verbs and found that they fall into roughly four classes: verbs of creation, verbs of using, experiencer verbs, and verbs of destruction. Certain syntactic properties of these verbs parallel certain preferences concerning the interpretation of indefinite objects. I distinguished two types of interpretations for indefinite NPs. One was a quantificational (or presuppositional) reading involving obligatory QR. The other was a cardinal existential reading involving existential closure, and thus no QR. The availability of the first reading correlates with the possibility of ACD and with the possibility of scrambling an indefinite object in German, and the availability of the second reading correlates with the possibility of extraction from NP.

The verbs of creation (*write*, *paint*, etc.) permit the existential closure reading and do not seem to allow the presuppositional reading. Consequently, extraction from NP is most felicitous with these verbs, and ACD is bad. Scrambling of an indefinite object is also not possible in German with verbs of creation.

The verbs of using (*read*, *play*, etc.) permit both the existential closure reading and the presuppositional reading of an indefinite object. Extraction and ACD are both acceptable with these verbs, as is German scrambling.

Experiencer verbs permit only the quantificational reading of an indefinite. ACD is fine with experiencer predicates, but extraction is ruled out. In German the scrambled order of an indefinite object is preferred with experiencer verbs.

Finally, the verbs of destruction (*burn*, *ban*, etc.) strongly favor a quantificational (presuppositional) reading for indefinite objects. The existential closure reading can be brought out only in habitual contexts that allow an interpretation with iterated action. Thus, in neutral episodic sentences extraction from NP is awkward with these verbs.<sup>24</sup>

So far I have been concerned only with pinning down the relationship between extraction and interpretation. I have not yet dealt with the question of why extraction from NP should be incompatible with quantifier raising of the NP. In broad intuitive terms, there seems to be a syntactic constraint against raising (via QR) an NP containing a trace. In the next section I will make a proposal relating this observation to other constraints on movement and/or representations within the Government-Binding Theory.

#### 4.5 Formulating the Extraction Constraint

In the previous sections I examined both extraction from objects and the interpretation possibilities for indefinite objects of various verbs. I found that extractability correlates with the availability of an existential reading for an indefinite object, which in turn correlates with an inability to license discourse anaphora in the weak crossover configuration. In this section I consider the question of why extraction should depend on the possibility of the “existential closure” interpretation for an indefinite object. In this case there appears to be a constraint on extraction that must be derived from the semantico-syntactic differences between quantificational (i.e., presuppositional) and cardinal NPs.

In chapter 3 I claimed that presuppositional NPs differ from cardinal NPs in that they obligatorily undergo QR. This raising operation was associated with the process of restrictive clause formation through the tree-splitting algorithm that mapped syntactic representations into tripartite logical representations. Thus, the obligatoriness of QR with respect to presuppositional NPs follows from the existence of the presuppositions (recall that generic indefinites can in fact be regarded as presuppositional) and the operation of the process of presupposition accommodation, following ideas developed by Berman (1991). The logic of this explanation is as follows:

1. The existence presuppositions of a quantificational NP are tied to the existence of a restrictive clause (Hausser 1973, Berman 1991).
2. VPs are always mapped into nuclear scopes of tripartite quantificational structures (tree splitting).
3. Therefore, presuppositional NPs must raise out of VP before tree splitting can take place (obligatory QR).

Given this explanation, the observed prohibition on extraction from a presuppositional NP stated in the constraint in (22) can be restated as follows:

#### (84) Revised Extraction Constraint

Extraction cannot take place out of an NP that must raise out of VP before tree splitting.

The constraint in (84) looks vaguely like the Freezing Principle of Wexler and Culicover (1980:119). The Freezing Principle roughly states that no rule can affect a node that is nonbase (e.g., a node that has been previously moved, or a node that has been affected by material moving out of it).

Wexler and Culicover state the Freezing Principle as a very general constraint, without specifying levels or deriving the restriction from more basic syntactic principles. The more limited constraint in (84) as it applies to cases of extraction from NP considered here involves a very specific situation, in which NPs containing an extraction site are adjoined to IP by either QR or scrambling. The question to be answered is whether this extraction constraint can be subsumed under any existing constraint.

The constraint in (84) basically states that moving an NP (whether by scrambling or QR) rules out *wh*-movement from that NP. Why should moving an NP have this effect? The possibility that I am going to consider here is that moving the NP creates a configuration that violates some other condition on *wh*-extraction (or the traces left by *wh*-movement). The con-

straint that comes most readily to mind is Subjacency, as formulated in Chomsky 1986a. Chomsky states Subjacency as a locality condition on links of a chain:<sup>25</sup>

- (85) a. If  $(\alpha_i, \alpha_{i+1})$  is a link of a chain, then  $\alpha_{i+1}$  is 1-subjacent to  $\alpha_i$ .  
 b.  $\beta$  is  $n$ -subjacent to  $\alpha$  iff there are fewer than  $n + 1$  barriers for  $\beta$  that exclude  $\alpha$ .

To see how Subjacency may apply in these cases, it is useful to first consider German, in which all the relevant movement (i.e., both *wh*-movement and scrambling) occurs at S-structure. Recall that the relevant generalization in German is that *was-für* extraction from an NP dominated by VP (that is, an unscrambled object) is grammatical, whereas extraction from an NP dominated by IP (such as a scrambled object NP) is bad:

- (86) a. ... daß Otto immer Romane von Joseph Roth gelesen hat.  
           that Otto always novels by Joseph Roth read has  
           ‘... that Otto has always read novels by Joseph Roth  
           (e.g., before going to bed.)’  
 b. Was<sub>i</sub> hat [IP Otto immer [VP [NP t<sub>i</sub> für Romane] gelesen]]?  
       what has Otto always for novels read  
       ‘What kind of novels has Otto always read?’

- (87) a. ... daß Otto Romane von Joseph Roth immer gelesen hat.  
           that Otto novels by Joseph Roth always read has  
           ‘... that Otto has always read novels by Joseph Roth = If it’s a  
           novel by Joseph Roth, Otto has read it.’  
 b. \*Was<sub>i</sub> hat [IP Otto [IP[NP t<sub>i</sub> für Romane] immer gelesen]]?  
       what has Otto for novels always read

These data recall the cases of subject extractions with stage- and individual-level predicates in German that I discussed in chapter 2. As in those examples, since scrambling moves the NP to an ungoverned position, the generalization here is clearly reminiscent of Chomsky’s (1986a) reformulation of Huang’s (1982) Condition on Extraction Domain (CED), which prohibits movement out of ungoverned positions. To show briefly how this works in the case of the contrast between (86b) and (87b), I give the relevant definitions (with the modifications from chapter 2) from Chomsky 1986a:<sup>26</sup>

(88) *Barrier*

$\gamma$  is a barrier for  $\beta$  iff (a) or (b):

- a.  $\gamma$  immediately dominates  $\delta$ ,  $\delta$  a blocking category (BC) for  $\beta$ ;
- b.  $\gamma$  is a BC for  $\beta$ ,  $\gamma \neq IP$ .

(89) *Blocking category*

$\gamma$  is a BC for  $\beta$  iff  $\gamma$  is not L-marked and  $\gamma$  dominates  $\beta$ .

(90) *L-marking*

$\alpha$  L-marks  $\beta$  iff  $\alpha$  is a lexical category that  $\theta$ -governs  $\beta$ . ( $\alpha$   $\theta$ -marks  $\beta$  and is a sister to  $\beta$ )

(91) *Spec-head agreement*

If a head L-marks a maximal projection, it L-marks the specifier of the projection. (Koopman and Sportiche 1988)

In the case of extraction from within VP (as in (86b)), the verb L-marks NP by  $\theta$ -assignment under the sisterhood relation. In this case the object NP is neither a BC nor a barrier for the trace and the extraction is grammatical. In the case of extraction from the scrambled position shown in (87b), the verb  $\theta$ -marks NP, but the NP is not a sister to the verb at S-structure. Therefore, the NP is not L-marked. This leads to a Subjacency violation, since the NP is a BC (and also a barrier), and the IP is not L-marked and dominates a BC, becoming itself a barrier. Thus, the extraction in (87b) crosses two barriers and is ruled out.

This explanation relies on two crucial assumptions concerning L-marking and barrierhood. First, although the object NP in (87b) is L-marked in its *base* (unscrambled) position, L-marking is not preserved by movement. The scrambled NP in (87b) is not L-marked. A second necessary assumption is that adjoined segments of a category must be able to inherit barrierhood (contra May 1985 and Chomsky 1986a). These two assumptions are also made by Browning (1991) to account for the ungrammaticality of extraction from topicalized constituents in English, a configuration similar to the German scrambling examples:<sup>27</sup>

- (92) \*[<sub>CP</sub> Who<sub>i</sub> do [<sub>IP</sub> you think [<sub>CP</sub> that [<sub>IP</sub> [<sub>NP</sub> pictures of  $t_i$ ]  
[<sub>IP</sub> Bert likes]]]]]]?

The topicalization operation creates an adjoined IP segment, which acts as a barrier to extraction out of the topicalized “picture” NP object.

Finally, it should also be noted that if Subjacency were to be stated as a condition on movement rather than representations (see the discussion in Browning 1991), certain assumptions concerning rule application would have to be made. Specifically, this account requires that the scrambling

operation precede *wh*-movement; otherwise, the configuration leading to the Subjacency violation would not arise.

Since the German data and the English data reduce to the same generalization—namely, that extraction is only possible from NPs that can receive an existential closure interpretation—it is natural (and desirable) to try to give a uniform explanation for the two languages. Although the explanation of the German data thus far seems relatively unproblematic, applying this explanation to the English data raises a number of problems. First, it becomes clear that Subjacency must be stated as a condition on representations, rather than a movement condition. This is simply because the ordering constraint required for a movement condition (adjunction to IP precedes *wh*-movement) cannot hold in English, since *wh*-movement at S-structure must precede QR at LF.

It is helpful at this point to go through the mechanics of the derivations of the English sentences. Recall that in English the existential closure interpretation of an NP arises from its being within the VP at the level of LF (where tree splitting takes place). The quantificational reading arises when an NP has been raised by QR out of the VP to adjoin to IP at LF. This results in the LF representations shown in (94).

- (93) What does Oscar usually read books about?

- (94) a. [<sub>CP</sub> What<sub>i</sub> does [<sub>IP</sub> Oscar usually [<sub>VP</sub> read [<sub>NP</sub> books about  $t_i$ ]]]]]?  
b. \*[<sub>CP</sub> What<sub>i</sub> [<sub>IP</sub> [<sub>NP</sub> books about  $t_i$ ]<sub>j</sub> [<sub>IP</sub> Oscar usually [read  $t_j$ ]]]]]?]

What is interesting here is that although *wh*-movement clearly does not violate Subjacency in the representation in (94b), the end result (after QR) is that the structural relationship between the *wh*-word and its trace  $t_i$  is parallel to that in the scrambled German sentence in (87b), but at the level of LF rather than S-structure. Thus, the trace is separated from its antecedent by two barriers as a result of QR. But in this case *wh*-movement precedes QR. Therefore, any single constraint that will rule out both (87b) and (94b) must be order-independent with respect to QR and *wh*-movement. Put in another way, the constraint must be representational in nature.

A second (and perhaps more consequential) problem in formulating a Subjacency explanation for the English data is that this constraint must apply at LF as well as S-structure. Simply reformulating Subjacency as a constraint on S-structure representations (as argued in Browning 1991, for example) will not solve the problem, since in English the illicit configuration arises only at LF. Thus, an account that assimilates the Revised Extraction Constraint in (84) to Subjacency (in this case as a reformula-

tion of Huang's CED) would require some basic modifications in the workings of Subjacency itself.<sup>28</sup>

The issue of whether Subjacency really should only apply at S-structure is controversial. In considering some of the arguments against having Subjacency apply at LF, it is not clear to me that this restriction to the level of S-structure is correct, even apart from the cases discussed here. If LF movement of an NP by QR can induce a Subjacency violation, then LF movement of other kinds should produce the same effect. A classic test case is that of *wh*-in-situ in English, which is assumed to involve LF movement of the *wh*-phrase (see Pesetsky 1987). The relevant cases stem from Huang's (1982) discussion of his CED, which acts as an S-structure constraint on movement, ruling out movement from ungoverned positions. The two core cases of the CED are extraction from adjuncts and extraction from subjects (the latter subsumes the Subject Condition of Ross (1967)). Huang notes that the CED does not seem to hold of LF extraction from adjuncts in English:

- (95) a. Who complained after Egbert kicked who?  
 b. \*Who<sub>i</sub> did Evelina complain after Egbert kicked t<sub>i</sub>?

Although the LF adjunct extraction (95a) is grammatical, as compared to the S-structure extraction in (95b), I find the cases of LF extraction corresponding to extraction from subjects to be considerably less acceptable (pace Huang 1982 and Lasnik and Saito 1992) than the adjunct extraction. The subject extraction is also less acceptable than LF extraction from objects.

- (96) a. \*?Who said that friends of who kicked Egbert?  
 b. Who said that Egbert kicked friends of who?

Thus, it appears that at least the Subject Condition portion of the CED may apply at LF (this judgment is shared by Pesetsky (1982)).

Another interesting fact is that degradation of acceptability of LF *wh*-movement is not seen only with subject extractions. A number of speakers also get a contrast in LF extraction from "picture" NP objects if the determiner varies, paralleling the extraction contrasts between strong and weak NPs at S-structure noted in the discussion of the so-called specificity effects above:

- (97) a. Who said that Egbert painted a picture of who?  
 b. Who said that Egbert drew many pictures of who?  
 c. Who said that Egbert painted three pictures of who?  
 d. ??Who said that Egbert drew every picture of who?

- e. \*?Who said that Egbert painted the picture of who?  
 f. \*Who said that Egbert drew most pictures of who?

Assuming that the NPs with strong determiners undergo QR at LF, the ultimate LF syntactic configurations of the sentences in (97d-f) will be similar to the one in (94b). Thus, it seems that LF *wh*-movement is subject to the same limitation with respect to quantifier phrases as S-structure *wh*-movement.<sup>29</sup> Allowing Subjacency to apply at LF in English yields a Subjacency-based explanation for these "specificity effects." Interestingly, this explanation accounts for the semantic nature of the extraction contrasts, through the relationship between QR and presupposition, unlike Bowers's (1988) Subjacency analysis, which involved a contrast between NP and DP.<sup>30</sup>

The main point that arises out of this discussion is that a Subjacency account of the extraction contrasts in both English and German will have to have two properties: (1) it will have to apply at LF as well as S-structure, and (2) it will have to be stated as a condition on representations, rather than a condition on movement.<sup>31</sup> The English case highlights both of these aspects. Extraction out of an NP leaves a trace within the NP. When the NP is subsequently raised to IP (at LF), two barriers then intervene between the NP-internal trace and its antecedent. Thus, unlike the CED violations, which result from (S-structure) movement taking place from a position that is not properly governed, it is the configuration that results from QR at LF moving the trace left by *wh*-movement that causes the violation of (84), not the *wh*-movement itself.

The case of extracting from an NP that must undergo QR therefore differs from the case of extracting from an NP that appears in an un-governed position (e.g., [Spec, IP]) at S-structure:

- (98) \*Who were pictures seen by John?

The CED as formulated by Huang rules out (98) by stating that *wh*-movement cannot apply to the base configuration, rather than by appealing to LF movement in the form of QR.

Additionally, suggesting that Subjacency should apply at LF does not eliminate the need for a subjacency constraint at S-structure as well. To rule out (98), it is necessary that Subjacency apply at S-structure; otherwise, the sentence could conceivably be saved by LF lowering of the subject into [Spec, VP]. Thus, LF movement can *create* a Subjacency violation, but it cannot *save* a Subjacency violation that already existed at S-structure.

The advantage of this explanation is that it accounts for a rather broad range of phenomena that share the property of being induced by presuppositionality. Not only does it explain both the German and English facts discussed above, but it also includes the contrasts in (7)–(9). The NPs that have strong determiners, or are indicated as “specific” by the combination *a certain*, must move (by QR) at LF to be incorporated into a restrictive clause. This movement rules out any possibility of S-structure extraction out of the NP, since such movement would result in the NP (and the trace within) being raised by the subsequent obligatory application of QR to a position that brings about a violation of Subjacency.

The possibility of extraction in the case of certain NPs with “definite” determiners is also explained by this account. An example of such a case is the indefinite use of *this*:

- (99) a. There's this cow that I see every morning.
- b. There's this cow that Egbert is painting this wonderful picture of.

These NPs are nonquantificational, as shown by their ability to appear in *there*-sentences such as (99a). Therefore, NPs with the indefinite *this* do not need to undergo QR. Thus, this sort of demonstrative NP will remain in situ at LF, the NP-internal trace will not be moved to a position that will yield a Subjacency violation, and extractions such as (99b) are perfectly grammatical.

Of course, referential NPs such as names, pronouns, and demonstratives are presuppositional as well, and they behave as such in *there*-insertion constructions. It is not supposed here that these NPs undergo QR, but since they NPs do not take complements from which extraction could occur, the nonapplicability of the QR-based account of extraction is irrelevant.

Additionally, this conception of Subjacency may also explain the facts noted in chapter 3 concerning extraposition. Recall that extraposition is less acceptable from NPs with strong determiners:

- (100) a. A review appeared of *The Joy of Cooking*.
- b. Many reviews appeared of *The Joy of Cooking*.
- c. \*Every review appeared of *The Joy of Cooking*.
- d. \*Most reviews appeared of *The Joy of Cooking*.

Assuming (contra Baltin 1987) that extraposition leaves a trace, adjunction to IP of the quantificational NPs in (100c) and (100d) will leave the trace of extraposition in a position where it is separated from its

antecedent by two intervening barriers. “Weak” NPs, which do not need to undergo QR, will not bring about this problem, leading to the contrast between the two types of NPs seen in (100).<sup>32</sup>

A final point in favor of the presupposition-based analysis concerns the nature of the judgments themselves. As I noted above, the data discussed in this chapter are notoriously vague. The judgments concerning extraction from NPs are extremely uncertain and can easily be “pushed” in one direction or the other. Given the role that presence or absence of presuppositionality plays in determining the acceptability of extraction, this is not surprising. The vagueness in judgments arises from the fact that the acceptability of extraction hinges on the availability of the existential closure interpretation for the NP in question. Distinguishing this reading from the presuppositional (“specific”) existential reading can be very difficult, leading to the difficulty in making sharp distinctions in grammaticality. The most problematic case is the class of verbs of destruction, in which the existential closure reading of the indefinite is possible only in habitual contexts, and not in neutral episodic sentences.

Contrary to what is empirically observed, the analyses of Bowers (1988) and Horn (1974) predict fairly sharp judgments. Bowers's account predicts that all weak NPs should permit extraction, whereas no strong NPs should. Horn's account predicts that all verbs that show evidence of structural ambiguity with “picture” noun objects should permit extraction, whereas those that do not show ambiguity should not. Both of these ways of accounting for the extraction facts are too rigid. They do not account for the fact that the judgments are not always clear, and that they are frequently context dependent. According to the explanation I have given for these phenomena (following the lead of Erteschik-Shir (1973) in acknowledging the importance of presupposition), this vagueness is actually an expected characteristic of the judgments, rather than an inconvenient complication.

#### 4.6 Concluding Remarks

To sum up the results of this chapter and the monograph as a whole: I initially proposed a procedure (the Mapping Hypothesis, or tree-splitting algorithm) by which logical representations of the sort developed by Kamp (1981) and Heim (1982) can be derived from syntactic representations of sentence. This procedure involves a simple division of a syntactic tree into two parts, corresponding to the restrictive clause and nuclear scope of the Kamp-Heim representations.

More detailed investigation of the workings of the procedure and also the possible interpretations of NPs (drawing on the work of Milsark (1974)) led to a more complex classification of indefinites than that originally proposed by Kamp and Heim. Indefinites were found to be distinguished by two features: whether or not they have quantificational force, and whether or not they obligatorily undergo QR. The Mapping Hypothesis was given further support by an asymmetry in the semantic and syntactic properties of the subjects of two particular types of predicates, the stage- and individual-level predicates of Carlson (1977b).

I also examined a number of transitive verb types and found that verbs vary in which interpretations (e.g., either a QR reading or a non-QR reading) they prefer (or even allow) for indefinite objects. This variation was linked to the possibility of extracting from “picture” noun objects of various kinds occurring with the different types of verbs. An incompatibility was found between *wh*-movement and QR, in the sense that extraction is not possible out of an NP that must undergo QR. Comparison of German (which has an S-structure scrambling rule that has a semantic effect similar to that of LF QR in English) and English revealed that this constraint holds regardless of the ordering of *wh*-movement and the “QR” rule. This observation led to a formulation of Subjacency that allows a level-independent account of the extraction facts.

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## Notes

### Chapter 1

1. Pollock (1989) expands upon this structure, positing additional inflectional heads, rather than a single unitary Infl(ection) node. Although the semantics of these additional syntactic positions remains to be explicated, in this work I have not taken advantage of the possibilities opened up by this approach, leaving it as a matter for further research.
2. I will not present detailed argumentation for the existence of the level of LF, although the issue has been the subject of a fair amount of consideration in recent works. See May 1985, 1988, Williams 1977, 1986, 1988, and Pesetsky 1987 for some representative discussion.
3. I include Kamp’s notation for expository purposes only. Though it may be intuitively easier to grasp than the more conventional notation, it is for all other purposes equivalent.
4. If the restrictive clause is not satisfied by the number of variable assignments required by the quantifier, then the truth-conditions of the sentence may be either false or undefined. Since nothing discussed here hinges on the choice between these two options, I will for convenience refer to the truth-value in these cases as undefined.
5. Restricted quantifier analysis does not originate with Kamp and Heim. An early formulation of restricted quantification is found in Hailperin 1957, with some early natural language applications in Bacon 1965 and Hausser 1973.
- It is also worth noting here that one major advantage of using restricted quantification for analyzing natural language quantification is that it permits the representation of quantifiers such as *most* and *few*, which are inherently relational (e.g., in the sentence *Most pigs oink*, the number of things that are pigs is compared with the size of the subset of pigs that oink, giving a proportion), and cannot be modeled with standard first-order predicate calculus and truth-functional connectives (Barwise and Cooper 1981).
6. Not all accounts of extraction islands are derivational. There are a number of researchers who argue for a representational approach to island effects, such

that have morphological case marking are interpreted generically is not surprising, since generics are also associated with restrictive clause formation. This fact (as well as the Dutch bare plural facts discussed in the previous section) may lead one to think that the association between presuppositionality and accusative case marking is not correct, since generics seem nonpresuppositional. In chapter 4 I discuss the issue of presuppositionality and generics and conclude (following an argument by Angelika Kratzer) that generics can indeed be regarded as presuppositional. Therefore, I will continue to regard the notion of presuppositionality as the correct generalization in these cases.

39. Another possible approach would be to regard the casemarker itself as being a strong determiner (D) (which would trigger QR) within the DP theory of NP syntax developed by Abney (1987). This is not so unreasonable as it might first seem, since Turkish is essentially a head-final language, and D, as head of the DP, could plausibly appear phrase-finally in the NP. See Tateishi 1989 for the suggestion that morphological case markers head DPs in Japanese.

40. Ludlow and Neale also note that it is not true that universally quantified NPs cannot escape “scope islands” induced by propositional attitude verbs because the reading where the NP *every Gila monster in New Mexico* takes narrow scope with respect to *a man in Arizona*, but wide scope with respect to *thinks*, is possible:

- (i) a. A man in Arizona thinks that every Gila monster in New Mexico won the lottery.
- b.  $\exists_x [x \text{ is a man}] \text{ Every}_y [y \text{ is a Gila monster}] x \text{ thinks that } y \text{ won the lottery}$

## Chapter 4

1. The discussion here is based on a February, 1990 class handout of Angelika Kratzer's entitled “Some Comments on Enç,” which is actually an overview of the various properties of different kinds of indefinites and their interpretations inspired by an early version of Enç 1991.

2. Generic sentences like those in (4), as well as definitional sentences like *A unicorn has one horn* are viewed as a problem for the presuppositional approach to determiner semantics by a number of researchers, including Lappin and Reinhart (1988). They do not consider the possibility of exploiting a modal approach to genericity, however.

3. I have no explanation for why there is an increase in acceptability with the plural definite in (8e).

4. Hestvik (1990) claims that Fiengo and Higginbotham's specificity distinction is actually due to the fact that specific NPs are complete functional complexes (CFCs; see also Chomsky 1986b), whereas nonspecific NPs are not. Hestvik makes this claim in a discussion of binding principles, in which he suggests that the binding domain for  $x$  is the minimal CFC containing  $x$ . In support of this, he notes the following contrast:

- (i) a. \*John<sub>i</sub> saw a picture of him<sub>i</sub>.
- b. John<sub>i</sub> saw those pictures of him<sub>i</sub>.

I feel that the contrast is weak (I'm inclined to feel that both are OK); but if there is a contrast, the strong/weak split falls along the same lines:

- (ii) a. ?John<sub>i</sub> saw many pictures of him<sub>i</sub>.
- b. ?John<sub>i</sub> saw three pictures of him<sub>i</sub>.
- c. John<sub>i</sub> saw every picture of him<sub>i</sub>.
- d. John<sub>i</sub> saw each picture of him<sub>i</sub>.
- 5. The idea that in nominal constructions there is a higher level of structure (the DP) that takes NP as its complement is due to Brame (1981). This idea is also utilized by Hellan (1986) and is developed most thoroughly by Abney (1987). The DP Hypothesis is also utilized to distinguish strong and weak NPs by Hudson (1989), De Hoop (1990), and Zwarts (1990). Additionally, Stowell (1989) distinguishes between DPs and NPs as referential (DP) and nonreferential (NP). The idea of distinguishing two determiner positions for strong and weak determiners actually predates the DP Hypothesis. Jackendoff (1977) distinguishes the two classes of determiners in terms of being attached to the NP at different bar levels, and this idea is also taken up by Rothstein (1988).
- 6. The idea that quantifiers might be grouped into categorially distinct classes is not new. The issue is discussed in Jespersen 1927. More recent discussion can be found in Selkirk 1970, 1977 and Jackendoff 1968, 1977. Carlson (1978) gives a historical account that shows that the quantifiers in Old English all functioned as adjectives, and that the strong quantifiers have since undergone a category change.
- 7. The determiner interpretation of weak quantifiers would have to be forced in the case of partitives, since as I noted in chapter 3, this is one case where the presuppositional reading of weak determiners is obligatory:

  - (i) a. \*?Who did you see many of the pictures of?
  - b. \*?Who did you read three of the books about?
  - c. \*?Who did you paint several of the pictures of?

Bowers does not discuss the structure of partitives (see Selkirk 1970 and 1977 for some discussion, as well as Jackendoff 1977), and it is conceivable that the facts in (i) could be accommodated by his analysis in some way.

- 8. An empirical point that might be used to support a categorial ambiguity for weak determiners like *many* is the fact that in German *viel* ('many') can show both weak and strong inflection (e.g., *viel Wein* vs. *vieler Wein*). See Olsen 1989 for an analysis of strong and weak adjective inflection in German in the context of the DP Hypothesis.
- 9. Horn gives three arguments for his Structural Ambiguity Hypothesis (SAH). The first involves passive formation. In the case of *write*, a sentence with a “picture” NP object actually has two passives:

  - (i) a. Oscar wrote a book about manatees.
  - b. A book about manatees was written by Oscar.
  - c. A book was written about manatees by Oscar.

In (ib) the entire NP *a book about manatees* has been fronted. In (ic) only the NP portion *a book* has moved. Assuming that (i) is structurally ambiguous, parallel to (17), the passive in (ib) can be derived from the PP-within-NP structure in (17b),

and the sentence in (ic) can be derived from the PP-attached-to-VP structure in (17c).

In the case of *destroy*, however, only one passive form is possible:

- (ii) a. Oscar destroyed a book about manatees.
- b. A book about manatees was destroyed by Oscar.
- c. \*A book was destroyed about manatees by Oscar.

If the two passive forms are derived as described above, the ungrammaticality of (iic) suggests that the PP-attached-to-VP structure is not available in the case of *destroy*.

The second argument involves pronominalization. Horn notes that it is generally not possible to pronominalize the head noun in an NP containing modifiers:

- (iii) \*I saw the large it yesterday.

The head noun of "picture" noun objects of verbs like *destroy* and *attack* also cannot be in the form of a definite pronoun:

- (iv) a. \*Oscar destroyed it about manatees.
- b. \*Olga attacked it about extraction constraints..

The sentences in (iv) contrast with parallel sentences with verbs like *write* and *paint*:

- (v) a. Oscar wrote it about manatees.
- b. Olga painted it of Millard Fillmore.

The sentences in (v) are clearly much more acceptable than those in (iv). This contrast is explained by the SAH. The verb *write* allows the structure in which the NP object and the PP are separate constituents under the VP. Thus, the pronoun is simply functioning as the NP, not a head noun. The verbs *destroy* and *attack*, on the other hand, allow only one structure. In (iv) the PP-attached-to-VP structure is not available; the PP can only be *within* the NP.

The third argument involves quantifier scope. Horn notes that quantifiers in "picture" nouns like the following are ambiguous:

- (vi) Oscar wrote his first five books about Millard Fillmore in 1988.

On one reading the scope of the quantifier contains *books*, and on the other reading it contains *books about Millard Fillmore*. Thus, on the first reading it just happens that the first five books Oscar ever wrote were about Millard Fillmore, whereas on the second reading we are just talking about the first five books about Millard Fillmore that Oscar wrote (which could in fact have been his twelfth through sixteenth books).

When a quantifier such as *five* occurs in a corresponding sentence with *destroy*, it is unambiguous:

- (vii) Oscar destroyed his first five books about Millard Fillmore.

Here the scope of the quantifier must be *books about Millard Fillmore*.

Horn claims that the ambiguity of (vi) results from the SAH. If the scope of the quantifier is the entire NP in which it is contained, then the two structures in (18) and (19) provide the correct scope distinction. The structure in (18) corresponds to the 'five books about Millard Fillmore' reading, and the structure in (19) corresponds to the 'five books' reading. The sentence in (vii) is not structurally

ambiguous; it has only the structure in (18). Therefore, the quantifier in (vii) has only the 'five books about Millard Fillmore' reading.

Unfortunately, Horn's tests for structural ambiguity do not match perfectly with all the possible extraction cases. (Some of the problems with Horn's analysis are also noted in Bach and Horn 1976, Rodman 1977, and Erteschik-Shir 1981). Whereas in the case of verbs of creation such as *write* and *paint* the correlation holds between extraction and the other supposed indicators of structural ambiguity, for other extraction-permitting verbs the correlation fails. Extraction is allowed from objects of *see*, *read*, and *play*, but the results of the passivization and pronominalization tests are less acceptable:

- (viii) a. Oscar read a book about manatees.
- b. What did Oscar read a book about?
- c. A book about manatees was read by Oscar.
- d. \*A book was read about manatees by Oscar.
- e. \*Oscar read it about manatees.
- (ix) a. Olga saw a painting of Otto Jespersen.
- b. Who did Olga see a painting of?
- c. A painting of Otto Jespersen was seen by Olga.
- d. \*A painting was seen of Otto Jespersen by Olga.
- e. \*Olga saw it of Otto Jespersen.
- (x) a. Otto played a sonata by Mozart.
- b. Who did Otto play a sonata by?
- c. A sonata by Mozart was played by Otto.
- d. \*A sonata was played by Mozart by Otto.
- e. \*Otto played it by Mozart.

The scope test also fails to accurately predict which verbs will permit extraction. Whereas extraction-permitting verbs such as *paint* and *write* do produce ambiguity with quantifiers, a number of extraction-permitting verbs do not:

- (xi) a. Oscar read his first five books about Millard Fillmore in 1988.
- b. Olga learned her first five poems by Goethe in 1988.
- c. Otto played his first five sonatas by Mozart in 1988.
- d. Oscar recited his first five sonnets by Petrarch.
- e. Olga saw her first five paintings of Hildegard von Bingen.
- f. Otto heard his first five operas by Wagner.
- (xii) a. Who did Oscar read a book about?
- b. Who did Olga learn a poem by?
- c. Who did Otto play a sonata by?
- d. Who did Oscar recite a sonnet by?
- e. Who did Olga see a painting of?
- f. Who did Otto hear an opera by?

Although all the verbs in (xi) permit extraction (as shown by (xii)), the sentences are all unambiguous, with the quantifier taking the wider scope (*five books about Millard Fillmore*, *five poems by Goethe*, etc.). The narrower scope reading is either very weak (as in the case of *read* in (xi)) or nonexistent. Once again, there is a mismatch between Horn's test and the property of permitting extraction.

Thus, Horn's tests plus extractability classify verbs into *three* groups roughly as shown in (xiii).

(xiii) *Verb classes and properties*

	Verb type		
	Creation	Using	Destruction
Horn's tests	yes	no	no
Extractability	yes	yes	no

10. In discussing these cases, Erteschik-Shir relies on what she calls “dominance tests” to show that in the cases where extraction is less good the NP involved is in fact presuppositional (a sentence element is dominant if it is not presupposed). The examples in (i) and (ii) illustrate this contrast with the two sentences in (23).

- (i) Bill said, “John saw a picture of the present king of France.”  
It's a lie—there is no King of France.
- (ii) Bill said, “John destroyed a picture of the present king of France.”  
\*It's a lie—there is no king of France.

The principle behind the test shown in (i) and (ii) is that when existence is merely asserted rather than presupposed, the assertion can be refuted. Thus, the response to Bill's statement in (i) is an appropriate continuation. However, if existence is presupposed, a refutation is claimed to be inappropriate, and this is what is seen in (ii) (the judgment is Erteschik-Shir's). In (ii) not only is the existence of the picture presupposed, but the existence of the subject of the picture is presupposed as well.

Although I agree with Erteschik-Shir's judgments regarding extraction in (23)–(24), it is not clear to me that the “dominance test” in (ii) genuinely sheds light on the issue of determining the factors that influence the acceptability of extraction from NP, nor do I agree with her judgment that there is a contrast between the continuations in (i) and (ii).

11. There is some evidence that scrambling may not be a unitary phenomenon in the Germanic languages—that it may involve not only adjunction to IP, but also a more local rule of object shift (see Holmberg 1986 and Webelhuth 1989). I examine only the cases that are clearly of the IP-adjunction type.

12. Just as in the case of diagnosing the position of subjects in German that I discussed in chapter 2, the sentential adverb actually acts as only a partial diagnostic. Although elements to the left of the adverb are unambiguously VP-external, elements to the right of the adverb can receive a VP-external interpretation under special intonational circumstances. Although there is clearly a relationship between focus and the presence or absence of presupposition accommodation, a comprehensive discussion of these facts is beyond the scope of this monograph. See Partee, to appear, and Krifka, to appear, for some discussion of the relationship between focus and the derivation of tripartite logical representations. In the discussion that follows I will assume the most neutral intonation, and regard the elements to the right of the adverbs as VP-internal.

13. Scrambling seems to have a similar semantic result in a number of other languages including Dutch (Kerstens 1975, De Haan 1979, Verhagen 1986) and

Hindi (Mahajan 1990). In Japanese, however, S-structure scrambling does not seem to have this semantic effect (Saito 1989, Tateishi 1991).

14. Moltmann (1991) gives an account of the semantic effects of scrambling that seems to require that all quantificational NPs scramble out of the VP. Her analysis is based on Safir's (1985) case-marking account of the so-called definiteness effect in *there*-insertion sentences, in which indefinite subject NPs can receive case within VP but definite subject NPs cannot. Moltmann extends this approach to all NPs, requiring definite, or quantificational, NPs to move out of VP to receive case. It is not clear to me how this rather strong claim (that all quantificational NPs must move out of VP at S-structure) can be justified, since there are many cases of strong object NPs in an apparently VP-internal position.

15. Another way of approaching this problem would be to use a form of Pesetsky's (1989) Earliness Principle, which states that certain conditions have to be satisfied “as early as possible” in the derivation (the Earliness Principle is a variation on the Principle of Economy formulated by Chomsky (1991)). In this case, variable binding by an operator would have to be achieved as early as possible in the derivation. German, allowing scrambling, could satisfy this constraint with respect to quantificational NPs at S-structure. Since English has no S-structure scrambling rule, QR must take place at the later level of LF. One problem with this approach is that it does not explain the optionality of scrambling in German. It is not true that the condition on variable binding *must* be satisfied at S-structure in German, merely that it *can* be satisfied at an earlier level than in English.

16. The relevance of “repeatability” of action to the possibility of variable binding is also noted in De Hoop and De Swart 1990 and De Swart 1991.

17. I have taken care to limit myself to those experiencer predicates that permit *only* an individual-level interpretation, avoiding verbs such as *enjoy*, which seem to also permit a stage-level interpretation roughly paraphrasable as ‘to partake of with pleasure’.

18. A couple of my informants find (53a) and (53b) to be slightly better than the rest, but still within the “unacceptable” range of the grammaticality scale.

19. In the extraction examples in (55b) and (56b) (which involve fronting of the inflected verb due to the verb-second constraint) I use the compound past rather than the simple past that would be parallel to the unextracted cases in order to make the relative positions of the object NPs clearer.

20. It should be noted that there is a construction in German that involves “long-distance scrambling” (i.e., non-clause-bound scrambling) in which object NPs can scramble out of infinitival complements of a limited class of control verbs. This construction has also been called the “third construction” (see Den Besten et al. 1988, Den Besten and Rutten 1989, and Bayer and Kornfilt 1991). Interestingly, this construction does not exhibit the constraint on extraction shown in (56) and (58) (example from Bayer and Kornfilt):

- (i) Was<sub>i</sub> hat Hilda [t<sub>i</sub> für einem Kind]<sub>j</sub> vergessen [PRO t<sub>j</sub> die Zebras zu zeigen]?  
what has Hilda for a child forgotten the zebras to show  
‘What kind of child has Hilda forgotten to show the zebras?’

I will not deal with the properties of this construction here, but will simply regard it as being substantively different from the cases of clause-bound scrambling that I am considering.

21. The sentence is grammatical on a reading where the verb *schätzen* ‘appreciate’ is given a meaning similar to that of *enjoy* in a sentence such as *Every morning I sit and enjoy a cup of tea*. In this context the verb has a meaning closer to ‘consume—or in the case of operas, listen to—with pleasure’, and may thus fall into another category of verb, closer to that of *read* in its semantic properties.

22. A number of questions remain. For example, this account does not explain the fact that generic indefinite subjects also can freely appear in the weak crossover configuration, as noted by Postal (1970) and Wasow (1979):

- (i) If  $he_i$  has an unruly herd of sheep, a farmer<sub>i</sub> should acquire a border collie.

This is also left unexplained by Fodor and Sag’s analysis of specific indefinites, however.

23. There is another class of verbs that is somewhat problematic. These are the verbs like *type* and *copyedit*. As observed by Erteschik-Shir (1973), these verbs are also somewhat resistant to extraction from their object NPs.

- (i) a. \*Who did you copyedit a book by?
- b. \*What did you type a book about?
- c. ?What did you print an article about?
- d. \*What did you revise a novel about?

Here again the problematic examples are given in an episodic tense. The judgments in (i) hold for very neutral contexts, but in a context where typing and copyediting activities are habitual, such as in a generic sentence with *usually*, the extraction improves (although *revise* is for presumably pragmatic reasons resistant to a generic interpretation).

- (ii) a. Who do you usually copyedit books by?
- b. What do you usually type books about?
- c. What do you usually print articles about?
- d. ??What do you usually revise novels about?

A habitual reading can also be brought about by a context in which the primary goal of the action is to create a *typed* or *copyedited* manuscript. For example, if the subject of the sentence is a secretary, an editor, or some other relevant professional agent, extraction is also less bad than in the neutral contexts in (i):

- (iii) a. What did the secretary type a book about?
- b. Who did the editor copyedit an article by?
- c. What did the *Hampshire Gazette* print an article about?
- d. ?What did the ghostwriter rewrite a book about?

In (iii) the preexistence of the books and articles is not relevant because the focus is on the production of typed, copyedited, printed, and rewritten versions, none of which are preexisting.

24. This classification of verbs suggests that there should be some degrading of grammaticality in generic contexts if a verb that selects the quantificational reading

is conjoined with a verb that selects the existential reading. This does seem to be the case:

- (i) a. ?Hector always bakes and hates cakes.
- b. ?Horace always writes and despises novels.
- c. Hector always bakes and serves cakes.
- d. Horace always writes and reads novels.

The contrast is subtle, but there does seem to be a difference between an existential-selecting verb conjoined with an experiencer verb (which does not allow the existential reading) and the same verb conjoined with a verb of using (which does allow the existential reading).

25. The constraint in (85) has the appearance of a constraint on representations rather than on movement, but Chomsky actually remains uncommitted on this issue (Chomsky 1986a: 93, n. 25).

26. Bayer and Kornfilt (1991) attribute the ungrammaticality in the scrambled case to a violation of the Principle of Unambiguous Binding of Müller and Sternefeld (1990):

(i) *Principle of Unambiguous Binding*

A variable cannot be simultaneously bound by an operator position and a scrambling position.

A closer examination of the structure involved reveals that this cannot be the case, since the *wh*-phrase and the scrambled NP bind distinct (i.e., noncoindexed) traces:

- (ii) \*Was<sub>i</sub> hat [IP Otto [IP[NP t<sub>j</sub> für Romane]<sub>j</sub> immer t<sub>j</sub> gelesen]]?
- what has   Otto           for novels   always read

Thus, there is no “simultaneous binding” taking place here. I do not rule out the possibility that the ungrammaticality might result from some sort of “improper movement” from a scrambling position to the [Spec, CP] position (see Müller and Sternefeld 1990), but since the typology of scrambling positions is far from clear (the literature is quite inconclusive), I will leave this possibility for further research.

27. Browning notes that an adjoined segment must be prevented from triggering inheritance in another category if adjunction is to be able to provide “escape hatches,” such as in the case of adjoining to VP in order to void the barrierhood of VP. It is not clear that adjunction to VP is actually necessary in these cases (see, for example, the discussion in Müller and Sternefeld 1990), so I will remain neutral on the issue of whether adjoined segments can trigger barrierhood of a segment of another category.

28. Proposing that Subjacency can apply at LF runs directly counter to proposals such as that of Lasnik and Saito (1984) in which intermediate traces may delete at LF, since if these traces deleted, they would yield Subjacency violations. One way around this would be to have the LF constraint apply only to those links of the chain created by LF movement operations.

29. Additional evidence for the necessity of an order-independent constraint that constrains LF *wh*-movement as well comes from Japanese. As pointed out to me by Koichi Tateishi, in Japanese the quantificational reading of an indefinite object is ruled out in extraction environments even though both QR and *wh*-movement

occur at LF. In a generic declarative sentence both the existential and quantificational readings of the object are possible:

- (i) Jon-wa kanarazu Chomusukii-no hon-o yomu.  
 John without-fail Chomsky-GEN book-ACC read  
 'John always reads Chomsky's books.'

In a question, only the existential reading is possible:

- (ii) Jon-wa kanarazu dare-no hon-o yomu-ka-ne?  
 John without-fail who book read-Q  
 'Who does John always read a book by?'

Thus, the necessary constraint cannot be a constraint on S-structure movement of a *wh*-phrase.

30. This raises the question of whether other island effects (such as *wh*-islands) could also be explained in terms of a syntactic operation of presupposition accommodation. Recent work by Comorovski (1989) and Berman (1991) suggests that they might be. I leave the explanation of *wh*-islands and other island effects as a matter for future research.

31. As pointed out to me by David Pesetsky, it is possible to state the needed restriction as a constraint on movement rather than representations. If positions are characterized as being either "blocking" or "nonblocking," the desired result could be attained by a filter prohibiting nonblocking categories (e.g. L-marked categories) from moving to a blocking position:

- (i) \*[−blocking] in a [+blocking] position.

At first blush, it appears that the movement filter approach is empirically equivalent to the constraint on traces approach. There is one situation that could distinguish the two, however. If an L-marked category could move to a [+blocking] position, and then move back to its original [−blocking] position (by some kind of yo-yo-like movement process), it would violate the filter in (i), but not necessarily a representational subjacency constraint. I do not know of any language with the necessary sort of construction for making the distinction, however. Therefore, I will stick with the simpler representational approach.

32. Guérón (1981) explains the facts in (100) by means of her Complete Constituent Constraint (p. 86), which states that a complete constituent (a constituent governed by a logical operator) cannot contain a free variable.

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